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**Public Finance  
and  
National Income**

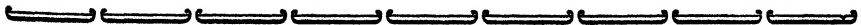


# Public Finance and National Income

By

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To the Memory of  
LOUIS WARREN SOMERS





## Preface

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This book represents an attempt to integrate into the subject matter of "Public Finance" some of the major developments in government policy, economic theory, and business-cycle analysis which have taken place during the last twenty years. It tries to cover the traditional ground—expenditures, taxation, borrowing, state and local finance, fiscal policy—but without emphasizing the purely administrative aspects. This thought underlies the entire book, from the first chapter on Importance of Government Finance to the concluding chapter on Fiscal Policy and Income Fluctuations. An example of the departure from the usual emphasis is in the treatment of property taxes. No attempt is made to provide a comprehensive treatment of the difficulties involved in the administration of the property tax. The relative importance of property taxes in the general tax picture is indicated in Chapter 7, a discussion of incidence and economic effects is contained in Chapter 15, and the significance of the property tax in the financial picture of state and local governments is considered in Chapters 20 and 21.

An effort is made to provide enough factual material to enable the reader to obtain an adequate perspective. Chapter 2 on Government Finance in the National Income considers the governmental segment of national income statistics. The first chapters in each of the parts on expenditures, taxation, and borrowing present statistical data. These chapters are Chapter 3 on Trends in Government Expenditures, Chapter 7 on Trends in Taxation, and Chapter 17 on Trends in Government Borrowing. The statistical data on state and local finance are given in Chapters 20 and 21. Descriptive material on various taxes is contained in the respective chapters.

Numerous gaps and inadequacies have appeared during the course of this attempt to write a comprehensive treatise on Public Finance from a modern point of view. As a result, exploratory work has been necessary on several topics. This is true particularly of Chapter 4 on Government Expenditures and Consumer Spending and Chapter 5 on

## PREFACE

Government Expenditures and Business Investment. Some of the material on the shifting of the tax on various types of income, including capital gains, is in the same category. The most extensive attempt along these lines is perhaps made in Chapter 23 on The Fiscal Impact on the National Income and Chapter 24 on Balanced and Unbalanced Budgets. Needless to say, numerous gaps and inadequacies still remain and the remedial attempts made in this book may have fallen far short of the mark. For such an old subject, "Public Finance" is still surprisingly young.

My greatest debt for a training in Public Finance proper is to Simeon E. Leland, formerly of the University of Chicago, with whom I have had the privilege of a close association both as a student and as a research assistant. His influence may be seen on every page of this book. For an invaluable introduction to Public Finance and, incidentally, to the subject of National Income, I am also deeply indebted to Donald C. MacGregor of the University of Toronto. My debt to those whose influence I have felt as a result of courses in economic theory and business-cycle analysis is too great to acknowledge other than by name: Irene M. Biss, Vincent W. Bladen, V. F. Coe, and A. F. Wynne Plumptre at the University of Toronto; Howard S. Ellis, William Fellner, Robert A. Gordon, Oscar Lange, Abba P. Lerner, and Leo Rogin at the University of California; and Frank H. Knight and Jacob Viner at the University of Chicago. In a less formal association I have been greatly influenced by my former colleagues at the University of Michigan, particularly Arthur Smithies. I also am glad of an opportunity to acknowledge my debt to the Social Science Research Council which enabled me to spend some time in New York, Cambridge, and Washington a few years ago and consult, all too briefly, with Edward Chamberlin, J. M. Clark, John Dunlop, Gottfried Haberler, Alvin Hansen, Seymour Harris, Simon Kuznets, F. C. Mills, W. C. Mitchell, Paul Samuelson, and Joseph Schumpeter. I have also benefited greatly from numerous discussions with my colleagues at the University of Buffalo, particularly Ralph C. Epstein, Claude E. Puffer, and John D. Sumner.

I am indebted to Malcolm M. Davisson and Earl Rolph of the University of California, who read some of the early pages and encouraged me greatly in the completion of the work. I am also indebted to Fritz Machlup of Johns Hopkins University, who read a large part of the manuscript in an editorial capacity and made many valuable suggestions. I am similarly indebted to William Hamovitch of the University of Buffalo, who read the chapters on taxation, and to Richard Schmidt also of the University of Buffalo who read the entire manuscript and helped put it through

the final stages of preparing it for publication. None of these should be considered responsible for the deficiencies of this book.

I wish to acknowledge the contribution of my secretary, Miss Mildred Phillips, who typed the major portion of the manuscript and exercised an inordinate degree of care throughout.

The editors of the *American Economic Review*, the *National Tax Journal*, and the *Canadian Journal of Economics and Political Science* have kindly consented to the use of some material of mine which had previously been published by them. Chapter 2 includes a note which appeared in the June 1939 issue of the *American Economic Review* and excerpts from book reviews in the September 1943 and September 1944 issues. Chapter 8 includes a note which appeared in the December 1938 issue. Chapter 12 reproduces an article which appeared in the September 1948 issue of the *National Tax Journal*. Chapter 23 and part of Chapter 24 are derived from an article in the August 1942 issue of the *Canadian Journal of Economics and Political Science*, published by the University of Toronto Press.

The writing of various stages of this book has extended over quite a number of years, some of which were broken up by travel. My wife has aided me in the preparation of the manuscript during this period. If it were not for her invaluable assistance under trying conditions this book could not have been written.

HAROLD M. SOMERS

Buffalo, New York  
December, 1948



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## Part I

# The Place of Government Finance in the Modern Economy





## Importance of Government Finance

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Government finance may be visualized as a powerful force which strikes the economy with considerable impact and spreads its effects through every sphere of production and consumption. It is difficult to visualize the magnitude of this impact. One method of approaching the problem is to follow through the points of contact of each instrument of government finance. A detailed consideration of these points of contact is the subject of this book as a whole. The present chapter merely makes some preliminary suggestions, in non-technical language, as to the extent of the impact which the government has on the economy through its financial policies.

### Government Expenditures

When the government spends money, it may merely be making an outright gift of funds or it may actually be purchasing goods or services. The mere gift of funds occurs in the case of direct relief. The repercussions are extensive. The recipient of the direct relief has purchasing power with which to pay his rent and to buy goods and services for his own and his family's use. In this way the merchants and the landlords in the community will feel the effects of the government spending. Through the resulting orders that the merchants may place for goods, factories and wholesale establishments may experience some of the repercussions of these payments of direct relief. Employment throughout the country may therefore be affected. Imports of raw materials and even of finished products may be considered within the realm of possibility as repercussions of the type of government payment considered here. The people who receive the income thus created will spend part or all of it on goods and services, thereby stimulating employment and income in more and more sectors of the economy.

The extent to which these various repercussions have a net effect on

the economy will always depend on the alternatives. Just what would have happened if the government had not made the direct relief payments? Relatives and friends might have provided the funds with or without a curtailment of their own spending. Or private relief might have stepped in. The probability that the recipients of direct relief would themselves hoard any large part of the money received is too small to be worthy of further consideration. The willingness of the government to make relief payments may possibly have a slight tightening effect on the labor market but if the payments are moderate and made in time of general depression the consequences in this direction may be considered negligible—and for humanitarian reasons would be ignored in any case.

Where the government purchases the services of individuals, as in the case of hiring civil servants, the same type of effects will be felt as described above but the effect on the private labor market definitely cannot be ignored. Where the government is hiring stenographers, accountants, lawyers, or even economists, various private firms and institutions will feel the effects. Of course the extent to which they feel the effects will depend on the state of the labor market in the particular categories involved. In times when the labor supply is short it is not inconceivable that some firms or institutions will actually be placed in a very serious situation as a result of the government hiring policy. Certainly at a time when workers are hard to find for private employment the hiring of a large number of stenographers has the effect of increasing the difficulty of private hiring and of raising the wages or improving the conditions of work at some cost. The same type of influences may be considered in connection with any government hiring.

Even where there is a plentiful labor supply the government's effects cannot be ignored. The hiring of workers must have some supporting effect on the labor market and to some extent must raise the cost to employers. This is not to say that such improvement in labor conditions is undesirable, not even in good times. In some circumstances a timely support of the labor market may prevent a serious collapse of purchasing power. If the personnel hired were previously unemployed or likely to be unemployed, then their employment at a reasonable income would have the effect of increasing their purchases of goods and services. Then the subsequent effects would be similar to those outlined above in connection with relief payments.

Government purchases of goods will also have thoroughgoing effects on the economy. If the government is undertaking a large public housing program, or is building a bridge, or is purchasing armaments, the dual

effect of making available purchasing power to the contractors and employees, and of competing in the market for the purchase of materials and the hiring of workers, is felt simultaneously. The materials used for the government project might have been used for private projects. Whether they would have been so used, or even produced at all, would depend on the state of demand in private industry. The same is true of the labor used in the construction work or in the production of armaments. The demand for materials and finished products will involve a demand for transportation services. Moreover factories and distributors in various parts of the country will feel the effects. And so will employment in various parts of the country. Similarly other parts of the world may feel the repercussions of the government housing project, for instance, through the demand for materials and finished products.

There can be no doubt that there must be some degree or other of competition with private business for the same materials and labor. If there is a sharp depression in progress then, of course, that competition may be considered negligible in magnitude. It may be true, however, that a relatively small degree of competition with private enterprise under unfavorable conditions may have much more profound detrimental effects than a much larger degree may have under more prosperous conditions. This type of effect of government spending cannot be ignored but it should not be exaggerated. At the same time that the government acquires the goods and services in competition with private enterprise it does provide the funds which in turn constitute demand for the goods and services of private enterprise. The effects of this may be highly favorable, not only to private enterprise, in the narrow sense, but also to the general welfare.

The point mentioned at the end of the last paragraph must be emphasized in order to avoid the impression that the suggestions made above constitute a plausible argument against government spending. Under depression conditions the detrimental effects of government competition for goods and labor may be negligible compared with the favorable effects. These favorable effects involve creating a demand for the goods, stimulating private enterprise directly thereby, and also stimulating private enterprise indirectly through the demand for goods made possible by the spending of the funds which are put in the hands of private individuals and firms. The effects of the spending might be traced through quite a number of separate stages and in fact may become a very technical study. Quite apart from anything else the services supplied by the government may be so valuable that it might be desirable to continue

them regardless of the consequences in the directions indicated above. It must be remembered that this introduction to government expenditures is merely designed to familiarize the reader with the avenues that must be explored before it is possible to evaluate any particular expenditure project which is proposed in any specified set of circumstances.

### Taxation

Taxation and other revenues derived by the government have equally profound effects on the economy. The funds which are turned over to the government by individuals might have been spent on consumption or might have been used to buy securities. The funds taxed away from business firms might have been used to buy securities or might have been used to purchase goods and services and thereby stimulate employment. Once again the effects which this transfer of funds may have will depend on the alternatives. What would the individuals have done with the money turned over to the government? What would the business firms have done? There is no assurance that either one would have spent the money or even loaned it. There is considerable possibility under conditions of general deflation that the money would not have been used at all.

On the other hand, if prosperous conditions prevail, if business expectations are favorable, if consumer confidence is high, the chances are that the money which the government takes over in the form of taxation would have been used effectively by the individuals and the firms. Then the analysis becomes more complicated because it becomes a matter of comparing what is done with the tax money and what would have happened had the money been left in the hands of the taxpayers.

There is no denying the fact that for the individuals and firms who pay the taxes they do have important effects. They may affect individual decisions. They may readjust individual expenditures. They may alter savings programs. They may cause extravagance. They may promote economy. They may engender a feeling of distrust and disrespect for the government. They may, on the other hand, promote good citizenship and a keen interest in political events. Taxes which are currently in force at the federal, state, or local level have one or more of the effects mentioned above. Excise taxes imposed on one or a selected group of commodities cannot fail to cause a readjustment of consumer expenditures. Taxes such as the excess profits tax during the war certainly had the effect of promoting extravagance since practically all of the income above a certain level would have been transferred to the government. Retail

sales taxes make the consumer acutely aware of the government and awaken his interest in political affairs. These are just a few examples of the way in which taxes may impinge on the activities of individuals and of businessmen. Other factors are usually of greater importance in individual or business decisions but that does not reduce the importance of considering the effects of the taxes themselves.

At the very beginning, any attempt to carry on the analysis is stopped by a simple question: Who pays the taxes? Is it the person who remits the check to the government? In some cases, as in the employee's share of the social security tax, the employer merely acts as collecting agent for the Treasury Department. What of excise taxes, sales taxes, and income taxes, to mention only a few? What are the possibilities that a business firm which apparently pays these taxes can force someone else to pay them by raising prices or reducing wages, to refer only to some of the possibilities? It must be evident that the analysis of the effects of taxation is difficult and complicated and that taxes have profound, insidious, and subtle consequences.

### **Government Borrowing**

Whenever the government borrows money it may make it more difficult for private individuals and business firms to borrow money. Borrowing from the banks may be considered first. It is assumed that borrowing directly from the Federal Reserve Banks is excluded. It is well known that the lending capacity of the banks is limited by law and by sound principles of management. When the banks are far below their reserve limit the money they loan to the government may not influence in any way their lending activities to private individuals. But if the banks are close to their reserve limit it may well be that money that they use to buy government securities could have been used to make loans to individuals and business firms. In that respect the government borrowing activities would have a competitive effect. The government would be competing with private individuals and firms for the available supply of funds. This cannot fail to have a tendency to restrict credit. It would make funds more difficult to obtain or make the terms harder to meet. Under some conditions this may be desirable, as when there is the danger of a runaway inflation. Under other conditions it may be detrimental, namely where business firms are experiencing difficulties because they are not able to expand production sufficiently owing to an inability to obtain the funds. Similarly it may well be that the consumers' durable industries are running into difficulties because consumers are finding it hard to obtain funds.

Individuals may have bought the government bonds with money which they might have loaned to private individuals or firms. By the government making available attractive bonds, and by private savers buying such bonds, it may well be that individuals and firms who might have had a useful purpose for the funds—and might have affected the level of employment and income favorably—will find the terms difficult to meet and they may be discouraged from their purpose.

Corporations with idle funds may be induced to keep them idle because of the fact that the government provides a safe investment even though it is at a relatively low rate of interest. Thus the government bonds may have a dampening effect on private initiative. They may curtail the growth of the economy. There is always the temptation on the part of a corporation which has large liquid resources to become a rentier firm and live off the interest on investments instead of making expansions and seeking new sources of business profits. The availability of government securities cannot fail to encourage this attitude.

There are a great many details that would have to be investigated before any conclusion could be drawn regarding the effects of any particular level of government borrowing on individuals and business firms. For one thing there is a great variety of types of government securities and they do not necessarily compete in the same markets for money. The fact that the government is borrowing on thirty-day bills may have no effect whatever on an individual who is interested in obtaining a twenty-year loan.

Again it must be emphasized that the above considerations do not present a complete picture. The availability of government securities may provide a valuable stabilizing influence in the economy. Individuals are encouraged to save for their own security. Although excessive savings may have detrimental effects under some conditions, yet they may also have the effect of reducing the severity of any business fluctuations. The availability of accumulated savings tides over people who are temporarily unemployed. The curtailment of buying which might otherwise take place when they are unemployed is thus avoided. Unemployment insurance benefits operate in a similar fashion. Under inflationary conditions, moreover, a curtailment of consumer spending may be precisely what is needed.

The same considerations apply to business firms in a limited degree. If all of a firm's investments are in its own activities, a sharp reduction in such activities may result in bankruptcy. That is dangerous for the economy because bankruptcies are contagious. But if a firm has a backlog of investments in sound securities, such as United States Government

bonds, it will be able to tide over the period of temporary embarrassment. Thus it may avoid bankruptcy and the economy may thereby be less vulnerable to a recession.

### Government Lending

The Federal Government has set up numerous lending agencies and their effects tend to offset some of the restrictive consequences of government borrowing. But their influence is probably greater in a positive way than is government borrowing in a negative way. Some of the government lending agencies are prepared to make or underwrite loans of the ordinary business variety. For instance, in connection with housing it is possible to obtain a government guarantee of a mortgage. On the borrowing side, the government may issue twenty-year bonds and thereby absorb funds, but it is possible that the people who are willing to buy such bonds would not have been willing to risk their money in mortgages in any case. Similarly the government lending agencies may be willing to make loans for relatively risky business purposes. But the money that the government borrows might not have been available for risky investments at all.

Thus we cannot assume that government lending is an offset to government borrowing dollar for dollar. The detailed nature of the loans must be examined to see just what effects may be felt. Does the governmental lending agency provide funds which could have been obtained just as readily from banks and financial institutions? If so, the government is in direct competition with such institutions and is making no substantial net contribution to consumption or investment and is not materially improving the welfare of any individual. On the other hand, if the government is providing loans which would not otherwise be available from private sources then the government lending does have the effect of making more readily available funds for specific purposes and thereby of stimulating certain activities which might otherwise be dormant. Whether the loan involves underwriting a mortgage, financing the purchase of surplus war goods or a veteran's investment in business, it is impossible to resist the presumption that the government lending has had an important effect on individuals or firms in the economy. Employment might be stimulated, individual security might be promoted, services might be provided which would otherwise not exist, prices may be reduced because of increased competition. These are only a few of the many very important consequences of government lending. There can be no doubt that the analysis of these effects has become an integral part of the study of government finance.



### Debt Repayment

The repayment of government debt may seem to be a very mundane procedure and almost automatic. Nevertheless, it does have considerable influence in particular segments of the economy. It releases funds which can then go into the purchase of corporate bonds or other securities. It may stimulate expenditures on the part of the individuals or the firms which receive the money. The consequences of these possible actions are similar to those in connection with the activities described above. Many individuals may be affected by the debt repayment policies of the government even though only a few individuals may be the direct recipients of funds from the government.

The question of refunding may be considered here. Strictly speaking, refunding involves the issuance of bonds and therefore may be considered an aspect of borrowing. When the government refunds it frequently means that it has decided not to repay the debt. At times it refunds at a lower rate of interest.

This in itself may have a disrupting influence on the money and capital market. It may force the latter into lower interest rates as well. The resulting effects on the availability of funds and the value of assets might materially influence the willingness to make private investments. The effects of this may be traced through many parts of the economy and thus the government decision regarding refunding may have broad ramifications. Although there is no doubt that the government will redeem any particular bond issued, it can and does decide whether and to what extent it will repay the debt—that is, reduce the aggregate amount of debt outstanding—from year to year. In this way debt repayment is a part of government policy.

### Conclusions

A full appreciation of the importance of government finance requires a detailed study of the effects of each of the aspects of the government's financial operations. Some of the avenues of analysis are explored in this book. The foregoing sketch must be considered extremely tentative and merely suggestive of the type of consequences that are pertinent. But even on the basis of so sketchy an analysis, the fact that the government touches on the individuals' and business firms' life in a great many ways, both directly and indirectly, both immediately and ultimately, cannot be denied. If nothing else, the government may provide us with money which we may not otherwise have, or deprive us of money which we

would otherwise have. But more subtly than that the prices which we face when we buy goods and services, the interest rates which we pay when we want to borrow money, may show the effects of the government's financial operations. Moreover, the prices which the businessman can receive and the interest rates which the banks may be able to obtain will likewise be under the same influence.

A little reflection will be sufficient to convince the reader of the profound and permeating and almost frightening all-pervasive impact of government finance on individuals and business firms. They may not be aware of the government's influence. That is because some of the major effects may be felt through prices and interest rates rather than through actual government checks made out for specified amounts or government tax assessments for a given figure. Individuals and businessmen may think that they are making their decisions independently of fiscal policies but those policies set the conditions under which the decisions are made. And in some cases they directly influence and even determine the decisions. The government sets the stage and even writes some of the lines. Subject to the restrictions thus imposed the actors are perfectly free to do as they please!

## Government Finance in the National Income

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The necessities of war, the problems of postwar readjustment, and the prevailing concern with long-term prosperity have emphasized the importance of estimates of the national income. As an over-all indicator of economic activity national income has no equal, and its components cover every detailed aspect of the economic system. Data on national income have become the basis for newspaper headlines and the concern of the highest government officials. National income estimates have become every-day tools in framing government policies and gauging its effects. In the fullest sense, "national income" has become public property. The treatment of government finance in estimating national income has likewise become an important subject. The multi-headed task of balancing the budget, doing financial justice to veterans, reducing taxes, and paying off the debt while at the same time maintaining a high level of employment and income has begun to vie with the weather as a topic for street-corner conversation. An acquaintance with the concept of national income and of the relation between it and government finance has thus become essential to an understanding of current events.

The serious student of government finance must have a working knowledge of national income estimates and of the way in which government finance is taken into account in those estimates. This chapter is confined to the narrow task of providing just such a working knowledge. Later chapters deal with the broader subject of the effects which the government's financial operations have on the national income and its components.

### National Income

Wages, rent, interest, and profits are the traditional shares in the distribution of income. Add them up and you have the national income. It is as simple as that. Yet estimating the national income is an extremely complicated task. Wherein lies the difficulty?

GOVERNMENT FINANCE IN THE NATIONAL INCOME

The following is a typical break-down of the national income as the sum of the distributive shares. This will serve as a starting point in discussing some of the difficulties of income estimation, especially as they relate to fiscal activities.

*Table 1*  
NATIONAL INCOME BY DISTRIBUTIVE SHARES: 1948\*

(Billions)	
Compensation of employees.....	\$133.7
Wages and salaries.....	\$128.8
Private.....	\$111.1
Military.....	3.5
Government civilian.....	14.2
Supplements to wages and salaries.....	4.9
Proprietors' and rental income.....	50.6
Business and professional.....	25.0
Farm.....	18.0
Rental income of persons.....	7.6
Corporate profits and inventory valuation adjustment.....	26.2
Corporate profits before tax.....	31.4
Corporate-profits tax liability..	12.2
Corporate profits after tax....	19.2
Inventory valuation adjustment.....	-5.2
Net interest.....	4.6
<b>NATIONAL INCOME.....</b>	<b>\$215.1</b>

\* Estimated annual rate in first quarter after seasonal adjustment.  
Source: *Survey of Current Business*, August, 1948, p. 5 [with arbitrary rounding in some cases].

This seems straightforward enough. There are, however, many problems involved in obtaining the required data in proper form. The item "proprietors' and rental income," for instance, is really a hodgepodge of all the distributive shares. It includes elements of imputed wages, imputed rent, and imputed interest as well as profits because the proprietors may provide labor service, own the property, and provide the capital. This does not alter the total, but it makes impossible a division into the traditional shares of distribution. There are many problems of estimation which also introduce large percentage errors into the total and throw doubt on its meaning and usefulness. The profits figure depends on many arbitrary decisions regarding depreciation of fixed assets and valuation of inventory and other current assets, to mention only a few items. The wages item includes only wages actually accrued. Wages paid to a do-

mestic servant for services rendered will be included in the national income figure (if such data are available) but if the husband or wife performs the same services there would be no corresponding item in the national income. These are only a few of many possible examples of the difficulties of income estimation but they should be sufficient to indicate the complexity of the problem.

It is partly for reasons such as this that independent estimates of national income are made on a different basis, namely in terms of output. There is also some disadvantage in confining the national income to the sum of the distributive shares. Modern business-cycle theory runs in terms of broad commodity groupings like "consumption" or "investment" just as much as it does in terms of over-all amounts of wages, rent, interest, and profits.

#### NATIONAL INCOME = NET NATIONAL OUTPUT

The transition to commodity groups can be made readily because the aggregate of the distributive shares equals "the net value of all economic goods produced by the nation,"<sup>1</sup> which is the definition of national income. This equivalence of income and output requires a few words of explanation. An example may be useful.

Suppose that an automobile sells for \$1000. Part of this thousand dollars will go for, or has already gone for, wages, rent, and interest. Part of this amount will represent profits, taxes, and depreciation. Part will be paid to other sellers of materials, goods, and services. The amounts they receive may in turn be broken down into similar groups. Ultimately the selling value of all goods may be broken down into these categories. Thus the total of goods and services produced is equal to the total of the distributive shares plus depreciation and operating taxes. Net income measured by output is the total of goods and services produced, less the sum of depreciation (and similar allowances) and operating taxes.

The computation of the total goods and services, usually known as the "gross national product," is a subject in itself, and is discussed in a later section of this chapter. Before we lose sight of the national income we must consider two special problems which are encountered in the treatment of government finance: transfer payments and tax revenues.

#### GOVERNMENT TRANSFER PAYMENTS

How should government pensions, direct relief, and such payments be handled? Should they be considered part of the national income just

<sup>1</sup> Simon Kuznets, *National Income and Its Composition, 1919-1938*, Vol. I, p. 3. (New York: National Bureau of Economic Research, 1941).

as salaries to civil servants are? Income estimators do not treat these items like salaries but rather like mere transfers of income. They are not additions to income because they do not add to the current output of goods or services. Work relief payments are, however, considered part of income because they are felt to be payments for services rendered. Whether government or society receives full value for the funds expended does not enter into it. The money paid is considered the measure of the value of the services. There may be a considerable amount of "leaf-raking," but then is there nothing comparable to that in private employment?

### TAXES AS A SHARE IN DISTRIBUTION

Taxes involve a major theoretical question. It has been suggested that government be considered a factor of production with taxes as its share in distribution. The Physiocrats favored this treatment of taxes and Francis Walker and Stanley Jevons concurred. This view of taxes, it is claimed, would "make for a better appreciation of the part which government plays in the economic system and a more intelligent attitude toward taxes."<sup>2</sup>

Commendable as this aim may be, there are compelling reasons why the suggestion is impracticable.<sup>3</sup> The first of these has to do with the question: Why are taxes paid? Are they payments for government services in the same way as wages are payments for labor? Certainly not all taxes could validly be included as the share in distribution going to the government for services rendered in production. Tax revenues may serve purposes other than, and sometimes even opposed to, the promotion of production. To follow this line of reasoning, taxes would have to be divided according to their purpose or rather the purpose of the expenditures which they finance. Those taxes which are used to promote production (even indirectly, as through national defense) would have to be segregated from those which serve other purposes such as merely the redistribution of income.

This would be difficult for a number of reasons: most taxes serve more than one purpose, hence it would not be easy to find a solution through a segregation of individual taxes; governmental expenditures are financed only partly out of tax revenues, hence it would be incorrect to consider the

<sup>2</sup> Max J. Wasserman, "Taxes as a Share in Distribution," *American Economic Review*, Vol. 28, March, 1938, pp. 103-105.

<sup>3</sup> Harold M. Somers, "Taxes as a Share in Distribution," *American Economic Review*, Vol. 29, June, 1939, p. 349. The reader is also urged to refer to Carl Shoup, "The Government Sector," Chapter 7 in his *Principles of National Income Analysis* (New York: Houghton Mifflin Company, 1947).

purposes served by expenditures as a whole as an indication of the purposes served by taxes as a whole; and even redistributive taxation may have secondary effects favorable to production in so far as business expectations are improved. This may be through an increased propensity to consume<sup>4</sup> or through a diminished danger of political changes inimical to private enterprise.

Put in another way, to include business taxes as a share in distribution for services rendered by the government in production would require the assumption that such taxes are based on the benefit principle alone. Since ability-to-pay and administrative expediency are at least equally important in actual tax policy the major justification for treating taxes as a share in distribution disappears. Business taxes cannot be considered payments for productive services required and rendered in the same way as can wages, rent, and interest.

Taxes could still be listed as a separate share in distribution without double-counting by deducting it from the other shares. All taxes, whether direct or indirect, whose incidence is on wages, rent, interest, or profits could be removed from these shares and the aggregate of such taxes listed as a separate share. This would be easy enough in the case of direct taxes paid out of these income shares. Indirect taxes would be harder to allocate to each income share. There is no difficulty in obtaining or estimating the total tax figure to be used as the new share in distribution. The difficulty lies in deriving the correct figure net of taxes for each of the other income shares. Especially when tax shifting is taken into account does this become an imponderable problem. Since there would be no underlying reason for attempting the separation except to show taxes as a separate item, it does not seem worth while to distort the other shares on that account.

#### PERSONAL VS. BUSINESS TAXES<sup>5</sup>

For reasons such as the above, taxes are not listed as a separate share in distribution in most estimates of the national income.<sup>6</sup> Yet taxes are

<sup>4</sup> As suggested, for instance, in J. M. Keynes, *The General Theory of Employment, Interest and Money* (New York: Harcourt, Brace & Co., 1936), p. 373, and Nicholas Kaldor, "Stability and Full Employment," *Economic Journal*, Vol. 48, December, 1938, especially pp. 650, 657.

<sup>5</sup> This topic is discussed more fully in the writer's review of several works on national income in the *American Economic Review*, Vol. 33, September, 1943, pp. 677-84 and Vol. 34, September, 1944, pp. 578-82.

<sup>6</sup> See Josiah Stamp, *The National Capital and Other Statistical Studies*, "Methods Used in Different Countries for Estimating National Income," Chapter 3, pp. 73 ff. London: P. S. King & Son, Ltd., 1937.

involved in national income estimates whether listed as a separate share or not. Taxes are paid out of the income shares and the question arises whether to list these shares gross or net of taxes.

The practice of the Department of Commerce in estimating income in the United States calls for listing all shares gross of income taxes. Until recently there was one exception: corporate net income was listed after taxes. Plausible reasons were advanced for this differential treatment but the present practice of the Department of Commerce is to list corporate profits before income taxes just like other income shares.<sup>7</sup> In support of the earlier procedure it was claimed that business taxes should be deducted just like other business expenses as payments for services rendered in production. Taxes paid by individuals, however, were not deducted because, as Kuznets points out, it is assumed "that the value of government services to individuals is equivalent to the amount of taxes which they pay and should thus be treated in the same fashion as the individuals' expenses on food, clothing and shelter." He adds, "This assumption may not be strictly true; and the resulting free income or losses to individuals (flowing from the business system via the government) should be included in national income."<sup>8</sup>

In justifying his treatment of taxes as payments for government services, Kuznets suggests a novel theory of tax shifting: "Taxes are payments to governmental agencies for their services; and when they are notably higher than the cost of specific governmental services given in return, enterprises that produce goods like tobacco, liquor, and gasoline include them in the price of the goods, and their net income is usually not affected."<sup>9</sup> Kuznets makes the criterion of shiftability whether the tax is higher than the cost of specific governmental services given in return. This is an unacceptable oversimplification of the shifting process—at least in the light of modern tax shifting theory which relies so heavily on degree of competition, elasticity of demand, and other factors, as indicated in a later chapter of this book.

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<sup>7</sup> For the earlier practice see Simon Kuznets, "National Income," *Encyclopaedia of the Social Sciences*, Vol. XI (New York: The Macmillan Company, 1933), pp. 205–24. Reprinted in *Readings in the Theory of Income Distribution* (Philadelphia: The Blakiston Company, 1946). See esp. p. 15. For the present practice see *National Income and Product Statistics of the United States, 1929–46*. Supplement to *Survey of Current Business*, July, 1947.

<sup>8</sup> Simon Kuznets, *loc. cit.*

<sup>9</sup> Kuznets, *National Income and Its Composition, 1919–1938* (New York: National Bureau of Economic Research, 1941), Vol. II, p. 426.



### EXTRAORDINARY INCREASE IN BUSINESS TAXES

A review of the treatment of the extraordinary wartime increase in business taxes may help to clarify the above discussion of the treatment of business taxes as a whole. The Department of Commerce has until recently considered the profits component of the national income to be net of all business taxes. Kuznets, however, would make the wartime estimates of national income net of the peacetime level of business taxes alone.<sup>10</sup> The profits share would then read "profits (after peacetime average of taxes)" instead of "profits (after taxes)." The profits component of the national income as a whole would be higher under the Kuznets procedure than under the former procedure of the Department of Commerce.

The rationale of Kuznets' treatment of extraordinary business taxes lies in his attitude toward business taxes as a whole. He considers the ordinary level of business taxes to be a payment for the services rendered by government to business, and thus comparable to other business expenses. This is the so-called "payment-price" basis for valuing governmental services.<sup>11</sup> It implies exclusive reliance on the benefit theory of taxation.

If the justification for deducting business taxes lies in considering these taxes as expenses incurred for services rendered, Kuznets' treatment of extraordinary taxes follows logically. Extraordinary taxes which obviously exceed any direct service that might be rendered by the government should not be treated like expenses and should not be deducted from profits in computing the national income. These extraordinary taxes are payments out of income rather than expenses incurred in earning income.

### RELATION BETWEEN NATIONAL INCOME AND PERSONAL INCOME

A closely related statistical measure known as "Personal Income" has been devised by the Department of Commerce. It is available on a monthly basis and is widely used. This measure is confined to actual payments, thus business savings are excluded. On the other hand, mere transfers of income, such as relief payments are included. The relation between national income and personal income is self-evident from the following table:

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<sup>10</sup> Kuznets, *National Product, War and Prewar*, p. 2n.

<sup>11</sup> Kuznets, *National Income and Its Composition, 1919-1938*, Vol. I, pp. 31-34.

GOVERNMENT FINANCE IN THE NATIONAL INCOME

Table 2

NATIONAL INCOME AND PERSONAL INCOME: 1948\*

(Billions)		
NATIONAL INCOME.....		\$215.1
Less: Corporate profits and inventory valuation adjustment.....	\$26.2	
Contributions for social insurance.....	5.0	
Excess of wage accruals over disbursements.....	0	
Total deductions.....	\$31.2	
Plus: Government transfer payments.....	\$10.9	
Net income paid by government.....	4.6	
Dividends.....	7.3	
Business transfer payments.....	.6	
Total additions.....	\$23.4	
Net deduction.....	\$ 7.8	
PERSONAL INCOME.....		\$207.3

\* Estimated annual rate in first quarter after seasonal adjustment.  
 Source: *Survey of Current Business*, August, 1948, p. 5.

DISPOSABLE INCOME AND SAVING OF INDIVIDUALS

Another income concept which is extremely useful in considering the effects of government finance on national income is that of "disposable personal income." This is an important item in dealing with problems of inflation, deflation, and business fluctuations generally. It is derived by deducting taxes paid directly by individuals from personal income. The remainder is available for expenditures or savings.

It should be remembered that the "consumer expenditures" item represents what actually was spent and the "net savings" item represents what actually was saved by individuals. The savings item does not have causal significance for the current year: it is a resultant of numerous forces, including prices of consumers' goods among many others. The individuals may have intended to save more but price increases may have forced their expenditures up to a greater figure than originally planned. In order to avoid misunderstanding and misuse of these figures it is important to distinguish between intended and realized savings.<sup>12</sup> The

<sup>12</sup> See Bertil Ohlin, "Some Notes on the Stockholm Theory of Savings and Investment," *Economic Journal*, Vol. 47, March, 1937, pp. 53-69 and June, 1937, pp. 221-40. Reprinted in *Readings in Business Cycle Theory* (Philadelphia: The Blakiston Company, 1944), pp. 87-130. See especially p. 101.

THE PLACE OF GOVERNMENT FINANCE IN THE MODERN ECONOMY

Table 3

DISPOSABLE INCOME AND SAVING OF INDIVIDUALS: 1948\*

<i>(Billions)</i>	
Personal income.....	\$207.3
Less: Personal tax and nontax payments.....	23.6
Federal.....	\$21.5
State and local... ..	2.1
Equals: DISPOSABLE PERSONAL INCOME... ..	183.7
Less: Personal consumption expenditures.....	172.0
Equals: PERSONAL SAVING.....	\$ 11.7

\* Estimated annual rate in first quarter after seasonal adjustment.  
Source: *Survey of Current Business*, August, 1948, p. 5.

statistics give the realized savings after all the causal factors have worked themselves out.

GOVERNMENT'S CONTRIBUTION TO THE INCOME SHARES

If taxes are not to be listed as a separate share in distribution, what place in the national income does government hold when national income is estimated by summing the income shares? The government pays out or credits wages, rent, and interest like any enterprise. These payments or credits are included in the respective income categories when making income estimates (except that government interest paid to corporations is excluded from the interest category). In so far as it pays out lump sums for the products or services which it buys, then the seller of the products or services, in turn, pays out or credits the income shares. The same is true of any enterprise which buys goods or services from another enterprise. Payments for other than goods and services are transfer payments and are not included in the national income.

When national income is conceived of as the sum of the distributive shares, no special treatment need therefore be accorded government. Its payment or credits for goods and services are treated like the payments or credits of any enterprise and are broken down into the usual distributive shares.

Gross National Expenditure

In an earlier section of this chapter it was mentioned that the total output of goods and services, known as the gross national product or

GOVERNMENT FINANCE IN THE NATIONAL INCOME

expenditure, is a first step in determining the net national output. The precise value of the "total output of goods and services" is not easy to determine. Double-counting must be avoided. In the example used previously, assume that the steel in the automobile costs \$200. If this were added to the \$1000 automobile, the total, \$1200, would give an exaggerated notion of the total output. The value of "intermediate" goods (i.e., goods used up in production) must, therefore, be eliminated in obtaining the total.

*Table 4*  
GROSS NATIONAL PRODUCT OR EXPENDITURE: 1948\*

Government purchases of goods and services.....		\$29.4
Federal.....	\$17.3	
Less: Government sales.....	1.3	
	16.0	
State and local.....	13.4	
Gross private domestic investment.....		38.5
New construction.....	\$14.3	
Residential nonfarm.....	\$ 7.0	
Other.....	7.3	
Producers' durable equipment.....	19.6	
Change in business inventories, total.....	4.6	
Nonfarm only.....	5.1	
Net foreign investment.....		3.9
Personal consumption expenditures.....		172.0
Durable goods.....	21.4	
Nondurable goods.....	101.0	
Services.....	49.6	
GROSS NATIONAL PRODUCT OR EXPENDITURE.....		\$243.8

\* Estimated annual rate in first quarter after seasonal adjustment.  
Source: *Survey of Current Business*, August, 1948, p. 5.

Another point to consider in obtaining the total is that all goods and services produced are bought by someone—either consumers, business, or the government. Services performed by government employees are considered to have been bought by the government. Goods produced by business and held for productive purposes, such as plant, machinery, equipment, and inventories, are considered to have been bought by businessmen as part of their investment.

The aggregate expenditure or output, net of expenditures on "intermediate" goods, is shown in Table 4. The aggregate expenditure is broken into four parts: government purchases, domestic investment, foreign investment, and consumption expenditures.

#### RELATION BETWEEN NATIONAL INCOME AND GROSS NATIONAL EXPENDITURE

The Gross National Expenditure or Product may be built up from the national income by a few simple additions. In the example of the automobile it was seen that, except for operating taxes and depreciation (and similar) allowances, the full value of the automobile became wages, rent, interest, or profits and thus became part of the national income. The addition of these allowances and taxes to the national income as a whole therefore yields the total value of products and services, i.e., the Gross National Product or Expenditure after a few additional adjustments of a minor nature.

#### GOVERNMENT'S CONTRIBUTION TO THE NATIONAL EXPENDITURE

In the description given above the total amount of government expenditures (excluding transfer payments and government interest paid to corporations) is added to consumer spending and investment expenditures. A fuller picture of the government impact may be obtained by including government transfer payments in the expenditure figure. Either way it is possible to obtain a comprehensive notion of the initial contribution which the government makes to the demand for goods and services. A special arrangement of national income and expenditure items known as the Nation's Economic Budget is especially valuable for this purpose. It is used in the President's Economic Reports.

Objection has been raised to the inclusion of government expenditures in their entirety (with or without transfer payments) in the gross national product. According to this objection, advanced by Kuznets, some of the government expenditures are for the provision of services which are an intermediate rather than a final product.<sup>13</sup> They are provided for the convenience of business which uses them in production just as the automobile producer uses the steel he buys. The magnitude of such government services may be measured by the peacetime level of corporate taxes, as was pointed out earlier in this chapter. Kuznets would not include the whole of government expenditures in the gross national

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<sup>13</sup> This point runs through the various works by Kuznets cited above.

product but rather government expenditures reduced by the peacetime level of corporate taxes. Kuznets' gross national product would then be somewhat less than the estimate of the Department of Commerce even under the former procedure whereby corporate income was listed net of taxes. The merits of this procedure depend on the merits of the policy of treating ordinary business taxes as payments for governmental services rendered in production. This was discussed above.

### Conclusions

The financial activities of the government must be reflected adequately in national income estimates if the latter are to be useful in dealing with some of the major questions of the day. This does not mean, however, that arbitrary categories must be set up to make room for the government. The traditional income shares—wages, rent, interest, and profits—need not be violated even though inadequacies in statistical sources make it impossible to state all of these shares separately. It has been customary until recently to include corporate profits net of taxes on the theory that such taxes are payments for "intermediate products," namely governmental services. There have been some differences of opinion as to whether all or only part of such taxes should have been deducted. Aside from this, governmental expenditures find their way into the traditional shares in the same way as any other expenditures do.

When a transition is made from national income to gross national income, or product, or expenditure, depreciation allowances are included of course. But just what change should be made in the place given to government finance is controversial. The Department of Commerce includes corporate taxes in gross national expenditure (and now also in national income); Kuznets includes only any extraordinary increase in corporate taxes. The difference arises partly from a difference in the conception of the role of business taxes. Can they be regarded as payments for governmental services useful for production? If so, Kuznets' treatment of them is appropriate. Otherwise, the alternative approach seems preferable. It is not necessary to resolve the issue as long as the difference is recognized and allowed for whenever national income statistics are used.



**Part II**  
**Government Expenditures**





## Trends in Government Expenditures

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There has been a persistent increase in the scope of government expenditures during the past few hundred years. The traditional functions of government assuring the safety of its people through police and defense activities and providing minimum services essential for public welfare have long since given way to a much broader view of the place of government. It is true that fundamental differences of opinion still exist regarding the degree to which governments should influence the level of business activity and employment. But the expansion of public health services, the provision of relief, the assurance of high standards of education, are indicators of the newer attitude toward governmental activities. The government would still step in only where business enterprise does not care to tread. But since there are many such opportunities, even the government spender who is extremely careful not to impinge on private enterprise has a plentiful scope for his activities.

### Structure of Government Expenditures<sup>1</sup>

A glance at the governmental expenditures in any recent year will show how extensive is their coverage. It is difficult to obtain up-to-date information on total government expenditures because of the lag in reporting local data. Expenditures of all governmental units in the United States totaled \$104 billion in 1944. The war expenditures by the Federal

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<sup>1</sup> The factual data in this section are derived mainly from "Total Government Expenditures in 1944," *Tax Policy*, Vol. 13, June, 1946, pp. 3-5; and "Total Governmental Expenditures in 1915 and 1946," *Tax Policy*, Vol. 14, September, 1947, pp. 3-6. (New York: Tax Institute).

The figures for 1944 include 1943 accounting statistics and 1942 data for smaller units of government. Because of the relative stability of local government expenditures, it is expected that this expedient for these years probably does not result in any substantial error. The figures for 1946 include local data for 1945.

GOVERNMENT EXPENDITURES

Government amounted to \$87 billion, leaving approximately \$17 billion for other activities. In 1946, total governmental expenditures were \$73 billion; \$45 billion war and \$28 billion non-war expenditures. Needless to say, this year of intense war activity cannot be considered typical. The dividing line between war and non-war federal expenditures is, moreover, very arbitrary and the Treasury classification is used in the following figures. For this purpose "war activities" include substantial amounts of expenditures for housing, public health, public roads, education, and various activities of the Department of Interior. Expenditures on account of veterans are, however, considered to be "non-war" spending.

RELATIVE IMPORTANCE OF FEDERAL, STATE, AND LOCAL EXPENDITURES

The expenditures of the separate levels of government in 1946 are indicated in Table 5. In this table it can be seen that the state and

Table 5  
NON-WAR GOVERNMENT EXPENDITURES: 1946\*

	<i>Billions</i>
Federal Government.....	\$18.6
States.....	6.2
Local governments.....	6.5
	<hr/> \$31.3
Less expenditures duplicated as result of federal and state aid.	3.3
<b>TOTAL NON-WAR EXPENDITURES.....</b>	<hr/> <b>\$28.0</b>

\* "Total Governmental Expenditures in 1945 and 1946," *Tax Policy*, Vol. 14, September, 1947, p. 3.

local governments formed by no means a minor part of the total. Together they approximated two-fifths. This is very important in considering the efficacy of any spending policy undertaken by the Federal Government.

GOVERNMENT EXPENDITURES BY FUNCTIONS

The major single item of government expenditures in 1946 was for war and defense. Next in importance were veterans affairs, interest payments, and educational activities. An indication of the scope of governmental expenditures is given in Table 6. This shows how far government

## TRENDS IN GOVERNMENT EXPENDITURES

Table 6

GOVERNMENT EXPENDITURES BY FUNCTIONS: 1946\*  
(INCLUDING CAPITAL OUTLAY AND INTEREST)

<i>Function</i>	<i>Billions</i>
<b>Protective</b>	
War and Defense Activities.....	\$45.1
Veterans Administration.....	4.4
Police, Militia } .....	0.8
Fire } .....	
Correction.....	0.2
Health.....	0.2
<b>Cultural</b>	
Education.....	2.6
Libraries.....	0.1
Parks and Museums.....	0.1
<b>Welfare</b>	
Relief and General Welfare.....	1.3
Hospitals and Other Institutions.....	0.7
Social Security.....	0.5
<b>Public Works</b>	
Highways.....	1.3
Sanitation.....	0.2
Other.....	0.1
<b>Miscellaneous</b>	
Natural Resources.....	0.3
Other.....	10.0
Interest.....	5.1
<b>TOTAL.....</b>	<b>\$73.0</b>

\* "Total Governmental Expenditures in 1945 and 1946," *Tax Policy*, Vol. 14, September, 1947, p. 6.

has come from merely providing minimum essential services for its citizens.

## GROWTH OF FEDERAL EXPENDITURES

The growth of federal expenditures, for which data are available back to 1789, epitomizes the trend. The statistics are given in Table 7 for every tenth year to 1940 and annually thereafter. It is interesting to note that immediately prior to the First World War federal expenditures were less than a billion dollars, ranging in the neighborhood of  $\frac{2}{3}$  or  $\frac{3}{4}$  of a billion dollars. Following the war they fluctuated around a \$3 billion

GOVERNMENT EXPENDITURES

Table 7  
GROWTH OF FEDERAL EXPENDITURES, 1789-1949\*  
(MILLIONS OF DOLLARS)

Year	War Dept.†	Navy Dept.	Interest on the Public Debt	All Other	Total‡
1789-91.....	\$ 0.6	\$ §	\$ 2.3	\$ 1.3	\$ 4.2
1800.....	2.6	3.4	3.4	1.4	10.8
1810.....	2.3	1.7	2.8	1.4	8.2
1820.....	2.6	4.4	5.1	6.1	18.2
1830.....	4.8	3.2	1.9	5.2	15.1
1840.....	7.1	6.1	0.2	10.9	24.3
1850.....	9.4	7.9	3.8	18.5	39.6
1860.....	16.4	11.5	3.2	32.0	63.1
1870.....	57.7	21.8	129.2	101.0	309.7
1880.....	38.1	13.5	95.8	120.2	267.6
1890.....	44.6	22.0	36.1	215.4	318.1
1900.....	134.8	56.0	40.2	290.0	521.0
1910.....	189.8	123.2	21.3	359.3	693.6
1920.....	1,622.0	736.0	1,020.3	3,025.1	6,403.4
1930.....	464.9	374.2	659.3	1,941.9	3,440.3
1940.....	907.2	891.5	1,040.9	6,158.6	8,998.2
1941.....	3,938.9	2,313.1	1,110.7	5,347.9	12,710.6
1942.....	14,325.5	8,579.6	1,260.1	8,231.4	32,396.6
1943.....	42,525.6	20,888.3	1,808.2	12,956.8	78,178.9
1944.....	49,438.3	26,537.6	2,609.0	15,158.6	93,743.5
1945.....	50,490.1	30,047.2	3,616.7	16,250.7	100,404.7
1946.....	27,986.8	15,160.8	4,722.0	15,844.5	63,714.1
1947.....	9,043.2	5,575.2	4,957.9	22,928.7	42,505.0
1948.....	6,207.0	4,171.0	5,211.0	23,737.0	39,326.0
1949(Est.).....	6,307.0	4,155.0	5,250.0	23,957.0	39,669.0

\* Fiscal years. The data through 1947 are derived from *Annual Report of the Secretary of the Treasury*, 1946 and 1947. The data for 1948 and 1949 are derived from *Treasury Bulletin*, August, 1948, pp. 2-3. They are rounded to the nearest million. [Because of rounding arbitrary minor changes have occasionally been introduced to make detail add to totals.]

† Including rivers and harbors and the Panama Canal.

‡ Excluding debt retirements.

§ \$570 in actual dollars.

level after 1921. During the 30's, which include the depression years, they exceeded \$8 billion several times. In the war of the 1940's, a peak exceeding \$100 billion was reached in the fiscal year 1945. In 1946 the figure dropped to \$63.7 billion and in 1947 to \$42.5 billion. Estimates for 1948 and 1949 were \$39.3 billion and \$39.7 billion, respectively.<sup>2</sup> In

<sup>2</sup> *Treasury Bulletin*, August, 1948, pp. 2-3.

interpreting these figures it should be mentioned that they do not reflect only the expanding scope of governmental functions. The growth in expenditures may also be explained by a growth of the American economy, higher prices, and bigger wars.

### **Principles of Government Expenditures**

Decisions as to the magnitude and the nature of government expenditures must be guided in some way. This is especially important in view of the fact that the government, including the legislative as well as the executive branch of course, has virtually unlimited spending ability and could have tremendously destructive as well as constructive effects. In Chapter 1, the section on Government Expenditures indicated some of the potential repercussions.

What guides can be laid down for government expenditures? Obviously the answer depends on the aim to be achieved. If the aim is to reduce government expenditures to a minimum, then a certain set of guides may be established. If it is to ensure that any level of expenditures decided on for whatever over-all purpose should interfere the least with private enterprise, then another set of guides is necessary. But if the aim is to achieve the highest possible level of employment or income or the more even distribution of wealth and income, or some other broad economic or social purpose, then other modifications would have to be made in the guides established. It may of course be possible to formulate the guides in such general terms as to be applicable to whatever the purpose intended.

The following "principles of government expenditures" are intended merely as suggestions along the lines of the above discussion. They are not mutually exclusive but they are sufficiently different to warrant separate treatment.

#### **PRINCIPLE OF MINIMUM EXPENDITURE**

There is a large school of thought which believes that the government should spend the least it possibly can consistent with the protection of its citizens. The term "protection" may be interpreted very narrowly to include just police and defense activities. Or it may be broadened somewhat to allow for "minimum essential services." The latter might include some roads (but presumably private toll bridges and highways would be widespread) and possibly postal services, although even the need for governmental provision of the latter may be doubtful.

In deciding whether any particular government expenditure is consistent with this principle, the criterion may be set up in terms of the maintenance of law and order. Any expenditures which go beyond that and which either provide services that the people can do without or provide services which private enterprise could provide in some degree or other would be excluded.

### PRINCIPLE OF MINIMUM INTERFERENCE WITH PRIVATE ENTERPRISE

The principle of minimum expenditure would generally also ensure minimum interference with private enterprise. However, the government, for other reasons, may decide on some substantial volume of government expenditures. It may decide on public works, for instance, to provide employment in a depression. What principles should guide it in that case? One likely principle is that the government in spending the given amount of money should interfere as little as possible with private enterprise.

This would presumably mean in the first instance that the services provided by the public works should not compete with established private firms. The government should not set up retail stores or factories. But should it provide public parks and thereby compete with private amusement facilities? Should it build public housing and thereby compete with private builders? The strict adherent to the principle of minimum interference with private enterprise will answer these questions in the negative. But he will be hard-pressed to suggest alternatives and he may have to accept some interference. The task is then to select those projects which provide the minimum interference. The late Lord Keynes commended the ancient Egyptians on their pyramid-building projects since those projects, when completed, performed services in which private builders had no interest.

Any attempt to follow this principle strictly must not confine attention to the services performed by the completed projects. During the building stage the government will be competing with businessmen for materials and labor. This may interfere with private enterprise. Even direct relief payments or unemployment insurance could be excluded by the diehard on the grounds that they support the labor market and keep wages up. Again, where a certain level of governmental expenditures has been decided on, this principle can still be followed by diverting the expenditures into those lines where the materials and the labor used

will be in the least demand by private enterprise. The task becomes extremely complicated, however, when the undeniably stimulative effects of government spending on consumer demand are considered.

### PRINCIPLE OF MAXIMUM EMPLOYMENT

The aim of government expenditures is sometimes to raise the level of employment as high as possible. Then a question arises as to the best way of achieving that aim. Should direct relief payments be made? Should public works be undertaken? Should outright subsidies be given? In trying to achieve the aim of maximum employment, obviously a very comprehensive analysis is necessary in connection with every type of expenditure. Presumably minimum interference with private enterprise is desirable to achieve the aim of full employment but it is quite conceivable that, say in a severe depression, urgency may dictate that a given amount of spending be made in directions which disregard the principle of minimum interference with private enterprise in attempting to achieve the principle of maximum employment.

Roughly the same considerations apply if the aim is to achieve maximum social security, maximum national income, maximum standard of living, or any other of the myriad maxima that may be conceived. There is no point in setting up separate "principles" for each of these. This is not to imply of course that the achievement of maximum employment is the same thing as the achievement of these other maxima, or vice versa.

### PRINCIPLE OF MAXIMUM ADVANTAGE

The traditional principle of governmental expenditures is that which proposes that the "maximum advantage" be achieved in all cases. The implication is that each dollar should be spent where the marginal social utility is the greatest. If the public welfare would best be promoted by spending another dollar on health services rather than on police activities, then it should be spent on the former. This should be continued and readjustments should constantly be made until the marginal social utility of every dollar of government expenditures is the same throughout. This principle may in fact be broadened so as to consider even the source of the funds used. The marginal social disutility of a dollar raised in taxes must be just equal to the marginal social utility of the dollar spent for the best possible purpose.

The difficulties in estimating marginal social utility are evident. Essentially, interpersonal comparisons of utility are involved— and the



modern approach to welfare economics rejects such comparisons.<sup>3</sup> Given a certain criterion of "public welfare," the principle of maximum advantage does provide a useful, if not completely practicable, guide. The main question, though, is: What is the public welfare? Some will say that it is best promoted by keeping government expenditures at the very minimum. Others will say that the public welfare is best promoted by minimizing interference with private enterprise. And still others will urge maximum employment, social security, and the other social maxima suggested above. The principle of maximum advantage may, however, be considered a useful supplement to the other three principles and the equalization of marginal social utility, in so far as it can be determined, will ensure the fullest adherence to those principles.

### Government Expansion vs. Contraction

A constant struggle is going on between those who believe that the government should broaden the scope of its expenditures and those who feel that it should reduce its activities drastically. The former group would be guided mainly by the Principles of Maximum Employment, Security, etc. The latter would be guided by the Principle of Minimum Expenditure. Most members of both groups would probably claim adherence to the Principle of Minimum Interference with Private Enterprise and the Principle of Maximum Advantage. A brief review of the aims and claims of both sides is presented below.

### SPENDING FOR SOCIAL SECURITY

The Beveridge plan for social security<sup>4</sup> exemplifies modern thinking on the scope of government expenditures. The financial wants of the individual would be taken care of from "cradle to grave." Adam Smith would turn in his own grave at the thought of this degree of government interference in the operations of the "invisible hand"! Sickness, unemployment, old age are only a few of the items which would become the responsibility of the government. The Beveridge plan calls for a program of family allowances and a thoroughgoing health insurance system among other things. Family allowances were put into effect in England in 1946.<sup>5</sup>

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<sup>3</sup> See Paul A. Samuelson, *Foundations of Economic Analysis*, pp. 249-53 (Cambridge: Harvard University Press, 1947) and Melvin W. Reder, *Studies in the Theory of Welfare Economics* (New York: Columbia University Press, 1947).

<sup>4</sup> Sir William Beveridge, *Social Insurance and Allied Services* (London: H. M. Stationery Office; New York: The Macmillan Company, 1942).

<sup>5</sup> *The Times*, London, August 6, 1946, p. 5.

Britain greatly expanded her social services generally after the war of the 1940's. Table 8 will indicate the magnitude of the change:

*Table 8*  
EXPANSION OF SOCIAL SERVICES IN GREAT BRITAIN\*  
(MILLIONS OF POUNDS STERLING)

	<i>Prewar</i>	<i>Postwar</i>
Education.....	£120	£200
Health.....	50	120
National insurance.....	200	240
Industrial injuries.....	..	6½
Family allowances.....	..	60
Children's allowances in kind.....	..	50
	£370	£676½

\* Data derived from *The Economist*, London, March 30, 1946, p. 490.

The last three of the items listed are entirely new.

Comparable plans have been proposed in the United States.<sup>6</sup> Apart from over-all schemes of social security, pressure is being exerted for the enactment of a national health insurance bill. But stiff opposition is being put up on the grounds that "socialized medicine," as they call it, would destroy initiative and reduce the quality of service. Broader coverage of the old age pension provisions of the Social Security Act seems merely a matter of time.

#### SPENDING FOR FULL EMPLOYMENT

The widest departure from the traditional narrow view of the scope of government expenditures is taken by the school of compensatory spenders.<sup>7</sup> The government would spend whatever is necessary to ensure a high level of national income. The maintenance of full employment becomes one of the avowed objectives of the government and takes its place beside such objectives as national defense and police. Economic activity is no longer a free-for-all with the government laying down a

<sup>6</sup> See National Resources Planning Board, *Security, Work, and Relief Policies*, Report of Committee on Long-range Work and Relief Policies, Washington, 1943; and Social Security Board, *7th Annual Report of the Social Security Board*, 1942.

<sup>7</sup> See, for instance, Alvin H. Hansen, *Fiscal Policy and Business Cycles* (New York: W. W. Norton & Company, 1941). W. H. Beveridge has recently joined this group. See his *Full Employment in a Free Society* (London: Allen & Unwin, 1944), (New York: W. W. Norton Co. 1945).

few basic rules. The government enters the fray itself, letting contracts, hiring labor, buying and selling goods and services. It may wait discreetly on the sidelines until it has reason to believe that private enterprise will not be adequate to achieve full employment, but then it steps in with no holds barred.

The fiscal theory involved in this type of policy is considered in Part VI of this book. In particular, attention is given to the question whether *deficit*-spending is necessary to achieve the aims of this school. In any case, large government expenditures are certain to be associated with any policy designed to stabilize national income and employment at a high level.

What the compensatory spenders would do for business activity the Beveridge plan would do for the individual. One would ensure stability of the economic system and the other would provide economic stability for the individual. They are interrelated in practice since individual economic stability generally promotes national economic stability, and vice versa. Both would give the government a role even more dominant than it has at present.

#### OPPOSITION TO THE EXPANDING SCOPE OF GOVERNMENT EXPENDITURES

The expansion of the scope of government expenditures has not taken place without a struggle; nor is the struggle over. There is a strong body of opinion, consisting mainly of the more conservative business groups, which views with alarm the spreading out of government functions and expenditures. These groups place on their banner head the words of Thomas Jefferson: "It is the duty of the people to support the government—it is not the duty of the government to support the people." The attack is based on two claims: (1) the government destroys individual initiative by providing social security; and (2) the government destroys private enterprise by competing with it, often on unfair terms.

The opponents of government expansion point to the alleged effects of unemployment insurance and old age pensions to support their claim that individual initiative and enterprise are destroyed. They point to the reconversion period following World War II when jobs went begging while erstwhile workers lived on their unemployment insurance benefits. Where the maximum benefit was \$21 per week, for instance, jobs paying as much as \$35 per week found few takers because the \$35 was subject to withholding tax, social security, and ordinary expenses of food, clothing, and transportation connected with holding down a job. The advocates

of unemployment insurance reply that the worker is entitled to the unemployment insurance benefits in the same way as he is entitled to any other insurance benefits—it is a business-like arrangement and if he chooses to avail himself of it, that is his own concern: the worker should not be criticized for taking a “vacation” on his unemployment insurance any more than should the businessman who takes a vacation when an endowment insurance policy comes due.

The opposition to old-age pensions turns on the fear of extravagance and improvidence: if a person has no need to save for his old age he will ignore the principles of thrift which form part of our mores. On purely economic grounds, however, it is difficult to say that thrift is always desirable for the economy as a whole.<sup>8</sup> In any case, thrift is still practiced under the social security program, but it is practiced collectively through the payroll tax and the accumulation of reserves.

Health insurance and other “cradle to grave” provisions of a thoroughgoing social security program are condemned on similar grounds. But here not so much the initiative of the consumer (the patient) is thought to lie endangered, but that of the doctor. Proponents of the plan point to the fact of inadequate medical care for millions of people and demand an answer.

The government contractionists refer to such projects as the TVA to support their claim of competition with private enterprise: any and every government corporation competes with private enterprise to some degree even if the main function of the corporation is to provide a service which private enterprise is unable or unwilling to provide. The government expansionists would admit some encroachment but would claim the welfare of the community as transcending the interests of a few individuals. And they would say that such projects as the TVA promote rather than hurt private enterprise.

### Conclusions

It will be difficult to resist the trend toward an increasing area of public expenditures. A generation born of depression and war takes for granted government contribution to individual security. Many people do not consider this to be “intervention” or “interference,” as indeed it

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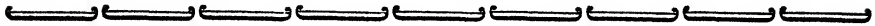
<sup>8</sup> A. P. Lerner refers to the existence of an Institute for the Advancement of Thrift in Milan. Under conditions of chronic underconsumption thrift is undesirable in the view of the school which he represents. See his “Mr. Keynes’ General Theory of Employment, Interest and Money,” *International Labor Review*, Vol. 34 (1936), pp. 435-54.

## GOVERNMENT EXPENDITURES

is not from their point of view. They are not forced to take any particular job but they expect to find a job to their liking or to receive an adequate income if they fail. They are not forced to drop their own private security plans nor do they object when the government supplements such plans or even makes them unnecessary. They do not feel that the governmental expenditures involved limit their individual enterprise. Some of them may react by losing initiative—but presumably that is to their liking for they are not forced to lose initiative by any of these plans. The loss of initiative may be a social problem but it is not an individual problem from the individual's own point of view.

Many individuals have tasted of government aid and have found it to be good. Perhaps the ultimate consequences—fiscal, economic, and social—are harmful to the individual. As far as he is concerned such consequences are remote and he will probably continue to expect government assistance in the expression of whatever amount of individual initiative he cares to demonstrate. This leads to a belief that a continued large volume and scope of government expenditures is likely, quite apart from any growth in power of the expansionist school. A high level of federal expenditures also seems to be the prospect for another reason (even apart from any preparations for war), namely large fixed, or virtually fixed, obligations in the federal budget, such as interest payments and veterans' benefits.

## Government Expenditures and Consumer Spending



*Note:* This chapter deals with some of the more detailed aspects of the effects of government expenditures on consumer spending and discusses the contributions of contemporary economists on a relatively technical level. The reader may prefer to turn directly to Chapter 6, which summarizes the main points raised here.

Funds received from the government are available for the purchase of consumer goods either immediately or after a short lapse of time. When direct relief payments are made the money is immediately available for consumption goods and it may be expected, of course, that the purchases will be made for that purpose. The same is true of work relief. Wages and salaries paid to civil servants can be considered in the same category. Funds used by the government for the direct purchase of goods and services such as agricultural products, war materials, etc., are not available immediately for spending on consumption in full. But the total purchase price after some adjustment for taxes and depreciation will become incomes of individuals at various stages of the production process, as explained in Chapter 2. These incomes may take the form of wages, salaries, interest payments, rents, or profits. The process may appear to take a few months but in a sense it has taken place already since income has been earned during the production of the goods and services in anticipation of final sale. Thus the initial effect on consumption can be expected without delay.

The exploration of the effects of government expenditures on consumer spending does not stop with the initial income earned but goes on

to the subsequent steps. When money is spent on consumer goods the production of income is again stimulated and that income may be used to purchase more consumer goods. The technical analysis of such effects has become known as the "multiplier principle." This serves as a convenient vehicle for a study of the impact of government expenditures on consumer spending.

Since this subject has caused a great deal of confusion it is necessary to iron out many technical points during the course of the following discussion. The reader who would prefer not to become involved in the technicalities of the multiplier and acceleration principles may omit the present chapter and the one following and go immediately to Chapter 6.

### The Multiplier Principle

The relation between government expenditures and consumer spending is expressed in an apparently explicit fashion in the multiplier principle. In its usual formulation this principle shows the relation between "capital formation" or "investment" and "national income." For the present purpose government expenditures may be considered one element of capital formation or investment. In the following discussion it is assumed that the only initial change that takes place is in the government expenditures themselves. Moreover, it is assumed that the government expenditures constitute a net addition to total expenditures; i.e., the method of raising the funds does not have any restrictive effects. Part VI deals with the combined multiplier effects of fiscal policy as a whole. As for the effects on income, only that expansion of income consisting of consumption will be considered in detail in this chapter. Other aspects are dealt with in Chapter 5.

Briefly stated, the Multiplier is the number by which an initial increase in government expenditures should be multiplied in order to obtain the increase in income attributable to those government expenditures, the income being increased through the effects of spending and respending the initial increase in income. How can we find that number? First of all, we must know what is included in consumption. Then we must decide the period of time over which to consider the effects, it being evident that repercussions of any change might go on forever. We must also draw the line between types of consequences to be included and types to be excluded as being "attributable to" the initial government expenditures. The actual extent of spending and respending and the speed with which it takes place have to be considered in this connection. Finally, several complications, particularly those introduced by asymme-

try and international trade, have to be considered. These matters of scope and principle settled, we can turn to the difficulties which would have to be encountered in measuring the Multiplier, or, rather, in knowing which variant of the Multiplier we are measuring.

#### ELEMENTARY STATEMENT OF THE MULTIPLIER PRINCIPLE

The multiplier theory traces through the effects of an increase in government expenditures. Since the government expenditures create an equivalent amount of income, there is some additional spending by consumers. The spending on consumption, in turn, creates income. The process is repeated indefinitely. If only part of the increased income is spent each time, the additions to income become smaller and smaller. If the fraction of increased income spent is constant, the total increase in income resulting from the additions to consumption over all ensuing time can be estimated.<sup>1</sup> Suppose that the government spends \$10 billion and that the public spends 80 per cent of any increase in income on consumption. The first respending results in \$8 billion of income; the next in \$6.4 billion, etc. The mathematicians tell us that the sum of all these increments in income, including the initial \$10 billion, comes to \$50 billion. The Multiplier is said to be 5. The proportion of an increase in income which is spent on consumption is called the "marginal propensity to consume." If the marginal propensity to consume is 90 per cent, the Multiplier is 10. If the marginal propensity to consume is  $66\frac{2}{3}$  per cent, the Multiplier is 3. It should be emphasized that this excludes all initial impact other than the government expenditures and all subsequent effects other than those on consumption. At a later point we shall consider matters of timing and magnitude. The fact is that the initial government expenditures may be on either capital or consumption goods.

#### GOVERNMENT EXPENDITURES AS "HONORARY INVESTMENT"

Since the multiplier principle is usually concerned with the relation between investment and national income, there is the danger of forgetting that the initial government spending may be on *anything*, either capital or consumption goods. The choice of the term "investment" is not a very happy one, particularly since it has caused a great deal of

<sup>1</sup> Where  $c$  represents the ratio of the additional consumption to the additional income, we have

$$1 + c + c^2 + c^3 + \dots \infty. \quad (c < 1)$$

The value of this is  $\frac{1}{1-c}$ . This includes initial government expenditures of unity.



unnecessary objection to the multiplier principle. Colin Clark's expression "determinants"<sup>2</sup> is superior. Clark nevertheless would exclude an initial change in consumption from eligibility as initial investment. His criterion is whether or not private income is generated without increasing the supply of consumption goods.<sup>3</sup> He claims that government deficits have "the effect of generating additional private incomes without increasing the output of consumption goods." This is an incorrect statement and, besides, involves an invalid criterion. Part of the government deficit goes for the direct purchase of consumption goods. And there is no reason why the "determinants" should be restricted in this way. What type of initial "investment" we choose in practical policy is another matter. Conditions may be such that it is desirable to avoid further production of consumption goods, in which case the "investment" should be on capital goods. But this is a consideration apart from the multiplier itself.

There is a point to guard against, however, in connection with the use of government expenditures as "honorary investment."<sup>4</sup> Since it has become customary to begin with "investment" as a whole in determining the Multiplier there exists the danger of applying the results indiscriminately to a component, e.g., the government element in the form of a public works program.<sup>5</sup> It may happen that the results derived from the use of the aggregate do not apply to a component. Our concern in this study is with the multiplier principle as applied to government spending, hence the analysis will be conducted on the assumption that no other initial changes in "investment" take place. The government "deficit" is usually employed to represent the initial impact of government, but this is unsatisfactory, as will be shown in Part VI of this book.

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<sup>2</sup> C. Clark, "Determination of the Multiplier from National Income Statistics," *Economic Journal*, Vol. 48 (September, 1938), pp. 435-48.

<sup>3</sup> *Ibid.*, p. 438. Cf. P. A. Samuelson, "Theory of Pump-Priming Reëxamined," *American Economic Review*, Vol. 30 (September, 1940), pp. 497-98.

<sup>4</sup> A phrase suggested in D. H. Robertson, "Mr. Clark and the Foreign Trade Multiplier," *Economic Journal*, Vol. 49 (June, 1939), p. 354 n. Robertson uses the term to apply to the government deficit.

<sup>5</sup> Cf. Machlup: "Instead of speaking of a certain amount of public works, one can speak of a certain net increase in the rate of aggregate investment . . . But it should be clear that the theory of the Multiplier is then of no use. It would not refer to the possible effects of public works, because public works are not likely to be identical with the 'net increase in the rate of aggregate investment.'" F. Machlup, "Period Analysis and Multiplier Theory," *Quarterly Journal of Economics*, Vol. 54 (November, 1939), p. 27. Reprinted in *Readings in Business Cycle Theory* (Philadelphia: The Blakiston Company, 1944).

## IMPORTANCE OF "LEAKAGES"

It was pointed out above that this chapter will emphasize only the subsequent effects on consumption. We can trace through the subsequent effects on *both* consumption and capital-goods expenditures if we wish. In fact, the method of determining the multiplier by tracing through the "leakages" may be used for this purpose. If we define the leakage, as Neisser does, to cover that part of income of one period which is used for hoarding or repaying bank debts in the next,<sup>6</sup> then we are leaving in both consumption and investment expenditures (if the terms "hoarding" and "repaying bank debts" are used in a net sense, to take account of investment through dishoarding and bank borrowing). On the other hand, Kahn would concentrate only on the consumption expenditures, for he considers the "leakage" to be that part of income which is not spent on current consumption.<sup>7</sup>

In general, the leakage is, as J. M. Clark points out, "a use of funds which does not increase production beyond what has already been accounted for in the formula."<sup>8</sup>

## EMPHASIS ON CONSUMPTION EXPENDITURES

In trying to explain the emphasis on consumption in the multiplier analysis we are confronted with a fundamental aspect of economic behavior. Private investment will take place whenever such investment is profitable; it will not be limited by the absence of, or promoted by the existence of, non-consumed portions of increased income previously received by individuals. Bank credit is assumed to be available where private savings are absent. Even if there are plentiful savings and credit, investment will take place only if such investment is profitable. Hence, the income of one period does not necessarily affect the extent of investment of the next period. On the other hand, a stable relation (or a relation changing in a consistent manner) is assumed to exist between changes in income and consumption for the economy as a whole. The Multiplier is therefore formulated in terms of secondary spending on consumption by assuming a constant relation between income and consumption. Second-

<sup>6</sup> H. Neisser, "Secondary Employment: Some Comments on R. F. Kahn's Formula," *Review of Economic Statistics*, Vol. 18 (February, 1936), pp. 24-30.

<sup>7</sup> R. F. Kahn, "Dr. Neisser on Secondary Employment: A Note," *Review of Economic Statistics*, Vol. 18 (August, 1936), pp. 144-47.

<sup>8</sup> J. M. Clark, *Economics of Planning Public Works* (Washington, D.C.: Public Works Administration, 1935), p. 89.

ary spending on investment can also be brought into the picture but not so neatly as consumption, unless we are willing to make as arbitrary an assumption about investment as we did about consumption.

### GROSS VS. NET CAPITAL FORMATION

There are a few further points to be considered in connection with the treatment of investment and consumption expenditures in the multiplier theory. For one thing, should we use gross or net capital formation (and national income)?<sup>9</sup> For purposes of the multiplier analysis it would seem that the gross rather than the net items are relevant. In times of poor business gross capital formation can be zero and any expenditure on capital goods has some stimulating effect on the economy, even though it is not great enough to give us any positive net capital formation. In other words, the Multiplier works for *gross* capital formation and national income and we should be ignoring the effects of an initial stimulus in some cases if we confined our attention to *net* capital formation and national product.

There is, however, some difficulty in using gross national income and capital formation in the study of the Multiplier. Hansen has pointed out that double-counting would result if we included in the computation of the national income both consumption and replacement expenditures which may be imputed as costs of that consumption.<sup>10</sup> He claims that only net investment is "multiplied" to give us the national income. Hansen's objections do not apply, however, in the case where we have a *process* of income formation through the operation of the multiplier principle. He is right in saying that it would not be valid to include both consumption and the replacement expenditures which may be imputed as costs of *that* consumption. But the changes in gross investment at one time will result in consumption at some later time. The consumption will include an amount of imputed depreciation of capital equipment created earlier but there is no double-counting involved in this process. The only account we must take of the fact that we began with *gross* investment is that we must remember that the resulting increase in income is also *gross*. We are, nevertheless, on the horns of a dilemma if we

<sup>9</sup> See Chapter 2.

<sup>10</sup> "Replacement investment expenditures are obviously not to be counted at all as a constituent element in the size of the national income, since it is already incorporated in the consumption figures." (Hansen, *Fiscal Policy and Business Cycles*, p. 283 [New York: W. W. Norton Co., 1941]).

wish to assume a stable relation between income and consumption, since consumption is a function of *net* income<sup>11</sup> if it is a function of income at all.

On this point it is necessary to take cognizance of Harrod's definition of net investment. He includes in net investment that part of replacement which is in excess of funds currently set aside for depreciation.<sup>12</sup> Hansen is shocked at this definition and insists on the usual one which includes only the amount of new construction of capital goods over and above replacement.<sup>13</sup> Here Harrod is apparently following the Keynesian assumption that current depreciation allowances, in themselves, are deflationary.<sup>14</sup> On this assumption Harrod's definition is more useful than Hansen's for a study of the expansionary influence of investment. His definition of net investment gives us a figure below Hansen's net investment in bad times when current depreciation allowances may exceed current replacement and above Hansen's net investment in good times when current depreciation allowances may fall short of current replacement.

#### DURABLE CONSUMERS' GOODS

A question arises regarding the place of durable consumers' goods in the multiplier theory. Should we include them in consumption or in investment? Keynes and Kuznets reached agreement that durable consumers' goods should be classed under consumption. In an early study<sup>15</sup> Kuznets included durable consumers' goods in capital formation. Keynes, however, felt that they should be included in consumption on the grounds that they are ordinarily paid for out of what the consumer considers to be the non-saved portion of income.<sup>16</sup> In later studies,<sup>17</sup> Kuznets gave two estimates of gross capital formation, one of which,

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<sup>11</sup> Cf. Keynes, *General Theory of Employment, Interest and Money*, p. 98 (New York: Harcourt, Brace & Co., 1936).

<sup>12</sup> Roy F. Harrod, *The Trade Cycle*, pp. 62-65 (London: Oxford, Clarendon Press, 1936).

<sup>13</sup> Alvin H. Hansen, *Full Recovery or Stagnation?*, p. 53 n. (New York: W. W. Norton Co., 1938).

<sup>14</sup> Cf. Keynes, *The General Theory of Employment, Interest and Money*, pp. 98-99.

<sup>15</sup> S. Kuznets, *Gross Capital Formation, 1929-1933* (New York: National Bureau of Economic Research, 1934, Bulletin No. 52).

<sup>16</sup> J. M. Keynes, "Fluctuations in Net Investment in the United States," *Economic Journal*, Vol. 46 (September, 1936), p. 540ff.

<sup>17</sup> S. Kuznets, *National Income and Capital Formation, 1919-1935* (New York: National Bureau of Economic Research, 1937), p. 40; and *Commodity Flow and Capital Formation* (New York: National Bureau of Economic Research, 1938), p. 7.

“Variant II,” included consumers’ durable commodities. Finally,<sup>18</sup> he adopted Keynes’ classification and put these commodities with consumption. With the growth of installment buying, there is some reason to believe that expenditures on durable consumers’ goods are regarded as capital expenditures, to be amortized out of income. If this is so, the capital sum involved in the purchase of a durable consumers’ good should not, perhaps, be regarded as an element included in the propensity to consume.

### Multiplier Variants: The Direct Timeless Multiplier

The variety of possible treatments of government expenditures and consumption in the multiplier principle marks only the beginning of the difficulties involved in a factual study. There is, in addition, a variety of multipliers, depending on (1) the length of time considered and (2) the type of repercussions taken into account. Both sets of factors must be clearly understood before a statistical study can be undertaken. Under (1) we can distinguish the Timeless and the Period Multiplier and under (2) we can distinguish the Direct and the Over-all Multipliers. Combining the characteristics as to length of time and type of repercussions we obtain four multiplier variants: Direct Timeless, Over-all Timeless, Direct Period, and Over-all Period. The meaning of each will be considered as we proceed.

The Direct Timeless Multiplier is concerned with the “direct” effects of the initial government expenditures, regardless of the length of time during which the effects may be felt. The “direct” effects on income are those which result from the initial investment and the consumer expenditures arising from the spending and respending of the income earned. The Direct Timeless Multiplier is, then, given by the Keynesian formula previously noted.<sup>19</sup>

### RELATION TO THE “INSTANTANEOUS” MULTIPLIER

Although the formal expression of the two is the same, this Multiplier should be distinguished from the so-called “instantaneous” Multi-

<sup>18</sup> *Ibid.*, *Commodity Flow and Capital Formation in the Recent Recovery and Decline, 1932-1938* (New York: National Bureau of Economic Research, 1939, Bulletin No. 74); and *National Income and Its Composition, 1919-1938*, Vol. I (New York: National Bureau of Economic Research, 1941), p. 235.

<sup>19</sup> See p. 41 n., above. Our discussion is in terms of tracing through the effects of an initial “dose” of government expenditures but the conclusions are the same as if there were a continuous flow. See Paul A. Samuelson, “A Fundamental Multiplier Identity,” *Econometrica*, Vol. II, July-October, 1943, pp. 221-26.

plier. If we take the increased national income of any period to be equal to the sum of the increased consumption and investment of that period, then an interesting relationship follows. Suppose we say (1) that the marginal propensity to consume is 80 per cent. Then (2) the increased investment must be 20 per cent of the increased income of that same period, i.e., the increased income of that period must be five times the increased investment. Statements (1) and (2) say one and the same thing. There is no theoretical or causal connection whatever between them. This was pointed out by Haberler in an early criticism of the Keynesian multiplier theory.<sup>20</sup>

This instantaneous relation is quite different from the Direct Timeless Multiplier which takes the relationship expressed in the marginal propensity to consume, applies it to any given volume of investment, and traces it through indefinitely step by step, assuming an unchanged marginal propensity to consume in each step. The "instantaneous" Multiplier is a definition, the Direct Timeless Multiplier is a theory. Keynes fails to distinguish clearly between the two and therefore is often accused of failing to realize that it would take at least a little time for the full multiplier effect to be felt. But his failure to distinguish between the two does not necessarily mean that he believes that the full multiplier effect is felt instantaneously, a belief which is sometimes attributed to him.<sup>21</sup> The definition holds instantaneously but the theory takes time to work out.

### THE "MARGINAL PROPENSITY TO CONSUME"

The basic feature of the Direct Timeless Multiplier is the ratio between an increase in income and the increase in consumption which results from this increase in income. Before any analysis of the effects of government expenditures on consumption, it is necessary to understand the relation between this ratio and the "marginal propensity to consume." The latter term is used in two senses: (1) the proportion of an increase in income which an individual will spend on consumption;

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<sup>20</sup> G. Haberler, "Mr. Keynes' Theory of the Multiplier: A Methodological Criticism," *Zeitschrift für Nationalökonomie*, Vol. 7 (No. 3, 1936), p. 299. Reprinted in *Readings in Business Cycle Theory* (Philadelphia: The Blakiston Company, 1944).

<sup>21</sup> Cf. Samuelson: "There has been some controversy over the timing of this relationship, Mr. Keynes being of the opinion that it holds necessarily instantaneously," (Samuelson, *op. cit.*, *American Economic Review*, September, 1940, p. 498).

Another use of the term "instantaneous Multiplier" is made by Machlup, who says that when the outlay of money for investment first takes place and nothing else has changed, the instantaneous Multiplier is one. Cf. Machlup, *op. cit.*, p. 7.

## GOVERNMENT EXPENDITURES

(2) the proportion of an increase in income which the economy will spend on consumption. We may call these the individual's and economy's "marginal propensities to consume." Both can be either functions or points, i.e., they may represent either a series of possible ratios or a single ratio, but we shall consider here only the latter. Both may also deal with either the income and consumption of the same period or the income of one period and the consumption of the next, i.e., may deal with either simultaneous or non-simultaneous magnitudes. The individual's and the economy's marginal propensities to consume are clearly different in nature. Using simultaneous magnitudes an individual's marginal propensity to consume may exceed unity to any degree depending only on the individual's borrowing power, but the economy's marginal propensity to consume can exceed unity only to the extent of replacement. Hence we cannot jump from an individual's marginal propensity to consume, to the economy's marginal propensity to consume. Using non-simultaneous magnitudes, the economy's marginal propensity to consume can exceed unity by more than capital replacement.

### ESTIMATING THE DIRECT TIMELESS MULTIPLIER

In attempting to obtain an actual estimate of the Direct Timeless Multiplier we have two main avenues open to us: (1) determine the economy's marginal propensity to consume and derive the Multiplier by asking the mathematicians to tell us the total value of the increments of income (resulting from increments of consumption) into the indefinite future; (2) obtain the Multiplier directly by a study of the ratio between investment and income when the two magnitudes cover a period sufficiently long to embody the whole (or virtually the whole) multiplier effect. The first of these approaches can be dealt with either by (a) studying family budget data and trying to bridge the gap between the individual's (or family's) marginal propensity to consume and the economy's marginal propensity to consume; or (b) deriving the ratio of increment in consumption to an increment of income when the two magnitudes cover a period sufficiently *short* to indicate only the first revolution of the multiplier principle, i.e., to indicate only the economy's marginal propensity to consume. By assuming a constant marginal propensity to consume we can obtain the Multiplier by applying the mathematical formula.

### ESTIMATES BASED ON BUDGET DATA

The approach to the Direct Timeless Multiplier from the side of budget data or guesses at budget data has been attempted by a large

number of writers.<sup>22</sup> In the main their work suffers from the defect of incompleteness, e.g., treatment only of consumers' spending and saving,<sup>23</sup> or from invalid assumptions concerning individual behavior. The latter type of error is illustrated in Colin Clark's work. He puts at zero the marginal propensity to save of people whose incomes are under £250 per annum.<sup>24</sup> It is evident from other studies, however, that savings from low incomes vary substantially and that the marginal propensity to save from those incomes is different from zero.<sup>25</sup> The various guesses at "leakages" made by Kahn,<sup>26</sup> Mitnitzky,<sup>27</sup> and J. M. Clark<sup>28</sup> are in the nature of informed judgments rather than statistical estimates.

### ESTIMATES BASED ON NATIONAL INCOME STATISTICS

The second method of determining the economy's marginal propensity to consume involves the use of appropriate national income and capital formation figures. Short-period figures are required in order that no secondary effects be embodied in the data. Colin Clark's study<sup>29</sup> on the basis of quarterly data of national income and capital formation

<sup>22</sup> These are cited in A. H. Hansen, *Fiscal Policy and Business Cycles*, "Appendix: A Statistical Analysis of the Consumption Function," by P. A. Samuelson, pp. 250-60; J. Marschak, "Family Budgets and the So-Called Multiplier," *Canadian Journal of Economics and Political Science*, Vol. 5 (August, 1939), pp. 358-62; and R. and W. M. Stone, "The Marginal Propensity to Consume and the Multiplier," *Review of Economic Studies*, Vol. 6 (October, 1938), pp. 1-24.

See also, E. A. Radice, *Savings in Great Britain: 1922-1935* (London: Oxford University Press, 1939).

For several important suggestions on this subject see James S. Duesenberry, "Income-Consumption Relations and Their Implications," in *Income, Employment and Public Policy: Essays in Honor of Alvin H. Hansen*, pp. 54-81 (New York: W. W. Norton & Co., 1948). The reader is also referred to the articles by A. Smithies, J. L. Mosak, P. A. Samuelson, W. Woytinsky, L. Bean, and E. G. Bennion which are cited by Duesenberry.

<sup>23</sup> This is particularly true of the studies based on National Resources Committee study on *Consumer Expenditures in the United States, 1935-1936* (Washington, D.C.: Government Printing Office, 1939).

<sup>24</sup> Colin Clark, *op. cit.*, *Economic Journal*, September, 1938, pp. 436, 447.

<sup>25</sup> Cf. Hans Staehle, "Short Period Variations in the Distribution of Incomes," *Review of Economic Statistics*, Vol. 19 (August, 1937) p. 139; R. and W. M. Stone, *op. cit.*, p. 9; and Elizabeth Gilboy, "The Propensity to Consume," *Quarterly Journal of Economics*, Vol. 53 (November, 1938), pp. 120-40; A. J. Duncan, "A Comment," (August, 1939), p. 632; and Gilboy, "A Reply," pp. 633-38.

<sup>26</sup> See R. F. Kahn, "The Relation of Home Investment to Unemployment," *Economic Journal*, Vol. 41 (June, 1931), pp. 173-98.

<sup>27</sup> M. Mitnitzky, "The Effects of a Public Works Policy on Business Activity and Employment," *International Labour Review*, Vol. 30 (October, 1934), pp. 435-56.

<sup>28</sup> J. M. Clark, *op. cit.*, p. 89.

<sup>29</sup> See Colin Clark, *National Income and Outlay* (London: Macmillan and Co., 1937), p. 249.



could be interpreted in this way. Since the relation between Clark's two quarterly series is not very close *in detail* his results do not bar the possibility of a lag between income in one quarter and consumption in the next.

An attempt could be made to obtain the Direct Timeless Multiplier directly by comparing national income and capital formation figures covering a period of time sufficiently long to include virtually all the multiplier effects. The difficulty with this method, however, is that the national income of the period chosen would include the result of some of the influences working in a previous period; might also include substantial indirect influences on capital formation; and would omit some of the effects of the capital formation which took place near the end of the period. Colin Clark feels that three months is sufficiently long to permit the major portion of the multiplier effects to make themselves felt.<sup>30</sup> This seems a rather short period for the purpose. Moreover, it accentuates the likelihood of overlapping at the ends but minimizes the likelihood of a reaction from national income to capital formation.

Annual data may seem to be appropriate for this sort of approach and such data have been employed by Kalecki<sup>31</sup> and Samuelson.<sup>32</sup> After several adjustments, including the segregation of so-called "private" national income and capital formation, deflation, and the introduction of a four-months lag, Kalecki obtains an estimate of the Multiplier. Samuelson also obtains an estimate of the Multiplier, after deflation, adjustment for population changes, and correction for secular trend.

### Multiplier Variants: The Direct Period Multiplier

If we try to calculate the extent of the multiplying effect within a given period, confining our attention to the initial investment and its repercussions on consumption, we are dealing with the Direct Period Multiplier. The same approaches to the problem can be used, with one modification: we do not want the total direct effect but only the effect for the specified length of time. If we derive the economy's marginal

<sup>30</sup> Colin Clark, *op. cit.*, *Economic Journal*, p. 439.

Cf. R. W. Jastram and E. S. Shaw, "Mr. Clark's Statistical Determination of the Multiplier," *Economic Journal*, Vol. 49 (June, 1939), pp. 364-65.

<sup>31</sup> M. Kalecki, *Essays in the Theory of Economic Fluctuations*, pp. 68-74. (New York: Farrar and Rinehart, 1939.)

<sup>32</sup> Samuelson, *op. cit.*, in Hansen's *Fiscal Policy and Business Cycles*. Cf. M. Ezekiel, "Statistical Investigation of Saving, Consumption and Investment," *American Economic Review*, Vol. 32, March, 1942, pp. 22-49; and L. R. Klein, "Pitfalls in Statistical Determination of the Investment Schedule," *Econometrica*, Vol. 11, July-October, 1943, pp. 246-58.

propensity to consume we have to determine the number of spendings and respendingings which will take place within the specified length of time. This can be done only if we assume a constant marginal propensity to consume (as before) and if we have information regarding the number of times the funds spent will be spent again in the given length of time. We have to obtain information on the rapidity with which people spend increases in income or rather adjust their spending habits to increases in income.

#### ESTIMATING FROM THE INCOME-VELOCITY OF CIRCULATION

It might be thought that for information on the number of spendings and respendingings within a given period we could turn to the income-velocity of circulation. The latter tells us the number of times money will become income in a given length of time. If we could find the *marginal* income-velocity of circulation we might learn the number of times a net increase in the amount of money will become income during the given period. But even if we could get this information it would be applicable only in the case where the government spending is financed out of newly printed money or newly created bank credit. If the spending is financed by either taxation or borrowing there will probably take place some transfer from idle to active balances.<sup>33</sup> This will have the effect of increasing the existing income-velocity of circulation. If the required information were available it would tell us the extent to which income would be increased in the given period.

This would not, however, tell us the Direct Period Multiplier. The latter is concerned only with the increase in income attributable to the initial investment (whether a single dose of investment or steadily repeated doses of investment) and the subsequent spendings and respendingings on consumption goods within the specified period. The portion of the income not spent on consumption might drift into idle balances, might be used to repay debt, or might be used actively, e.g., to finance investment—either independent investment or investment induced by the operation of the Multiplier. The average and marginal income-velocities do not confine their attention to the spending on consumption but take account of *all* spending. This is probably the important problem—and it is dealt with below in the discussion of the Over-all Multipliers—but it is not relevant to the Keynesian Multiplier (either Period

<sup>33</sup> See H. S. Ellis, "Some Fundamentals in the Theory of Velocity," *Quarterly Journal of Economics*, Vol. 52 (May, 1938), pp. 462-71.

or Timeless) which takes account solely of the initial investment and the subsequent spending on consumption.

The use of the income-velocity of circulation (or some variant) in an attempt to obtain the Multiplier for a given period<sup>34</sup> can give us only the Over-all Multiplier, which takes account of subsequent independent and induced investment. It cannot give us the Keynesian type of Multiplier which confines its attention to consumption. An exaggerated notion of the Multiplier for any period is obtained in this way since the funds initially spent would become income of an equal amount sooner if we allowed both investment and consumption to be counted than if we include consumption alone and wait until there has been enough of it to equal the initial income created. If this analysis is valid then Machlup's "income-propagation period"<sup>35</sup> and Angell's "active money alone"<sup>36</sup> (if they are dealing with empirically determined data) must apply to effects on both investment and consumption, not the latter alone.<sup>37</sup> The active money is not confined to consumer spending unless, of course, spending on investment is excluded by assumption. But in the latter case the empirically determined marginal income-velocity is irrelevant to the Direct Period Multiplier since investment is, in fact, a variable. Hansen's objection to the association of income-velocity with the Multiplier arises from still another emphasis, namely that the velocity of money is a volatile element, affected by the nature of the initial expenditure.<sup>38</sup>

#### ESTIMATING FROM NATIONAL INCOME STATISTICS

Merely to compare investment and income for the whole period, e.g., a year, would not be a satisfactory method of estimating the Direct

<sup>34</sup> See, for instance, J. M. Clark, *op. cit.*, pp. 88-89; and Neisser, *op. cit.*, p. 27.

<sup>35</sup> Machlup, *op. cit.*, p. 9. Reprinted in *Readings in Business Cycle Theory*. For an important analysis of the relevant lags and, particularly, evidence that the consumption lag is small relative to the lag in the response of output to sales, see Lloyd A. Metzler, "Three Lags in the Circular Flow of Income," in *Income, Employment and Public Policy: Essays in Honor of Alvin H. Hansen*, pp. 11-32 (New York: W. W. Norton & Co., 1948).

<sup>36</sup> J. W. Angell, *Investment and Business Cycles*, p. 88, n. 1. (New York: McGraw-Hill Book Company, 1941.)

<sup>37</sup> See the section on the Over-all Period Multiplier, below.

<sup>38</sup> Hansen, *Fiscal Policy and Business Cycles*, p. 285n. See also Richard M. Goodwin, "The Multiplier," Chapter 36 in *The New Economics*, S. E. Harris, ed. (New York: Alfred A. Knopf, 1947), especially pp. 487-89. Cf. Paul A. Samuelson, "Fiscal Policy and Income Determination," *Quarterly Journal of Economics*, Vol. 56, August, 1942, pp. 601-605. For current data see Henry H. Villard, "Monetary Theory," *A Survey of Contemporary Economics* (H. S. Ellis, ed.), p. 318. (Philadelphia: The Blakiston Company, 1948.)

Period Multiplier. Secondary effects would almost certainly be included and the result would be a combination of direct and indirect effects which would be a far cry from the Direct Period Multiplier. Quarterly data might be preferable in this connection, for reasons previously given. If Clark is wrong in his assumption that the whole Multiplier effect acts immediately then his work might, at least, be regarded as estimating the Direct Period Multiplier. Again, the assumption of a time lag might be more realistic and would enable us to take account of dynamic processes. Where the major portion of the multiplier effect is obtained after the first few spendings and respendingings the Direct Period Multiplier will be very different from the Direct Timeless Multiplier only where the period involved in the former is quite short.

### **Multiplier Variants: The Over-all Timeless Multiplier**

The multiplier theory as presented by Keynes may be regarded as dealing with that increase in income which takes place as a result of the initial increase in investment and is directly attributable to that investment itself and the subsequent spending process. An alternative way of looking at it is to say that Keynes assumes the investment to be kept constant by government action. The initial investment results in increases in income; part of that income is spent on consumption with a resultant addition to income, and so forth. The Keynesian Multiplier does not attempt to take account of the possibility that the increased consumption might react back on investment so as to make the latter a variable or that investment and income might be affected as a result of the initial investment in some way other than through the process of spending and respending.

The multiplier variant which takes account of both direct and indirect effects of the initial investment during the indefinite period in which those effects may be felt—the Over-all Timeless Multiplier—presents almost insuperable statistical difficulties. The problem here is different from that of the *Direct* Timeless Multiplier because there the marginal propensity to consume told us what the full effect would be in an indefinite period. Here we have no such nice relation since the indirect effects are not amenable to the refined treatment as are the direct effects expressed in the marginal propensity to consume.

The indirect effects may be of several sorts. The consumed portions of the increased income may affect investment through the operation of the acceleration principle. The saved portions may augment the supply of loanable funds and thereby increase the amount of capital available

for investment. On the other hand, the very existence of a large amount of government spending may have either a favorable or unfavorable effect on business expectations so as to reenforce or offset the other influences. A thorough examination of these possible repercussions on investment will be attempted in Chapter 5.

### **Multiplier Variants: The Over-all Period Multiplier**

If we try to take account of both direct and indirect effects, but for a specified period, we are dealing with the Over-all Period Multiplier. This variant of the multiplier analysis has the same characteristics as the previous variant with respect to indirect effects and the same characteristics as the Direct Period Multiplier as to limitation within a specified period. The discussion of those variants applies here, in the main.

There is, however, one important advantage which the Over-all Period Multiplier has over the others. Since all effects, both direct and indirect, are to be taken into account, statistical investment and consumption data can be applied—as in the case of the Over-all Timeless Multiplier. Unlike the latter, however, we need not make any assumption that the period of the data permits of a complete working out of all the effects. It is likely, moreover, that the difficulties involved in using a velocity concept do not apply here since we are now willing to accept both consumption and investment changes resulting from an initial investment stimulus. On the other hand, the lack of an *a priori* basis for the indirect effects means that a very close and consistent relation over a long period would have to be obtained before one could venture to make any practical use of the statistical results.

### **Changing Multipliers**

The above discussion of problems connected with a factual study of the multiplier principle is based on the assumption of a constant marginal propensity to consume. The problems involved in estimating the Multiplier even on this restrictive assumption are serious enough. When we introduce the possibility of variations in the marginal propensity to consume the problems are greatly intensified. This is true of all the Multiplier variants since they are all determined wholly or partly by the marginal propensity to consume.

### **VARIABILITY OF THE MULTIPLIER**

Variations in the marginal propensity to consume may exist over both time and space. The variations over time may be traced to changes

in income and to changes in consumer expectations. For one thing, a rise in income may not result in an immediate adjustment of consumption owing to the consumers' inertia regarding their spending habits.<sup>39</sup> To some extent this applies to all income recipients and not only to the higher-income groups. The lag involved would, however, be different for different income groups. For the lowest income groups, those near or at the subsistence level, there might be an immediate upward adjustment but no downward adjustment. This is made plausible by the evidence indicating family marginal propensities to consume exceeding unity.<sup>40</sup> For the higher income groups the "delayed spending factor"<sup>41</sup> may be of some length, but Colin Clark's suggestion of a one-and-a-quarter year lag<sup>42</sup> seems excessive.

There is no way of telling how long a lag might exist for the economy as a whole. The economy's marginal propensity to consume will change if there is a shift in income distribution from wages to profits in the boom<sup>43</sup> but it is hard to deal with this change statistically. We cannot merely apply to each group of individuals as it moves up or down the income scale the individual (or family) marginal propensity to consume previously found appropriate to the respective places on the scale. Dynamic factors must be considered here since a family *changing* from the \$2,000-\$2,500 class to the \$4,000-\$5,000 class would almost certainly not have the same marginal propensity to consume as a family which has been in the latter class for some time. The *rate of change* would also be important in determining the propensity to consume since a more stable marginal propensity to consume would probably be found where the change in income has taken place over a period of years than where the change has taken place overnight.

The accompanying price changes would also have to be considered because they would be an important factor in determining the extent and nature of the adjustment in consumption. If prices rise as fast as money incomes, so that real income is unchanged, it is likely that expenditures on consumption will keep pace with the other factors, so that real consumption is unchanged. But if prices lag, consumer expenditures might also lag, thus reducing the propensity to consume. All in all, the variations of the marginal propensity to consume in time cannot be very

<sup>39</sup> Cf. Angell, *op. cit.*, p. 198.

<sup>40</sup> See United States, National Resources Committee, *op. cit.*, p. 20.

<sup>41</sup> Cf. Colin Clark, *op. cit.*, *Economic Journal*, September, 1938, pp. 435-40.

<sup>42</sup> *Ibid.*

<sup>43</sup> Keynes, *The General Theory of Employment, Interest and Money*, p. 121. The existence of such a shift is currently at issue.

accurately formulated. Guesses have been made as to changes in the economy's propensity to consume at various income levels,<sup>44</sup> but on very restrictive assumptions regarding individual and family reaction to income changes. Variations in the marginal propensity to consume would also take place through changes in consumers' expectations. In times of political or economic uncertainty (leaving out shortages, priorities, and rationing, which obviously upset the orthodox multiplier analysis) there may be a change in the degree of improvidence, thus affecting abnormally the magnitude of the marginal propensity to consume.

#### ASYMMETRY OF THE MULTIPLIER

The above discussion has been concerned mainly with the variability of the *upward* multiplier. It has been suggested by Shackle<sup>45</sup> that an important degree of asymmetry exists between the upward and the *downward* multiplier. If the economy's marginal propensity to consume falls with rising income, as suggested above, the upward multiplier tends to be low at and near the top of the upswing. But the downward multiplier at this point tends to be high, according to Shackle. His argument is based on the assumption that when the decline begins there will be some reduction of consumption but as the decline proceeds there will be greater and greater reluctance to sacrifice consumption. To suggest a term to describe the situation which Shackle visualizes, we may say that there is a smaller and smaller "marginal propensity to refrain from consumption." This is a plausible argument and might explain why the downward multiplier is higher near the top than near the bottom of the decline, but it does not show that the downward multiplier near the top is greater than the upward multiplier near the top.

Nevertheless, it seems likely that some measure of asymmetry exists between the upward multiplier near the bottom and the downward multiplier near the bottom because of the floor set by the level of subsistence or the minimum to which (and the maximum rate at which) families will allow their consumption to fall as a result of a reduction of income. Certainly, we cannot assume that symmetry exists.

#### SPATIAL DIFFERENCES IN THE MULTIPLIER

The spatial variations in the marginal propensity to consume are not so serious for a statistical study as are the variations through time.

<sup>44</sup> National Resources Committee, *op. cit.*, p. 167.

<sup>45</sup> G. L. S. Shackle, *Expectations, Investment and Income* (London: Oxford University Press, 1938), pp. 109-16.

Since any particular increment of investment might take place in only one part of the economy we must consider the possibility of various multipliers being appropriate to various parts of the economy. It is true that after one or two revolutions of the multiplier an increment of investment is dissipated throughout the whole economy, hence variations on this account may not be of a very serious nature. The first few revolutions are, however, the important ones since they embody a substantial part of the multiplier effect. Thus if the initial expenditure is made in low-income parts of the economy the multiplier is likely to be greater than if the expenditure is made in high-income parts of the economy.

This leads us to a consideration of the type of expenditure involved, since some kinds of expenditure, e.g., relief, would have a greater multiplying effect than other kinds, e.g., purchase of manufactured equipment. These spatial differences in the multiplier lead to temporal differences owing to the changing impact of expenditures on various parts of the country from year to year. This introduces another element of variability of the multiplier. All considered, one would be justified in being very suspicious of any statistical analysis which yields a stable multiplier.

### Changing Government Expenditures

The previous section discussed variations in the "multiplier." Variations in the "multiplicand," i.e., the initial government expenditures, are of equal importance and have virtually been ignored in the literature on the multiplier theory. Formal discussions of the multiplier theory have considered either a single investment or a constant rate of investment.<sup>46</sup> Samuelson's synthesis of the acceleration and multiplier principle takes into account some elements of a changing *induced* investment. Salant has dealt explicitly with the problem<sup>47</sup> but has reached the conclusion that a reduction in investment (or reduction in the budget deficit) must result in a fall in national income. It will be shown below that under certain reasonable conditions income may continue to rise after a fall in investment. This, it can readily be seen, would complicate considerably the problems involved in a statistical study.

<sup>46</sup> See, for instance, Hansen, *Fiscal Policy and Business Cycles*, pp. 269, 272; J. M. Clark, *Economics of Planning Public Works*, pp. 91, 92; and *ibid.*, "An Appraisal of the Workability of Compensatory Devices," *American Economic Review*, Vol. 29 (Supplement, March, 1939), p. 200.

<sup>47</sup> Walter S. Salant, "A Note on the Effects of a Changing Deficit," *Quarterly Journal of Economics*, Vol. 53 (February, 1939), pp. 298-304.



## HYPOTHETICAL EXAMPLE

The following hypothetical example may be used to illustrate the point. Investment in this example is taken as an independent variable. We assume that investment in four consecutive quarters is as shown in Table 9, the figures being \$2,000 million, \$3,000 million, \$2,500 million, and \$3,500 million, respectively. Now let us see how national income might vary as a result of the operation of the multiplier principle. In the first quarter, the magnitude of national income is taken as \$10,000 million, consumption being \$8,000 million and capital formation \$2,000 million. This means that four-fifths of that quarter's income was spent on consumption. Let us assume that the \$10,000 million income and the ratio of four-fifths have persisted for some time and that the latter represents the proportion of any quarter's income which the economy as a whole spends on consumption during the following quarter;<sup>48</sup> and let us assume further than an increase in income is treated in the same way, i.e., four-fifths of it is spent on consumption in the following quarter. In technical terms, both the average and marginal propensities to consume are taken at four-fifths. These assumptions are made to simplify the presentation and do not alter the conclusions.

Now let us trace through the income from quarter to quarter. In Quarter I income is taken at \$10,000 million, hence consumption in Quarter II, being four-fifths of this, is \$8,000 million. But in Quarter II investment is \$3,000 million; hence total national income is \$11,000 million. Thus both income and investment have gone up from the first to the second quarters. Since income is \$11,000 million in Quarter II, consumption in Quarter III, being four-fifths of this, is \$8,800 million. But in that quarter, capital formation is only \$2,500 million, hence total national income in Quarter III is \$11,300 million. Thus national income has risen from Quarter II to Quarter III even though investment has fallen. National income in Quarter III being \$11,300 million, consumption in Quarter IV is \$9,040 million. Since investment in Quarter IV is \$3,500 million, national income in that quarter is \$12,540 million. From Quarter II to Quarter III the relationship between the two is inverse, an increase in income being associated with a decrease in investment.

<sup>48</sup> This does not mean that the actual money received as income is held over from one quarter to the next. The assumption is merely that the consumption of one quarter is determined by the income of the previous quarter.

THE "PERVERSE" MULTIPLIER

Observing such a phenomenon as the above, one is tempted to call it the "perverse" multiplier. But from our explanation of how the phenomenon arose, we can see that there is nothing really perverse about this multiplier, that the multiplier principle is operating quite consistently, and that the apparently inverse relationship is caused by the fact that the reduction in national income which would tend to result from the fall in capital formation is more than offset by the increased consumption resulting from the increased income of the previous quarter. We have a "perverse" multiplier here only if we insist on simultaneous relationships.

We may consider briefly the relation between the above model and the multiplier process which pictures a spending and respending *ad infinitum*. This indefinite process is taken into account in the above example, as may be clearer from Table 9 where we trace through each

Table 9  
OPERATION OF THE "PERVERSE" MULTIPLIER  
(MILLIONS OF DOLLARS)

	Quarter			
	I	II	III	IV
Investment: government* expenditures...	\$ 2,000	\$ 3,000	\$ 2,500	\$ 3,500
Consumption.....	8,000	1,600 6,400	2,400 1,280 5,120	2,000 1,920 1,024 4,096
Total Consumption.....	8,000	8,000	8,800	9,040
NATIONAL INCOME.....	\$10,000	\$11,000	\$11,300	\$12,540

\* All other instruments of government finance and all private investment expenditures are ignored.

investment and consumption item by itself. In Quarter II we have consumption of \$1,600 million resulting from the spending of four-fifths of the \$2,000 million income created by the investment of \$2,000 million in Quarter I. In Quarter III the amount is \$1,280 million, and in Quarter IV, \$1,024 million. Similarly, the \$8,000 million income created by the consumption of Quarter I gives rise to \$6,400 million consumption and

## GOVERNMENT EXPENDITURES

income in Quarter II, \$5,120 million in Quarter III, and \$4,096 million in Quarter IV. The \$3,000 million of new investment in Quarter II gives rise to \$2,400 million of consumption and income in Quarter III and \$1,920 million in Quarter IV. The \$2,500 million of new investment in Quarter III results in \$2,000 million consumption and income in Quarter IV. Finally, the \$3,500 million new investment of Quarter IV contributes a like amount to the income of that period.

### Repercussions of Government Expenditures on International Trade

The foregoing discussion of the multiplier analysis has not taken into account complications introduced by foreign trade. Suppose that the government expenditures have taken the form of a gift or a loan to another country—in the form of credits made available in this country—with the result that exports increase. An increase in exports should be regarded as one of the “determinants.” The resulting increase in income can be traced through in the same way as the increase in income occasioned by an increase in domestic investment. The effect on the determinants should be treated as a whole because if the increased exports have taken place at the expense of domestic investment there will be no multiplying effect (except in so far as there are spatial differences in the marginal propensity to consume).

A more subtle analysis is required when ordinary domestic government expenditures take place and income rises in the ordinary way. The increase in income will induce some increase in imports. The imports constitute exports of other countries, of course, and the latter will raise income in those countries. This, in turn, will increase their imports from us. In this way there will be some stimulation of our export industries, even when domestic government expenditures take place.<sup>49</sup> Increased exports arising as a repercussion of increased imports from foreign countries are in the same category as induced investment. If we include induced investment (i.e., if we are dealing with the Over-all Multiplier), we should take account of such induced exports. If we are dealing with the Direct Multiplier, we may well leave them out (it being understood that this multiplier variant does not give us a complete picture of the situation).

<sup>49</sup> See Fritz Machlup, *International Trade and the National Income Multiplier*, Chapter 7. (Philadelphia: The Blakiston Company, 1943.)

## INITIAL AND SUBSEQUENT IMPORTS AND EXPORTS

This is not the end of the foreign-trade problem, however, if we wish to deal with the Multiplier in general. What of increases in imports which may be taking place at the same time as the initial increase in exports? How should they be treated in connection with the initial investment that starts the Multiplier going? The stimulus represented by the initial increase in investment would be exaggerated if we did not deduct the concurrent increase in imports since imported goods embodied in investment would not promote income-creation in this country. Hence we should deduct imports of investment goods (goods included in "investment") in order to obtain the true value of the determinants. The most convenient method of achieving this is to deduct the increase in imports from the increase in exports and include the residue (positive or negative) among the determinants.

Subsequent imports resulting from the expansion of income should be subjected to a different treatment. If part of the increased income is spent on imports, no income is created within the economy thereby and no responding takes place. Hence spending on imports should not be included with income-creating spending when we trace through the effects of an increment of investment. In the "leakage" approach to the multiplier principle this item would be an additional leakage. In the propensity to consume approach or the successive spending approach (these two are not identical but they are both concerned with what remains in, instead of what leaks out), we would have to be certain that the marginal propensity to consume and the successive spendings are confined to domestically produced goods.

To summarize, we may distinguish between "initial" imports and "subsequent" imports; "initial" exports and "subsequent" exports. The balance of initial imports and exports is part of initial investment. Subsequent imports must be left out of the marginal propensity to consume. Subsequent exports are in the same category as induced investment. These complications make necessary a careful selection and use of statistical data in estimating the multiplier effects of any given amount of government expenditures.

The above analysis of complications introduced by foreign trade into the multiplier theory applies to both timeless and period variants of the multiplier analysis but the statistical difficulties are naturally greater in a timeless analysis. If a period analysis is used the periods may be actual calendar periods, perhaps months or quarters, as long as they are short enough to exclude any appreciable element of secondary effects.

## OTHER ANALYSES OF FOREIGN-TRADE EFFECTS

The suggested distinctions between initial and subsequent exports and imports diverge from other analyses in some respects. Colin Clark, to whom must be given credit for recognizing most of the difficulties which exist with respect to the treatment of foreign trade, assumes simultaneity in the sense that both initial and subsequent imports (which he calls "autonomous" and "consequential" imports) are assumed to take place within the same period, three months.<sup>50</sup> As a result, he has to resort to ingenious methods of disentangling the two.<sup>51</sup> He makes no distinction, moreover, between initial and subsequent exports, treating both as the former. Dowdell recognizes the existence of a problem here but does not appreciate the necessity of treating subsequent imports in the same way as induced investment.<sup>52</sup> In an early study Machlup has taken account of subsequent exports.<sup>53</sup> Robertson restricts himself to pointing out an inconsistency in Clark's analysis.<sup>54</sup> Kahn,<sup>55</sup> Mitnitzky,<sup>56</sup> J. M. Clark,<sup>57</sup> Keynes,<sup>58</sup> Harrod,<sup>59</sup> Joan Robinson,<sup>60</sup> and Shackle<sup>61</sup> have all recognized the impact of foreign trade on the multiplier analysis but have not made the distinctions discussed above.

## Conclusions

The important effects which government expenditures will have on consumer spending cannot be denied. But any exact analysis, especially

<sup>50</sup> Colin Clark, *op. cit.*, *Economic Journal*, September, 1938, pp. 438-39; and "Comment," *Economic Journal*, Vol. 49 (June, 1939), pp. 356-58. Cf. Colin Clark and J. G. Crawford, *The National Income of Australia* (Sydney and London: Angus and Robertson, 1938), pp. 100-102.

<sup>51</sup> Cf. Jastram and Shaw, *op. cit.*, *Economic Journal*, June, 1939, pp. 359, n. 4.

<sup>52</sup> E. G. Dowdell, "The Multiplier," *Oxford Economic Papers*, Vol. I (September, 1940), p. 36.

<sup>53</sup> Machlup, *op. cit.*, in *Readings in Business Cycle Theory*, p. 227. Cf. Lloyd A. Metzler, "Underemployment Equilibrium in International Trade," *Econometrica*, Vol. 10, April, 1942, pp. 97-112.

<sup>54</sup> D. H. Robertson, *op. cit.*, *Economic Journal* (June, 1939), pp. 354-56.

<sup>55</sup> Kahn, *op. cit.*, *Economic Journal* (June, 1931), pp. 173-98.

<sup>56</sup> Mitnitzky, *op. cit.*, p. 411.

<sup>57</sup> J. M. Clark, *Economics of Planning Public Works*, p. 88.

<sup>58</sup> J. M. Keynes, *The Means to Prosperity* (New York: Harcourt, Brace & Co., 1933), p. 36; and *General Theory of Employment, Interest and Money*, pp. 120-22.

<sup>59</sup> Harrod, *op. cit.*, pp. 145-58.

<sup>60</sup> Joan Robinson, *Essays in the Theory of Employment*, p. 210; and review of R. F. Bretherton, F. A. Burchardt, and R. S. G. Rutherford, *Public Investment and the Trade Cycle in Great Britain* (London: Oxford, Clarendon Press, 1941) in the *Economic Journal*, Vol. 51 (April, 1941), p. 128.

<sup>61</sup> G. L. S. Shackle, "The Multiplier in Closed and Open Systems," *Oxford Economic Papers*, Vol. 1 (May, 1939), pp. 142-44.

if it runs in statistical terms, is certain to encounter a great many difficulties. If we can obtain a reliable estimate of the marginal propensity to consume through the use of budget data and if we are willing to assume a constant marginal propensity to consume we are on safe ground in estimating the Direct Timeless Multiplier, which does not take account of induced investment (positive or negative). But an estimate of the economy's marginal propensity to consume is not easy to obtain from budget data. It is difficult to give adequate recognition to induced investment, hence there is little likelihood of obtaining the Over-all Timeless Multiplier. Both these multiplier variants deal with an indefinite period of time. For an estimate of the period variants with this approach it is necessary to have some idea of the speed with which consumers spend their incomes and the speed with which the money becomes income in turn. This is not quite the same as the marginal income-velocity of money which, in any case, is on a questionable statistical basis at present. As a result of these problems we would have to rely on statistics of national income and investment.

The use of annual data on national income and investment for the determination of the multiplier has an important advantage in that most of the secondary respending (to be distinguished from induced effects on investment) will in many instances take place within a year. As a result we would obtain the Timeless Multiplier if the full effects of the investment are felt by national income within a year. There will be only a few revolutions of the multiplier cycle within the year but since the effects of the more remote ones become less and less important we may exclude those which are felt in the following year and yet take account of most of the effects of the government expenditures. In other words, the period of a year may be assumed to be sufficiently long to yield the major significant portion of the Timeless Multiplier. All eternity would, of course, be required to obtain the full Timeless Multiplier.

There is, however, one difficulty in this. The longer the period the greater the likelihood of indirect, induced effects. Even though a year is sufficiently long to enable us to obtain a good approximation of the timeless aspect, it is too long to enable us to isolate the direct aspect, as expressed in consumption expenditures. In other words, in the course of a year we may expect the major effects of the increased investment to be felt on national income (except for high multipliers) but at the same time there will be indirect reactions from national income to investment. Hence a comparison between investment and national income for any year will disclose the effects of the operation both of the Multiplier and the inducement to invest *within the year*. The ratio obtained between

increments in national income and investment cannot tell us what will be the multiplying effects of the initial investment on consumption alone.

If we wish to determine the importance of the direct aspect of the Multiplier on consumption alone through the use of national income and investment figures, we must deal with a period sufficiently short so that the reaction of consumption on investment cannot take place within the same period. That is, an increase in investment might result in an increase in national income in period (1), through the operation of the Multiplier, and the national income might react back on investment only in period (2). In the real world the required calendar period would vary in different parts of the economy but it is not unreasonable to suggest that it might be as great as three months. That is, within a period of three months, the reaction of income back on investment *of that same period* may be considered of negligible importance. By taking a period of this sort we can deal with the Direct Multiplier and we are freeing ourselves from the necessity of dealing with the hodgepodge of the Overall Multiplier. For the purpose of this type of period analysis we would require quarterly and, possibly, monthly data of government expenditures and consumer spending.

Even with the use of appropriate data there remain some intractable problems. One set of these is introduced by the variability and asymmetry of the Multiplier. This means that the Multiplier may vary from period to period and the relation between increments of national income and investment, and also between decrements, may be a very loose one. On the other hand, the actual data may give a misleading impression of the looseness of the relationship if simultaneous magnitudes alone are considered. When we assume that changes in the income of one period determine changes in the consumption of the next, it becomes possible to explain some apparently perverse relationships between national income and investment, e.g., where *increments* of national income are concurrently associated with *decrements* of investment. Finally, exports and imports present some difficulties where such items are important relative to the national income.

All in all, the problems involved in any practical study of the effects of government expenditures on consumer spending are challenging but not insoluble. This does not mean, however, that a single Multiplier exists even if we specify the period considered and the number of indirect effects. On the contrary, the presumption is that the Multiplier is a variable. The effects which government expenditures have on consumer spending vary with the economic conditions which prevail at the time that the expenditures are made.

## Government Expenditures and Business Investment



*Note:* This chapter deals with some of the more detailed aspects of the effects of government expenditures on business investment and discusses the contributions of contemporary economists on a relatively technical level. The reader may prefer to turn directly to Chapter 6, which summarizes the main points raised here.

Government expenditures provide a demand for numerous products. What of the machinery and equipment required to produce these products? Will the demand for them rise too, thus providing a stimulus to national income exceeding that of the government expenditures themselves? Suppose that the government spends \$10 billion and assume that \$10 billion worth of goods and services are thereby created. The preceding chapter analyzed the effects which this would have on subsequent spendings on consumer goods. It explored the increase in income which may be expected as a result of this type of spending under various conditions. Mention was made of the almost certain effects on business investment while the effects on consumption were working themselves out.

The effects on investment will now be considered more fully. It should be remembered that the \$10 billion worth of goods and services mentioned above may be partly in the form of capital goods. What we are dealing with here is the subsequent effect which this \$10 billion worth of goods of all sorts may have on private investment expenditures.

One avenue for exploration immediately suggests itself. The production of \$10 billion worth of goods may necessitate the expansion of plant capacities. A large increase in the demand for bread may mean that new baking ovens are needed. A large increase in the demand for cement for highway purposes may require the expansion of cement factories. Steel for armaments may involve the building of new steel mills. That is the



type of impact which this chapter will explore. Every industry has other industries from which it buys goods; every product requires productive capacity. By increasing the amount of goods and services by \$10 billion, what effect can we expect on the capital goods industries?

Put in technical language, we are interested in exploring the effects which the production of \$10 billion worth of goods and services may have on *derived demand*. The demand for capital goods is derived from the demand for consumption goods. There is also a derived demand between every stage of production, even between two capital goods industries. The demand for steel is derived from the demand for machinery, etc. This is not to say that derived demand gives a unique explanation of the amount of capital goods required. The demand for capital goods at any time may not be solely or even largely derived from the demand for consumption goods. The extent to which the unique relationship holds is precisely one of the things which must be explored. It is on such issues that the effects which any given amount of government spending may have on business investment will depend.

For the purposes of the analysis of this chapter we are merely tracing through the effects of the government expenditures and are disregarding the method of raising the money. Another way of saying this would be that the assumption is that the money is created without any economic effects itself and that any effects that are felt are through the expenditures of the money. This is generally true of spending newly printed money. of course, and, by and large, is also true of borrowing money from central banks where such banks have ample reserves. Other chapters deal with the effects of taxation and borrowing of various types, and reference must be made to such chapters before a complete picture can be obtained. To repeat, this is a partial and incomplete analysis and deals with only one phase of the problem.

### **Tracing the Effects of Government Expenditures on Business Investment Through the Acceleration Principle**

The analytical framework for a discussion of the effects of government expenditures on business investment is provided by the acceleration principle. This principle formulates the relation between the demand for any products and the plant, machinery, and equipment required to produce them. In its full glory it is known as the "principle of acceleration and magnification of derived demand." It deals precisely with problems of the type to be discussed in this chapter. It attempts to show just what effects on private investment decisions may be expected from a given

amount of government expenditures. Although it was not originally developed for the treatment of government expenditures, it is readily adapted to this purpose and forms a necessary part of any attempt to analyze the effects of government expenditures.

The student of government finance may find the following discussion of the acceleration principle much more "theoretical" than has generally been customary in this field. No apologies are made here, however. If the subject of government finance is to include a consideration of the effects of fiscal policies, then there is no alternative to making use of those aspects of theoretical analysis which are pertinent. There has been too much of snap decisions and conclusions concerning the effects of government expenditures on the private economy. In most cases a large amount of thought which related fields have devoted to the analysis of such consequences has been ignored. Unless the subject of government finance is to be a purely descriptive science, it is necessary to permit the infiltration—nay, integration—of the relevant parts of business cycle and economic theory into the pages of books on government finance.

#### RECENT DISCUSSIONS OF THE ACCELERATION PRINCIPLE

The past ten years have witnessed an intensive discussion of the acceleration principle and its ramifications.<sup>1</sup> There are, nevertheless,

<sup>1</sup> A comprehensive set of references is given in Gottfried von Haberler, *Prosperity and Depression* (Geneva: United Nations, 1946, third edition), pp. 85-105.

The major references to be added to those given by Haberler in the pages cited above are:

F. A. Hayek, *Profits, Interest and Investment* (London: George Routledge and Sons, 1939), Part I.

M. Kalecki, *Essays in the Theory of Economic Fluctuations* (New York: Farrar & Rinehart, 1939), Chapter 2.

P. A. Samuelson, "Interactions Between the Multiplier Analysis and the Principle of Acceleration," *Review of Economic Statistics*, Vol. 21 (May, 1939), pp. 75-78. Reprinted in *Readings in Business Cycle Theory* (Philadelphia: The Blakiston Company, 1944); and "A Synthesis of the Principle of Acceleration and the Multiplier," *Journal of Political Economy*, Vol. 47 (December, 1939), pp. 786-97.

J. Tinbergen, *Statistical Testing of Business-Cycle Theories, I: A Method and Its Application to Investment Activity* (Geneva: League of Nations, 1939), Chapters 3-6; and *II: Business Cycles in the United States of America: 1919-1932* (Geneva: League of Nations, 1939), Chapters 3, 6, 7.

C. D. Long, Jr., *Building Cycles and the Theory of Investment* (Princeton: The Princeton University Press, 1940), Chapters 2 and 3.

D. McC. Wright, "A Neglected Approach to the Acceleration Principle," *Review of Economic Statistics*, Vol. 23 (May, 1941), pp. 100-101.

A. H. Hansen, *Fiscal Policy and Business Cycles* (New York: W. W. Norton & Company, 1941), Chapter 12.

Evsey D. Domar, "Investment, Losses, and Monopolies," in *Income, Employment and Public Policy: Essays in Honor of Alvin H. Hansen*, pp. 44-49 (New York:

certain changes of emphasis which are required as a preliminary to a study of the effects of government expenditures, if not for a clarification of the theory itself. For one thing, too little attention has been paid to the *time sequence* implied in the acceleration principle. This is true of the analysis under the usual rigid assumptions of full employment and constant degree of capital intensity as well as of the analysis under realistic "qualifications," such as unemployed resources, inventories, various types of expectations, and technological changes. In attempting to deal with the principle empirically the time sequence is of crucial importance. An understanding of the *interrelations* between the acceleration principle and other aspects of economic theory is of scarcely less importance. Sometimes, for instance, the principle is treated as if it were independent of such important variables as prices and profits—notably in the contrast drawn by Tinbergen between the "profit principle" and the "acceleration principle."<sup>2</sup>

Finally, *technological changes* which result in changes in capital intensity have not been given adequate attention in the discussion of the acceleration principle. These three main deficiencies are, of course, related among themselves. They must all be considered fully before the acceleration principle can be said to have its feet on the ground. Since our concern is mainly with the practical implications of the acceleration principle—with the implications it has for government expenditures—attention is directed mainly to these questions of time sequence, interrelations, and technological changes. For this purpose it is necessary to study the operation of the principle under realistic conditions.

Significant steps in the direction of revising the theory along realistic lines have been taken by Clark,<sup>3</sup> Kuznets,<sup>4</sup> Tinbergen,<sup>5</sup> and Long.<sup>6</sup> Kuznets, in particular, has given attention to many aspects of the time sequence involved and has woven into his analysis problems introduced

W. W. Norton & Co., 1948).

Richard M. Goodwin, "Secular and Cyclical Aspects of the Multiplier and the Accelerator," in *Essays in Honor of Alvin Hansen*, pp. 108-132.

<sup>2</sup> Tinbergen, *op. cit.*, and "Statistical Evidence on the Acceleration Principle," *Economica*, Vol. 5 (New Series, May, 1938), pp. 164-76.

<sup>3</sup> J. M. Clark, *Strategic Factors in Business Cycles* (New York: National Bureau of Economic Research, 1934), pp. 33-53.

<sup>4</sup> S. Kuznets, "Relation Between Capital Goods and Finished Products in the Business Cycle," in *Economic Essays in Honor of Wesley Clair Mitchell* (New York: Columbia University Press, 1935), pp. 211-67. Cf. Domer, *op. cit.*

<sup>5</sup> J. Tinbergen, "Annual Survey: Suggestions on Quantitative Business Cycle Theory," *Econometrica*, Vol. 3 (July, 1935), pp. 241-308; and *Economica* study, *loc. cit.*

<sup>6</sup> Long, *op. cit.*

by replacement (following Clark<sup>7</sup> and Frisch<sup>8</sup>), overcapacity, and expectations. There is still much to be done in the same direction as well as in the other directions mentioned above. Haberler<sup>9</sup> and Hansen<sup>10</sup> have discussed the principle mainly under its rigid assumptions and have then conceded that for the real world there are a great many qualifications to be made. Hansen, for instance, follows his discussion of the principle with the statement that the actual relation between consumption and investment in the real world "is a very complex and uncertain one."<sup>11</sup> He mentions a number of aspects of complexity and uncertainty which make qualifications of the theory necessary, including among other factors changes in replacement percentages and degrees of utilization. Our task is to make the "qualifications" integral parts of the theory rather than just afterthoughts. We turn first to a statement of the principle under its most rigid assumptions in order to learn what changes have to be made for an analysis of the effects of government expenditures.

### Statement of the Acceleration Principle Under Assumptions of Full Employment and Given Technique

The acceleration principle was developed mainly to explain the supposed fact that fluctuations of investment exceed and precede fluctuations of consumption. In view of the time sequence between the two variables it might well be thought that the causal relation runs from capital goods to consumption goods. In his earlier work, in fact, Mitchell examined price data for capital and consumption goods, found that the prices of the former declined before the prices of the latter, and concluded that the causal factor lay in the capital goods.<sup>12</sup>

<sup>7</sup> Clark, *op. cit.*, and several articles in the *Journal of Political Economy*: "Business Acceleration and the Law of Demand: A Technical Factor in Economic Cycles," Vol. 25 (March, 1917), pp. 217-35. Reprinted in *Readings in Business Cycle Theory* (Philadelphia: The Blakiston Company, 1944); "Capital Production and Consumer-Taking: A Reply," Vol. 39 (December, 1931), pp. 814-16; and "Capital Production and Consumer-Taking: A Further Word," Vol. 40 (October, 1932), pp. 691-93.

<sup>8</sup> R. Frisch, several articles in the *Journal of Political Economy*: "The Interrelation Between Capital Production and Consumer-Taking," Vol. 39 (October, 1931), pp. 646-54; "Capital Production and Consumer-Taking: A Rejoinder," Vol. 40 (April, 1932), pp. 253-55; and "Capital Production and Consumer-Taking: A Final Word," Vol. 40 (October, 1932), p. 694.

<sup>9</sup> Haberler, *op. cit.*

<sup>10</sup> Hansen, *op. cit.*, and *Full Recovery or Stagnation?* (New York: W. W. Norton & Company, 1938), Chapter 2.

<sup>11</sup> Hansen, *Fiscal Policy and Business Cycles*, p. 282; and *Full Recovery or Stagnation?*, p. 50.

<sup>12</sup> W. C. Mitchell, *Business Cycles* (Berkeley: University of California Press, 1913) pp. 99-103, 500-502.

This would seem to be a reasonable conclusion. The acceleration principle, however, points to the consumption goods as the causal factor. The demand for capital goods (including inventories and consumers' durable goods),<sup>13</sup> it claims, is derived from the demand for consumption goods and services in such a way that changes in the demand for capital goods are determined by *changes in the rate of change* of consumption. If the demand for consumption goods remains unchanged there need be no net investment in the consumption goods industries; all that is required is the replacement and maintenance of the capital employed. If there is an increase in the amount of consumption per period net investment will be required provided that the capital equipment was fully utilized to begin with. In fact, if technical methods remain unchanged, the effect on investment can be measured. A 10 per cent increase in the output of consumption goods would require a 10 per cent increase in the total stock of capital employed in the production of consumption goods. If the replacement item had previously been 10 per cent of this stock of capital the total output of capital goods would rise from 10 per cent to 20 per cent of the stock of capital. In short, a 10 per cent increase in consumption would involve a 100 per cent increase in the production of capital goods.

If the ratio between stock of capital used for the production of consumption goods to the output of consumption goods had previously been 2:1, then, under the assumptions of full utilization of equipment and unchanged technique, the changes would also be in the same proportion. An increase of \$5 billion in consumption, say from \$50 billion to \$55 billion, would require \$10 billion of net investment. Hence both in absolute magnitude (if the ratio is greater than 1:1) and in percentage terms the fluctuations of investment exceed those of consumption. The relation is actually between absolute amounts, not percentages,<sup>14</sup> but the resulting changes can be demonstrated in terms of percentages. The ratio between the amount of investment and the change in consumption we may call the *Accelerator*.<sup>15</sup> This term is preferable to that of the "Multi-

<sup>13</sup> Kuznets, "Relation between Capital Goods and Finished Products in the Business Cycle," pp. 212-25; Haberler, *op. cit.*, pp. 88-96.

<sup>14</sup> Cf. Hansen, *Full Recovery or Stagnation?*, p. 48n. and *Fiscal Policy and Business Cycles*, p. 364n.

<sup>15</sup> Where  $I_n$  is net investment in period  $n$ ,  $C_n$  consumption in period  $n$  and  $A$  the Accelerator, the last is defined as follows:  $I_n = A(C_n - C_{n-1})$ . More simply,  $I(t) = A \cdot C'(t)$  where  $I(t)$  is the rate of investment and  $C'(t)$  is the rate of change (the "acceleration") of consumption. (The term "Accelerator" was proposed by the present writer in a doctoral dissertation completed in 1942.)

plier," suggested by Hayek,<sup>16</sup> owing to the danger of confusing the latter term with the multiplier principle. Hansen's terms "acceleration leverage" and "acceleration coefficient"<sup>17</sup> are acceptable but less convenient. The term "relation" used by Harrod<sup>18</sup> (and also by Samuelson<sup>19</sup>) is, as Haberler<sup>20</sup> points out, likely to be confused with other relations between consumption and investment.

Where the amount of consumption per period is increasing at a constant rate, there will be a constant amount of net investment per period. In the above example, if consumption keeps rising by \$5 billion each year, net investment will be \$10 billion each year. A mere *fall in the absolute rate of increase* of consumption will result in a fall in the actual amount of investment. Whether there is a fall in the total output of capital goods, including both new investment and replacement, is another matter (to be considered below), but regarding the new investment the analysis holds. If the rate of increase of consumption falls from \$5 billion to \$4 billion net investment will fall from \$10 billion to \$8 billion. Thus consumption may be rising from a level of \$55 billion to a level of \$59 billion and yet investment will be falling from a level of \$10 billion to a level of \$8 billion. As Clark puts it ". . . the velocity of output in the capital-making industries depends, not on the velocity of output in the industries which use the capital to make goods for consumption, but on its acceleration."<sup>21</sup> A deceleration of consumption results in a fall in the velocity of investment.

Since the reduction in the rate of increase of consumption may precede the fall in investment, the causal relation may run from consumption to investment even though the fall in consumption itself may take place only after the fall in investment. This is a very ingenious result and an interesting illustration of Schumpeter's statement that ". . . in our field causes do not always precede effects."<sup>22</sup> Is there any flaw in the argument; and can we reasonably expect the result to apply under realistic conditions? Can we rely on the principle as stated above to give a basis for analyzing the effects of government spending on private investment?

<sup>16</sup> Hayek, *op. cit.*, p. 19.

<sup>17</sup> Hansen, *Fiscal Policy and Business Cycles*, pp. 264 and 276n., respectively.

<sup>18</sup> R. F. Harrod, *The Trade Cycle* (Oxford: The Clarendon Press, 1936), Chapter 2.

<sup>19</sup> Samuelson, *op. cit.*, *Review of Economic Statistics*, p. 75; Reprinted in *Readings in Business Cycle Theory*; and *Journal of Political Economy*, p. 791.

<sup>20</sup> Haberler, *op. cit.*, p. 87n.

<sup>21</sup> J. M. Clark, *Studies in the Economics of Overhead Costs* (Chicago: University of Chicago Press, 1923), p. 390.

<sup>22</sup> J. A. Schumpeter, *Business Cycles* (New York: McGraw-Hill Book Company, 1939), Vol. I, p. 14.

## THE PLACE OF DERIVED DEMAND

Since the acceleration principle is merely a refinement of the principle of derived demand, the former must stand or fall with the latter. The relation between the demand for capital goods and the demand for consumption goods was stressed forcibly by Bouniatian, who played a part in the development of the acceleration principle.<sup>23</sup> The Keynesian school (e.g., as represented by Lange<sup>24</sup>) also has related the inducement to invest closely to consumption, the marginal efficiency of capital being taken as a function of consumption.

There is, however, some objection to the principle of derived demand as a general proposition relating investment and consumption. Many firms are not engaged in the production of consumption goods. Why should their investment decisions be affected by changes in consumption? If the acceleration principle is to take account of this case it must be broadened to apply between any two stages of production. It is evident that the acceleration principle applies between the production of *any* capital goods and the "finished" products produced by those capital goods.<sup>25</sup> The "finished" products may, in turn, be capital goods. Thus, Kuznets deals with the relation between "capital goods and finished products."<sup>26</sup> In this way the acceleration principle is extended to cover the case of the business man whose investment decisions are geared, not to consumption, but to the production of capital goods, i.e., to the investment decisions of other businessmen.

## APPLICATION TO ALL STAGES OF PRODUCTION

The extension of the principle to cover all stages is a step in the direction of placing the principle of derived demand and thus the prin-

<sup>23</sup> M. Bouniatian, *Les crises économiques* (Paris: Marcel Giard, 1922), p. 241.

<sup>24</sup> O. Lange, "The Rate of Interest and the Optimum Propensity to Consume," *Economica*, Vol. 5 (New Series, February, 1938), pp. 12-32. Reprinted in *Readings in Business Cycle Theory* (Philadelphia: The Blakiston Company, 1944).

Where  $I$  is net investment,  $C$  expenditure on consumption, and  $i$  the rate of interest, Lange's relation is

$$I = f(C, i).$$

<sup>25</sup> Cf. Haberler, *op. cit.*, p. 88.

<sup>26</sup> Kuznets, *op. cit.*, p. 211. "The terms 'finished products' and 'capital goods' are used in the present discussion not in an absolute sense, but as relative to each specific link in the buying-selling relations that run through the economic system. Capital goods are thus raw materials, machinery, buildings, and any other commodity which an entrepreneur needs to produce what from his standpoint is the finished product. What are finished products to a given entrepreneur may obviously be capital goods to another entrepreneur. Similarly, 'production' is used in the broadest sense, to include not only manufacturing and extracting industries, but also transportation, trade, and service."

ciple of acceleration on a more practical level. The Accelerator becomes the ratio between the amount of capital goods produced in any stage of production and the change in the production of finished goods in the next stage.<sup>27</sup> The Accelerator would undoubtedly vary from one stage of production to another.<sup>28</sup> The application of the acceleration principle to various stages of production and the possibility of variations in the Accelerator from stage to stage produce several problems which will be considered at a later point.

The introduction of stages provides only a partial answer to those who object to the principle of derived demand. Investment decisions are certainly affected by other considerations beside the demand for the product. This brings us into the realm of cost factors, technological changes, etc. To the extent that these factors operate, must we discard the acceleration principle? If the demand for the finished product is considered to be at least one of the fundamental factors affecting investment decisions, the other factors can be brought in as determinants of the *extent to which* the changes in the demand for the finished products affect the demand for the capital goods. In other words, they can be considered as factors affecting the magnitude of the Accelerator.

The Accelerator thus varies in time as well as from stage to stage.<sup>29</sup> It is a function of the other factors affecting investment decisions, in so far as these are measurable. The principle of derived demand remains at the basis of the relationship, but it is now a changing relationship over time. This is the second step in the direction of putting the acceleration principle on a realistic basis. The possible nature of the changes in the Accelerator is considered below. This question, which has been considered by various writers, is closely intertwined with other questions, such as unemployed resources, expectations, and technological changes.

#### REPLACEMENT EXPENDITURES ON CAPITAL GOODS

The distinction between new and replacement investment, brought into prominence by the Frisch-Clark discussion,<sup>30</sup> is almost as funda-

<sup>27</sup> Where  $O_n^m$  represents the output of any stage in period  $n$ ,  $O_{n-1}^m$  the output of that stage in period  $n - 1$ , and  $O_n^{m-1}$  the output of the preceding stage in period  $n$ , we have  $O_n^{m-1} = A(O_n^m - O_{n-1}^m)$ . Or we have  $O^{m-1}(t) = A \cdot O^m(t)$  where  $O^{m-1}(t)$  represents the rate of production in the earlier stage and  $O^m(t)$  the rate of change of production (the "acceleration") of goods in the later stage.

<sup>28</sup> Thus we have  $O_n^{m-1} = A \frac{m-1}{m} (O_n^m - O_{n-1}^m)$  or  $O^{m-1}(t) = A \frac{m-1}{m} O^m(t)$  where  $A \frac{m-1}{m}$  is the Accelerator between the two stages.

<sup>29</sup> This gives us  $O_n^{m-1} = A_n \frac{m-1}{m} (O_n^m - O_{n-1}^m)$  or  $O^{m-1}(t) = A \frac{m-1}{m} (t) \cdot O^m(t)$ .

<sup>30</sup> See p. 69, notes 7 and 8, above.



mental to the acceleration principle as is the principle of derived demand. The volume of replacement expenditures is determined partly by (a) the amount of capital goods in existence (in so far as depreciation is merely a function of time, i.e., through age and obsolescence) and partly by (b) the extent to which the capital goods are used to produce "finished" products (in so far as depreciation is a function of use, i.e., through wear and tear or direct use in the process of production).<sup>31</sup> It does not vary with changes in production of finished goods, taken by themselves, nor with changes in the rate of change. Those who have incorporated replacement expenditures into discussions of the acceleration principle have generally made assumption (b) and have not considered the fact that any particular capital good might be subject to elements of *both* (a) and (b). Mitchell, for instance, formulated the total demand for capital goods as follows:<sup>32</sup>

The demand for industrial equipment is partly a replacement demand and partly a demand for betterments and extensions. The replacement demand for equipment doubtless varies with the physical quantity of demand for products; since, as a rule, the more rapidly machines and rolling stock are run the more rapidly they wear out. The demand for betterments and extensions, on the other hand, varies not with the physical quantity of the products demanded, but with the fluctuations in this quantity.

The same assumptions are made by Pigou,<sup>33</sup> Frisch,<sup>34</sup> Clark,<sup>35</sup> and Hansen.<sup>36</sup> The last-named has stated these assumptions most emphatically.<sup>37</sup> All these authors make only assumption (b) for replacement expenditures.

<sup>31</sup> Hence similar to Keynes' "user cost." See Keynes, *The General Theory of Employment, Interest and Money*, p. 53.

<sup>32</sup> W. C. Mitchell, "The Problem of Controlling Business Cycles," in *The Stabilization of Business*, ed. by Lionel D. Edie (New York: The Macmillan Company, 1923), p. 24. [Reprinted by permission of the publishers.]

<sup>33</sup> A. C. Pigou, *Industrial Fluctuations* (London: The Macmillan Company, 1929, 2d ed.), p. 110.

<sup>34</sup> Frisch, in the articles previously cited in the *Journal of Political Economy*, 1931 and 1932; and also "Propagation Problems and Impulse Problems in Dynamic Economics" in *Economic Essays in Honour of Gustav Cassel* (London: George Allen & Unwin, 1933), pp. 176-78.

<sup>35</sup> Clark, in the articles, previously cited, in the *Journal of Political Economy*, 1917, 1931, and 1932.

<sup>36</sup> Hansen, *Fiscal Policy and Business Cycles*, p. 278.

<sup>37</sup> *Ibid.* "New investment is in no way affected by the level of consumption expenditures, but only by the changes in the level of consumption. When consumption rises and falls, replacement and new investment expenditures are thereby affected, but the basic level of replacement expenditures is determined by the level of consumption." [*Italics in original.* Copyright 1941 by W. W. Norton and Co., Inc.; reprinted by permission of the publishers.]

Kuznets, on the other hand, goes to the opposite extreme. He restricts assumption (b) to distributive stocks (i.e., inventories of middlemen) and makes assumption (a) for durable equipment.<sup>38</sup> This assumption is not tenable except for capital goods which have infinite durability in the sense that they do not wear out with use.

The effect of replacement expenditures on the total demand for capital goods is to introduce the possibility of a different timing relation between changes in the production of capital goods and changes in the rate of change of the production of finished goods. As the level of consumption rises, replacement expenditures rise because of the factor (b). The rise in replacement expenditures may offset a fall in new investment expenditures arising out of a decline in the rate of increase of consumption. This point was stressed by Frisch. Pigou also seems to show awareness of the point.<sup>39</sup> Since Pigou uses the term "very probably" instead of "must" for the total demand for capital goods, he apparently feels that although the growing replacement demand might be sufficient to offset a decline in the rate of growth of production of finished goods, such an eventuality is unlikely. This view is consistent with that of Clark, who felt that Frisch's point was relatively unimportant.<sup>40</sup> One is inclined to agree with Clark, despite Frisch's insistence on the significance of the principle.<sup>41</sup> Hansen has apparently accepted Frisch's conclusions as being of some importance.<sup>42</sup> Haberler also refers to Frisch's analysis but interprets it differently. Frisch clearly made assumption (b),

<sup>38</sup> Kuznets, *op. cit.*, p. 219 n.3 "In studying Frisch's conclusions it must be remembered that they are applicable only to the type of capital goods . . . best exemplified by stocks of distributive trades, but not applicable to durable, fixed equipment, the replacement demand for which is obviously not related directly to current output."

<sup>39</sup> Pigou, *loc. cit.* "If the demand for consumption goods grows at a constant rate, the demand for new instruments to provide for new production will be constant, and the demand for new instruments to make good wear and tear will gradually increase, so that the demand for new instruments as a whole will gradually increase. If . . . the rate at which the demand for consumption goods is increasing decreases, the demand for new instruments for new production *must* decrease, and the demand for new instruments in the aggregate will very probably decrease." [Reprinted by permission of the Macmillan Company, publishers.]

<sup>40</sup> Clark, *Journal of Political Economy*, December, 1931, pp. 814-16.

<sup>41</sup> Frisch, *Journal of Political Economy*, April, 1932, p. 254.

<sup>42</sup> Hansen, *Full Recovery or Stagnation?*, p. 49. "It is not true that the rate of investment must decline when the rate of increase of consumption *begins* to slow down. It is not even true that it must decline at all. One can set up a model under the simplified conditions which have usually been assumed, showing that it will so decline *after a time*. And one can also, as Frisch has done, set up models under which both investment and consumption reach an asymptote with no absolute decline occurring in either one." [Italics in original. Copyright 1938 by W. W. Norton and Co., Inc., reprinted by permission of the publishers.]

## GOVERNMENT EXPENDITURES

that replacement demand would rise with increased output of finished goods, *all* capital goods (both new and old) wearing out sooner because of the increased output. Thus a rise in replacement demand would take place at once and the possibility of a changed timing relation would exist at all times. Haberler, however, seems to think Frisch has made assumption (a), that replacement demand depends on the size of the capital stock. As the capital stock rises through increased investment, then, when the *new* capital goods have to be replaced (e.g., in ten years), there is a possibility of a hitch developing in the time relation.<sup>43</sup> Thus Frisch's point would become a rare coincidence instead of a continuous possibility.

The effect of the introduction of replacement expenditures, under assumption (a) or (b) or both, makes it important to recognize constantly the distinction between net and gross investment. Net investment can be treated as a function of changes in the production of finished products.<sup>44</sup> Gross investment must be considered a function not only of this but of the level of consumption (assumption (b))<sup>45</sup> and also the amount of capital stock (assumption (a)).<sup>46</sup> There is, moreover, the possibility that the amount of replacement might vary with many additional factors.<sup>47</sup> These are practical considerations which cannot be ignored in considering fluctuations of capital goods production as a whole. The timing relationship may be affected if replacement is sufficiently important.

<sup>43</sup> "If capital equipment is being continuously increased by equal amounts per unit of time, the demand for replacement must rise *after a while* to a new level. In our numerical example, this point would be reached *after ten years*, when the 50 additional machines of the first year are worn out and must be replaced." [Italics added.] Haberler, *op. cit.*, p. 91.

<sup>44</sup> That is,  $I_n = A(C_n - C_{n-1})$  as previously stated (leaving aside the question of stages for the moment).

<sup>45</sup> Where  $G$  is gross investment,  $R$  replacement expenditures, and  $B$  the relation between the level of consumption and replacement expenditures, we have

$$R_n = B \cdot C_{n-1}$$

and

$$G_n = B \cdot C_{n-1} + A(C_n - C_{n-1}).$$

<sup>46</sup> Where  $K_{n-\gamma}$  is the stock of capital at time  $n - \gamma$  and  $D$  the relation between it and replacement expenditures at time  $n$ , we have

$$\begin{aligned} R_n &= B \cdot C_{n-1} + D \cdot K_{n-\gamma} \\ G_n &= B \cdot C_{n-1} + D \cdot K_{n-\gamma} + A(C_n - C_{n-1}). \end{aligned}$$

<sup>47</sup> It may be necessary to introduce  $B_n$  and  $D_n$ , just as we introduced  $A_n$ .

## SIGNIFICANCE OF THE ASSUMPTION OF FULL EMPLOYMENT

The above discussion of the principle of derived demand and of the distinction between gross and net investment has been confined to fundamental characteristics of the principle of acceleration. We now turn to a discussion of the assumption which was imposed for purposes of analysis, namely the assumption of full employment. This assumption was imposed in order to keep the *Accelerator* constant, at least in so far as the degree of utilization of equipment is concerned. Before we try to relax the assumption it is important for us to be certain of its implications.

It is generally taken for granted that the acceleration principle, under its usual rigid assumptions, leads to the conclusion that an increase in the rate of increase of consumption will *precede* an increase in (net) investment. This is impossible, however, if we take the assumption of full employment literally. If there is really full employment in the economy, both in the capital goods and the consumption goods industries, there can be no increased rate of increase of production of consumption goods until more equipment is provided; and more equipment cannot be provided by the fully employed capital goods industries unless they temporarily divert resources from other parts of the economy, i.e., from the consumption goods industries. A transfer of resources is necessary from consumption to capital production with the result that the increase in rate of increase of consumption can only *follow* an increase in investment. Yet most authors have glibly made or implied the assumption of full employment and, at the same time, have taken it for granted that the increase in rate of increase of consumption would *precede* the increase in investment. Few have even realized that there was a problem involved.

The need for a transfer of resources was recognized by Aftalion, who played an important part in the development of the acceleration principle.<sup>48</sup> Tinbergen also shows an awareness of the difficulty involved.<sup>49</sup> Long has also considered the question.<sup>50</sup>

In general, however, there has been a failure to recognize the sig-

<sup>48</sup> A. Aftalion, *Les crises périodiques de surproduction* (Paris: Marcel Riviere, 1913), Vol. II, p. 164.

<sup>49</sup> "When capacity is fully utilized . . . it is . . . necessary that the increase in current production be preceded by an increase in capacity . . . If the movement is cyclical, new investment should *lead* current production (current demand) . . ." Tinbergen, *op. cit.*, *Econometrica*, July, 1935, p. 253.

<sup>50</sup> Long, *op. cit.*, pp. 41, 58.

nificance of the assumption of full employment for the time sequence involved. Haberler recognizes the fact that the assumption of full employment interferes with the operation of the acceleration principle. He recognizes that “. . . under full employment, the production of consumers’ goods or that of producers’ goods are alternatives,”<sup>51</sup> but in a footnote he modifies this statement.<sup>52</sup> Clark does not deal explicitly with the question. After he allows for “the time required to make equipment”<sup>53</sup> and “the limited capacity of the equipment-making industries,”<sup>54</sup> he still concludes “. . . the work of making equipment may lag considerably behind the need (as it naturally would do) and still it will naturally reach its highest point and start downward before the consumers’ demand does so.”<sup>55</sup> Frisch mentions that he could take account of the fact that “capital production takes time” without altering “materially” the results he derived through considering replacement investment.<sup>56</sup> Actually, however, the time sequence might be completely upset.

The failure to recognize the significance of the assumption of full employment may be traced in some cases to a failure to consider at all the question of appropriate time sequence. In other cases, however, an outright error has been committed. Haberler does not make the error of specifying an incorrect time sequence.<sup>57</sup> Robertson, on the other hand, implies a coincidence of all changes.<sup>58</sup> If we leave out all time lags in

<sup>51</sup> Haberler, *op. cit.*, p. 51.

<sup>52</sup> “The fact that the production of consumers’ goods can be expanded only at the expense of a reduction in the production of producers’ goods and *vice versa* does not, of course, hold if there are idle factors of production available. Furthermore, it does not preclude the possibility that, besides this physical connection between the production of the two categories of goods, there may be connections of another nature—e.g., an increase in the production of consumers’ goods may tend to stimulate the production of producers’ goods, as postulated by the ‘acceleration principle.’” *Ibid.*, p. 51n.

<sup>53</sup> Clark, *Studies in the Economics of Overhead Costs*, p. 392.

<sup>54</sup> *Ibid.*

<sup>55</sup> *Ibid.*, p. 393.

<sup>56</sup> Frisch, *op. cit.*, *Journal of Political Economy*, October, 1931, p. 652.

<sup>57</sup> “In its more rigorous form, it [the acceleration principle] postulates a certain quantitative relationship between the production of finished goods and that of their means of production. In a less ambitious form, taking all qualifications into consideration, it simply says that an increase in demand for, and production of, consumers’ goods tends to stimulate investment and that a fall in the former tends to affect the latter adversely.” Haberler, *op. cit.*, p. 97.

<sup>58</sup> “Thus, as has often been pointed out, if 10 per cent of cotton-spinning machinery is normally replaced every year, an increase of 10 per cent in the annual demand for cotton-yarn will warrant in the first year an increase of 100 per cent in the output of cotton-spinning machinery, to be followed, however, in subsequent years by a relapse to nearly the old level.” D. H. Robertson, *Banking Policy and the Price Level*, p. 11. (London: P. S. King and Son, 1926).

interpreting the acceleration principle, then, as Kalecki points out,<sup>59</sup> we must reach the conclusion that, at the top of the boom when consumption is stationary, investment should fall to the level of depreciation, while in actual fact its maximum is reached almost at the same time as that of consumption.

In his early formulation of the acceleration principle Clark indicates his belief that the cause of the fall in investment is a decline in the rate of increase of consumption, which precedes the fall in investment (which in turn precedes the fall in production of finished products). He points out that the maximum and minimum points in the demand (for capital goods) tend to *precede* the maximum and minimum points in the demand for finished products. In that way the effect appears to precede its own cause.<sup>60</sup> A reference to a lead is also made by Clark in a later article. He elaborates on the point and suggests, as reasons, "It takes time to formulate plans, carry through the necessary financing, place orders or let contracts, and carry the work to completion."<sup>61</sup> Frisch also mentions "a little interval of time" between the decline in the rate of increase in consumption and the fall in capital production.<sup>62</sup> In the formulation of Samuelson, moreover, a positive lead of the consumption element over the investment element is explicitly recognized.<sup>63</sup> This formulation is reproduced by Hansen.<sup>64</sup>

To summarize, the implications of the assumption of full employment have not been recognized fully. For all practical purposes the assumption is an impossible one when applied to the acceleration principle as usually formulated. The customary statement of the principle (including that given in the earlier parts of this chapter) is incorrect. No increase can take place in the rate of increase of consumption until an increase takes place in the production of capital goods for new investment purposes. Only after investment rises can the rate of increase of consumption be stepped up. Does the acceleration principle have nothing to do, then, with the increased investment? Here we must bring in expectations, based on increased demand expressing itself in higher prices of consumption goods. We may expect the following sequence: an increase in the demand for consumption goods (i.e., a shift of the aggre-

<sup>59</sup> Kalecki, *op. cit.*, p. 65.

<sup>60</sup> Clark, *op. cit.*, *Journal of Political Economy*, March, 1917.

<sup>61</sup> Clark, *op. cit.*, *Journal of Political Economy*, October, 1932, p. 692. See also Clark, *Strategic Factors in Business Cycles*, p. 37.

<sup>62</sup> Frisch, *op. cit.*, *Journal of Political Economy*, April, 1932, p. 254.

<sup>63</sup> Samuelson, *op. cit.*, *Review of Economic Statistics*, May 1939, p. 76; and *op. cit.*, *Journal of Political Economy*, December, 1939, p. 791.

<sup>64</sup> Hansen, *Fiscal Policy and Business Cycles*, pp. 279-82.

gate demand curve to the right); a rise in prices of consumption goods (since the consumption goods industry is operating at capacity); an increased demand for equipment; an increased production in the capital goods industry at the expense of the production of consumption goods; an increased rate of increase of production in the consumption goods industry. This is, of course, an oversimplified analysis but it is basically sound under conditions of full employment. The time sequence of the production items is the reverse of that usually taken for granted. The increase in the rate of increase of consumption must *follow* rather than *precede* the increased investment.<sup>65</sup>

### Underutilization of Capital Equipment

When we relax the assumption of full employment a great many additional possibilities are opened up. It is important to consider these possibilities in view of the actual significance of changes in the degree of utilization of equipment. Kalecki points out that "it is clear from trade cycle statistics that it is precisely the fluctuation in the use of equipment which accounts chiefly for changes in output, and the proportionate increase or decrease of equipment is of minor importance."<sup>66</sup> Although one would have to question the "minor importance" of fluctuations in the production of capital goods, there can be no question regarding the importance of fluctuations in the degree of utilization of equipment. This is particularly true because the issue of large government expenditures usually arises under conditions of underutilization of equipment.

The *possibility* of underutilization has, accordingly, been recognized by many of those who have written on the acceleration principle—but as a "qualification" modifying, in some indefinite way, the operation of the acceleration principle. The precise effect which unused capacity may have on the Accelerator and on the time sequence has not been formulated. Clark, for instance, speaks of the fact that a "complication arises because fluctuations in demand for products or services are not instantly followed by the precisely appropriate fluctuations in stocks and current output of the durable goods required as means to make the products or render services."<sup>67</sup> The precise effect which this complication may have on the Accelerator and on the time sequence is not indicated. Kuznets carries Clark's suggestion a few steps further in a general way.<sup>68</sup>

<sup>65</sup> Thus  $I_{n-1} = A(C_n - C_{n-1})$ .

<sup>66</sup> Kalecki, *op. cit.*, p. 65. Cf. Kuznets, *op. cit.*, pp. 231-35.

<sup>67</sup> Clark, *Strategic Factors in Business Cycles*, p. 37.

<sup>68</sup> Kuznets, *op. cit.*, p. 235.

## EFFECTS IN ABSENCE OF INVENTORIES OF EQUIPMENT

We shall first consider the case where there are no inventories of uninstalled equipment. The consumer goods industries are assumed to be operating at capacity but equipment in the capital goods industries is not fully utilized. Here no transfer of resources from the consumption to the capital goods industries would be necessary. An increase in the rate of increase of consumption goods production would, nevertheless, have to *follow* rather than *precede* the increased production of capital goods. The additional equipment would have to be produced before an increase could take place in the rate of increase of consumption.

If the consumers' goods industries are operating below capacity and the capital goods industries are operating at capacity, then the rate of increase of consumption can rise immediately but there can be no change in investment except by diverting some of the new capital goods from the production of consumption goods to the production of capital goods. Whether such diversion is needed immediately depends on the policy with respect to underutilization adopted in the consumption goods industries. If the policy is to maintain a certain level of underutilization then the pressure of the capital goods industries will arise as soon as the level is reached.<sup>69</sup> The course of events is then the same as in the case of full employment. A transfer of resources must first take place and only then can the acceleration principle operate—but again in reverse (from that point on) with the increase in rate of increase of consumption *following* rather than *preceding* the increased investment.

Where underutilization exists in both consumption and capital goods industries the time sequence depends on the policy adopted with respect to the degree of utilization. If the policy throughout is to utilize all plant capacity fully, then the increased rate of increase of consumption may *precede* or *accompany* the rise in capital goods production. If a given level of underutilization is maintained as a matter of policy in the consumption goods industries, then the increased rate of increase of consumption may have to *follow* the increased production of capital goods.

In all these cases the size of the Accelerator depends not only on the degree of underutilization in the consumption goods industries but on the policy adopted with respect to such underutilization. The Accelerator need not be zero or even less than it would be under conditions of full employment in the consumption goods industries. If new equipment is

<sup>69</sup> Cf. Tinbergen, *op. cit.*, *Economica*, May, 1938, p. 167 and Haberler, *op. cit.*, p. 307.



ordered as soon as the degree of underutilization in the consumption goods industries begins to be reduced then the Accelerator may be as large as ever. If no new equipment is ordered until all or a given degree of underutilization is removed, then the Accelerator may be zero for a while. If a mixed policy is followed, orders for new equipment being given but with a view merely to reducing the rate of elimination of underutilization, then the Accelerator would lie between zero and its "full employment" value.

#### EFFECTS WITH INVENTORIES OF EQUIPMENT

The existence of inventories of uninstalled equipment has the same effect as underutilization in the narrower sense, but now we must deal with inventory policy rather than "underutilization policy." The capital goods industries willing, the inventories of equipment can be put to work at once in the production of consumption goods. If the capital goods industries do not try to replenish their stocks, then the Accelerator may be zero. If they try to replenish their stocks as they are depleted, then the Accelerator may be at the full employment level and the increased rate of increase of consumption may *accompany* the increased production of capital goods. Numerous other possibilities exist, particularly when we consider the various combinations of degrees of underutilization, amount of inventories, and management policy with respect to both these factors.

#### SIGNIFICANCE OF UNDERUTILIZED EQUIPMENT

The conclusion to be drawn from this analysis is that the effect of the existence of underutilization and inventories of equipment may result in an Accelerator ranging from zero to the "full employment" level and of a time sequence in which the increased rate of increase of consumption may *follow* or *accompany* as well as *precede* the increased investment.<sup>70</sup> These various possibilities enrich rather than invalidate the acceleration principle. We need not follow Tinbergen in saying that "there must be already for theoretical reasons some doubt as to the validity of the acceleration principle"<sup>71</sup> merely because of the existence of underutilization of equipment. The result obtained in any circumstance can be formulated precisely, given information regarding underutilization and inventories, and management policy respecting these factors. A realistic approach to the acceleration principle must recognize such possibilities even though

<sup>70</sup> The possibilities are:  $I_{n+1} = A_n(C_n - C_{n-1})$ ,  $I_n = A_n(C_n - C_{n-1})$ , and  $I_{n-1} = A_n(C_n - C_{n-1})$ . Where  $\bar{A}$  is the technical value for  $A$  appropriate to a level of full employment, we have  $0 \leq A_n \leq \bar{A}_n$ .

<sup>71</sup> Tinbergen, *loc. cit.*

the data necessary for a precise formulation under given conditions may be lacking.

### Expectations

The variability of the Accelerator and of the time sequence involved in the operation of the acceleration principle is greatly increased when we introduce all the possibilities which arise when *expectations* of increases in consumers' demand are considered. The effects which the government expenditures may have on expectations must be taken into account fully. An increase in investment need not be geared to any *actual* increase in the rate of increase of consumption but may be geared to an *expected* increase. The expected increase may be of much greater magnitude than the actual increase, if any, giving rise to the expectation. The reason for this becomes clear when we consider the nature of the acceleration principle.

#### EXPECTATIONS AS A FACTOR IN INVESTMENT DECISIONS

The essence of the acceleration principle is that a relatively great investment in *durable* equipment may take place as a result of relatively small changes in the demand for finished products. Such heavy investment will necessarily be affected by expectations regarding the future. Thus the actual Accelerator may be different from that required by rigid technical considerations confined to changes which have taken place. With a quantity-elasticity of expectations greater than unity<sup>72</sup> (with respect to the consumption changes which have taken place) the Accelerator would tend to be greater than that determined by rigid technical considerations adequate merely for the changes which have taken place in the demand for finished products. With a quantity-elasticity of expectations less than unity the Accelerator would tend to be less than this. With a quantity-elasticity of unity the Accelerator would tend to be that determined by changes in current demand.<sup>73</sup> It is, therefore, the state of expectations rather than purely technical characteristics which

<sup>72</sup> Cf. J. R. Hicks, *Value and Capital* (Oxford: The Clarendon Press, 1939), p. 205. On the limitations of the concept of elasticity of expectations see several articles in the *Review of Economic Studies*: N. Kaldor, "A Note on the Theory of the Forward Market," June, 1940, especially p. 196; R. G. Hawtrey, "Mr. Kaldor on the Forward Market," June, 1940, especially pp. 202-03; G. L. S. Shackle, "The Nature of the Inducement to Invest," October, 1940, especially p. 48; and A. G. Hart, "Uncertainty and Inducements to Invest," October, 1940, especially pp. 52-53. See also A. G. Hart, "Keynes' Analysis of Expectations and Uncertainty," Chapter 31 in *The New Economics*, S. E. Harris, ed. (New York: Alfred A. Knopf, 1947).

<sup>73</sup> Long introduces the idea of *positive*, *negative*, and *neutral* confidence along similar lines. See *op. cit.*, pp. 46, 60-61.

determines the size of the Accelerator. Replacement, underutilization, and inventory policies are likewise affected by expectations. These policies, in turn, influence the degree of magnification obtained.

We have not considered *negative* elasticity of expectations. On this point Pigou's statement is interesting: "When . . . a boom is actually in progress, it requires great self-control on the part of businessmen to act on the presumption that the boom will soon give place to a depression."<sup>74</sup> We may assume that a negative elasticity of expectations is a rare phenomenon.

#### EXPECTATIONS IN THE ACCELERATION PRINCIPLE

Although expectations are an integral part of economic theory the significance of expectations in the context of the acceleration principle has not always been understood, the relationship involved in the principle generally being considered some sort of technical one based on realizations, not expectations. A few writers have, however, recognized explicitly the role of expectations in discussing the acceleration principle. Pigou's discussion of the principle, for instance, runs in terms of expectations: ". . . it seems that the first stage towards a boom is an expansion in dealers' forecasts of the public demand for consumption goods and, therefore, in their own orders for them, and that the associated expansion of demand for instrumental goods is an effect of this."<sup>75</sup> Although Pigou does not go into the resulting time sequence it would seem evident that under such circumstances the increase in the output of capital goods might precede the actual increase in the rate of increase of consumption. Clark does not go very fully into the question, but he says that "Easy credit, combined with an optimistic and speculative spirit, may tend to push expansion beyond its logical proportions as dictated by actual demand."<sup>76</sup> Kuznets, moreover, suggests that "Other factors disregarded, there will . . . be a natural tendency for the entrepreneur to hesitate in committing himself to an increase in his stock of durable capital goods in response to a rise in the demand for finished products."<sup>77</sup>

Wright makes an emphatic statement on the place of expectations in the acceleration principle: "The point which I wish to stress is that exactly the same effects of magnification of derived demand could occur

<sup>74</sup> Pigou, *op. cit.*, p. 108, n. 2. [Reprinted by permission of the Macmillan Company, publishers.]

<sup>75</sup> *Ibid.*, p. 113. [Reprinted by permission of the Macmillan Company, publishers.]

<sup>76</sup> Clark, *Strategic Factors in Business Cycles*, p. 40.

<sup>77</sup> Kuznets, *op. cit.*, p. 229.

if there were no changes in the consumption of (say) shoes, but instead an increase in orders for shoe machinery due *solely* to changes in entrepreneurial expectations or to innovation.”<sup>78</sup> Angell likewise puts great stress on expectations. Discussing the place of the acceleration principle he says, “Regardless of the state of *present* demand, entrepreneurs will not increase present capacity unless their anticipations for the future warrant the step.”<sup>79</sup> He interprets the acceleration principle in terms of either “expected or realized” expansion.<sup>80</sup> Haberler<sup>81</sup> and Long<sup>82</sup> have also explained the place of expectations in the acceleration principle.

Once we introduce expectations, then even “innovations” and such long-run projects as railway-building are not necessarily outside the scope of the acceleration principle. Such projects were used as the basis for a criticism of Harrod<sup>83</sup> by Robertson<sup>84</sup> and Hansen<sup>85</sup> but there is certainly an element of expected demand involved. It is true, however, that the longer the period considered the more blurred becomes the relationship.

#### SIGNIFICANCE OF EXPECTATIONS

As a result of expectations it becomes apparent that the *Accelerator* and the *time sequence* may vary and the latter may become indistinct. A relatively slight increase in consumption may affect expectations so favorably as to promote a much larger magnification of derived demand than would otherwise be possible. The manufacture of equipment might be well under way by the time the expectations are realized; or the expectations may be disappointed. Hence there may be only a negligible increase in consumer demand *preceding* the increase in investment and then a substantial increase *accompanying* or *following* the increase in the production of capital goods (if expectations are realized); or merely an increase in the production of investment goods without any appreciable change in the demand for consumption goods (if expectations are disappointed). Yet the changes which take place in the production of capital goods may be directly traced in these circumstances to the operation of

<sup>78</sup> Wright, *op. cit.*, *Review of Economic Statistics*, May, 1941, p. 100.

<sup>79</sup> J. W. Angell, *Investment and Business Cycles* (New York: McGraw-Hill Book Company, 1941), p. 89n. [Copyright; reprinted by permission of the publishers.]

<sup>80</sup> *Ibid.*, p. 109.

<sup>81</sup> Haberler, *op. cit.*, pp. 102, 306.

<sup>82</sup> Long, *loc. cit.*

<sup>83</sup> Harrod, *op. cit.*, p. 54.

<sup>84</sup> D. H. Robertson, review of Harrod, *Canadian Journal of Economics and Political Science*, Vol. 3 (February, 1937), p. 126.

<sup>85</sup> Hansen, *Full Recovery or Stagnation?*, p. 51.

the acceleration principle, when the latter is formulated in terms of expectations. However strongly the acceleration principle may operate in such cases the magnitude of the Accelerator and the time sequence between actual change in the rate of change in consumption and actual change in the rate of investment cannot be determined without reference to the elasticity of expectations, the degree to which the expectations are realized and the period during which the realization takes place. There are additional complications where expectations are influenced by the prospect of indirect repercussions of government expenditures on governmental, business, and labor policies generally.

### Interrelations of Production, Prices, and Profits

In the above discussion it may not be self-evident that the operation of the acceleration principle involves changes in prices and profits in the consumers' and producers' goods industries and not merely in the physical volume of goods and services produced. Certainly from some of the published work on the subject one might get the impression that the acceleration principle is something apart from the price or profit system. Kuznets, for instance, recognizes the effect on profits<sup>86</sup> but carries on the major part of his discussion of the acceleration principle on the assumption of constant prices of finished products.<sup>87</sup> Tinbergen, on the other hand, recognizes the effect on prices<sup>88</sup> but continually contrasts the "profit principle" with the "acceleration principle"<sup>89</sup> and feels that "an explanation of investment fluctuations by profit fluctuations is more natural . . ." <sup>90</sup> We shall consider the way in which the operation of the acceleration principle involves changes in prices and profits.

### PROFITS AS A STIMULANT TO INVESTMENT

An increased demand for and output of consumers' goods will ordinarily result in a rise in the total volume of profits owing, for one thing, to the increased turnover. If prices rise and wages lag the profit margin will also be increased. And if unused capacity exists to begin with and this capacity is employed in the increased production so that no new capital investment is immediately made, the rate of profit per unit of capital invested will also rise. The same type of change in profits will

<sup>86</sup> Kuznets, *op. cit.*, p. 236.

<sup>87</sup> *Ibid.* p. 235n.

<sup>88</sup> Tinbergen, *op. cit.*, *Economica*, May, 1938, p. 168.

<sup>89</sup> See Vol. I of Tinbergen's *League of Nations study* cited on p. 67, note 1, above.

<sup>90</sup> Tinbergen, *op. cit.*, *Economica*, May, 1938, p. 167.

take place if there is solely a price rise and no increased production. It is, in fact, through the changes in profits (measured in one way or another) that the acceleration principle works.

If we take account of the effect on expectations when orders for new equipment are given, then prospective profits also play a part. The rise in profits which takes place in the consumption industries results in equipment orders and expanded production of capital goods. The acceleration principle operates through the increased profits in the consumption goods industry to an increased production of capital goods. Moreover, emphasis on the change in profits might be a convenient method of considering the operation of the acceleration principle in any case for it would embody the effects of both a change in consumers' goods production and any change which takes place in the prices of consumers' goods. A relatively small rise in prices, for instance, might increase profits greatly, however measured. A given change in the production of capital equipment might be directly traceable to the consumers' goods industries, through the operation of the acceleration principle, yet the production of consumers' goods and the prices of consumers' goods may change so little as to give the impression that the principle was not in operation. In such cases the change in profits in the consumers' goods industry might show a closer relation to the changes in the production of capital goods and thus would give a truer picture of the process to which the acceleration principle points.

In short, a close relationship between profits and investment might be evidence of the operation of the acceleration principle. Profits may have risen for other reasons, of course, and the task of the statistician would be to determine the relative strength of the various reasons. The "profit principle" really includes the acceleration principle and other factors, such as what Tinbergen might label the "cost principle." The aggregate of profits would, of course, be as useless in considering the acceleration principle as would the aggregate of national output. It is necessary to distinguish the profits of consumption and capital goods industries just as well as the production of these industries.

#### DISCUSSIONS OF THE INTERRELATIONSHIP OF PROFITS AND THE ACCELERATION PRINCIPLE

The relation between the acceleration principle and profit changes has not been ignored completely in the literature. Mitchell, for instance, regards the acceleration principle as part of the "profits" theory. He says that J. M. Clark fitted the acceleration principle into the profits

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theory.<sup>91</sup> Kuznets deals with the relation between profit fluctuations and unused capacity. Profits will tend to fluctuate directly with the degree of utilization of equipment. Since the extent of overcapacity created in the upswing depends partly on the size of what we have called the Accelerator, then the latter will help determine profit fluctuations. Through the operation of expectations, fluctuations in profits, together with the existence of overcapacity, affect the timing relation.<sup>92</sup> Similarly, Haberler mentions that investment becomes profitable as a result of the increased demand.<sup>93</sup> Robertson also deals with the question of profits explicitly in the context of the acceleration principle but on a more general plane.<sup>94</sup>

## PRICE CHANGES

We may deal a little more fully with the price changes to which reference is made at several points above. An increased demand for consumption goods may find expression partly in increased production and partly in higher prices. Under conditions of full employment there will be only the higher prices to begin with. The attendant rise in the profitability of the production of consumption goods will give rise to orders for new equipment. If the capital goods industries are also at or near capacity there will tend to be a rise in prices of capital goods. Thus, depending on the degree of underutilization, the acceleration principle may operate through price changes. These price changes are integral parts of the theory and, combined with changes in production and profits, form the link between the consumption and capital goods industries postulated by the theory.

With the introduction of prices into the theory the emphasis can be changed from *output of consumers' goods* to *outlay on consumers' goods*. We may refer to the demand function and its changes. A shift in the

<sup>91</sup> W. C. Mitchell, *Business Cycles: The Problem and Its Solving* (New York: National Bureau of Economic Research, 1927), p. 44.

<sup>92</sup> Kuznets, *op. cit.*, p. 236.

<sup>93</sup> Haberler, *op. cit.*, p. 308.

<sup>94</sup> ". . . the increased profits made in the consumption trades constitute both a means and a motive for increased capital expenditure . . . In the mind of pessimist B the spectacle of expansion breeds a different fear . . . rich people have less need to spend up to the hilt than poor people; hence sooner or later the rate of increase in the demand for consumption goods will decline, and with it will decline the incentive to purchase capital goods even on the existing scale. The entrepreneur profits which have been the sheet-anchor of revival will creep into funk-holes and so be revealed as the *fons et origo* of collapse." D. H. Robertson, "A Survey of Modern Monetary Controversy," in *Essays in Monetary Theory* (London: P. S. King & Son, 1940), pp. 134 and 145, respectively.

demand curve may give rise to the development postulated by the acceleration principle.<sup>95</sup>

#### DISCUSSIONS OF PRICE CHANGES IN THE ACCELERATION PRINCIPLE

The place of prices in the operation of the acceleration principle has been recognized by a few authors. Carver's early formulation of the principle was in terms of prices for he says, "A slight rise in the price of consumers' goods will so increase the value of the producers' goods which enter into their production as to lead to larger investments in producers' goods . . ." <sup>96</sup> Aftalion, who is credited with a part in the early development of the acceleration principle, explained the place of prices in the acceleration principle.<sup>97</sup> Similar ideas are expressed by Haberler.<sup>98</sup> Tinbergen<sup>99</sup> introduces prices of consumers' goods into the mathematical formulation of the acceleration principle suggested by Frisch, making production of consumers' goods depend on the price level of consumers' goods. He also discusses the place of consumers' outlay and prices, on the basis of suggestions made by Staehle.<sup>100</sup>

#### SIGNIFICANCE OF PRICE AND PROFIT CHANGES

The acceleration principle is thus an *integral part* of price and profit theory; it operates through price and profit changes. The acceleration principle is based on a technical relation existing between two adjacent stages of production but the operation of the principle involves changes in prices and profits. Thus the acceleration principle cannot be contrasted with the "profit principle" any more than the principle of diminishing utility can be contrasted with the law of demand. A close relation between profits in consumption goods industries and the output of capital

<sup>95</sup> Knight apparently has this type of relationship in mind. "That 'demand' is also taken as an absolute quantity, as well as a quantity for an arbitrary period, is evident. As soon as the correct view of it as a function is substituted, the argument seems to become practically meaningless. But a change in the rate of growth of demand for a product may cause an absolute decline in the 'apparent demand' for a durable means of production (new curve at a lower level), if there is sufficient lack of foresight back of the apparent, or empirically actual, demand. The subject is important and cries for thorough and careful investigation as to both the theory and the facts." F. H. Knight, "The Business Cycle, Interest and Money: A Methodological Approach," *Review of Economic Statistics*, Vol. 23 (May, 1941), p. 57n.

<sup>96</sup> T. N. Carver, "A Suggestion for a Theory of Industrial Depressions," *Quarterly Journal of Economics*, Vol. 17 (May, 1903), pp. 497-500.

<sup>97</sup> Aftalion, *op. cit.*, pp. 243 and 401, respectively.

<sup>98</sup> Haberler, *op. cit.*, p. 309.

<sup>99</sup> Tinbergen, *op. cit.*, *Econometrica*, July, 1935, pp. 301-302.

<sup>100</sup> *Ibid.*, *op. cit.*, *Economica*, May, 1933, p. 168.



goods may be evidence of the operation of the acceleration principle. The relation between output of consumption goods and output of capital goods may appear insignificant or blurred for any one of the reasons previously given, and yet the acceleration principle may be operating in full force.

### Multiplicity of Production Stages

The foregoing discussion has covered the major points involved in a realistic approach to the acceleration principle, with the exception of technical changes and asymmetry. Before we deal with the latter problems there are two sets of minor complications to be considered—those introduced by the multiplicity of production stages and those introduced by the heterogeneity of business firms.

In employing macro-economic terms such as consumption and investment, or capital goods and finished goods, we are confronted with the problem of the existence of overlapping stages of production. The production of (1) consumption goods, for instance, requires the production of (2) machinery. The production of (2) machinery requires the production of (3) iron and steel. Yet in the production of (3) iron and steel it is also necessary to use (4) machinery. In analyzing the relative magnitude of the various factors on the basis of the acceleration principle we should study separately the following relations:

- (a) between (1) and (2);
- (b) between (2) and (3);
- (c) between (3) and (4).

Yet both (2) and (4), being machinery, would be combined in any global concept of investment and that part of iron and steel production which, during the period considered, is not embodied in finished products, would also be a component of investment. Hence any global comparison between consumption and investment would not, strictly speaking, demonstrate the operation of the acceleration principle from one stage to another if the data combine (2), (3), and (4).

In fact, if expectations were favorable all along the line, a relatively small change in the production of consumption goods would, by operating from one stage to the other, result in a magnification of investment relatively so great as to make negligible, in comparison, the initial increase in the production of consumption goods. Even where no change in consumption has taken place, the analysis applies. A burst of investment not tied to any particular consumption change may start the ball

rolling.<sup>101</sup> When we combine the factor of magnification from stage to stage with the factor of overlapping stages it becomes evident that a comparison of consumption with the output of all capital goods industries can throw little light on the actual operation of the acceleration principle from one stage to another.

In short, the operation of the acceleration principle applies only between one stage and the stage immediately preceding, whereas the use of global terms covering substantial periods of time fuses various stages so that the result obtained, however interesting, is not directly relevant to the operation of the acceleration principle itself. The magnification taking place would then depend on the structure of production and the relationship existing among various stages and not upon the technical relationship which lies at the basis of the principle. A comparison of the variation in the global concepts might be as much an indication of the existing structure of production (e.g., in the example, when stages (2) and (4) include the same type of goods) as of the operation of the principle itself. As a result, a macro-economic statistical study, particularly on an annual basis, might be incapable of yielding any conclusive results as to the operation of the acceleration principle.

### Heterogeneity of Business Firms

When we break down our analysis so as to cover the behavior of individual firms, the use of global concepts becomes even more questionable. Given a certain increase in consumer demand the reaction of various firms may be radically different because of differences in the degree of unused capacity,<sup>102</sup> differences in policy with respect to that unused capacity and with respect to replacements and the holding of stocks, differences in the knowledge on which expectations are based, etc. Hence, for some parts of the economy, the increase in consumer demand may precede the increase in equipment orders; in some parts it may succeed them; in some parts the two may coincide—in accordance with the principles discussed in the foregoing analysis. Taking all the firms

<sup>101</sup> Cf. Wright: “. . . innovations in an early stage of production may cause a magnification of derived demand for goods of an established type in higher stages; and, should innovation be taking place in two or three industries drawing from the same source, the magnification may be of great extent . . . The market for the capital-goods industries may thus in some circumstances become geared to the maintenance of a given rate of increase of innovation—not merely a given rate.” Wright, *op. cit.*, p. 101. Cf. Wright, *Economics of Disturbance*, pp. 76–87 (New York: The Macmillan Co., 1947).

<sup>102</sup> Cf. Tinbergen, *op. cit.*, *Economica*, May, 1938, pp. 166–67.

together the effect of the increase in consumer demand may be completely obscured or may be affected in a manner determined not merely by the operation of the acceleration principle but by the relative importance of the various types of firms. Hence, again, results obtained through the use of global concepts may not tell us whether, or to what extent, the principle actually operates.

### Changes in Productive Technique

We must now turn to one of the most complicated subjects in economics—changes in capital intensity. Defining the latter as the ratio of capital to output, it can be seen that what we may call the *marginal* degree of capital intensity is related to the Accelerator. The two should not, however, be confused. The marginal degree of capital intensity would tell us the ratio between the additional output and the capital *employed* in producing that output. The Accelerator tells us the ratio between the additional output and the capital goods newly *produced* because of the increased output. The marginal degree of capital intensity gives us a relationship between two simultaneous magnitudes; the Accelerator, as it is discussed above, gives us a relationship between two magnitudes which may refer to different periods of time. Nevertheless the two are closely related, the marginal degree of capital intensity being one of the factors determining the Accelerator. The marginal degree of capital intensity determines the *minimum* Accelerator at the level of full employment in the consumption goods industries. Unemployed resources might reduce the Accelerator below this and a quantity-elasticity of expectations greater than unity might raise it above this.

### DISCUSSIONS OF CAPITAL INTENSITY AND THE ACCELERATION PRINCIPLE

The voluminous literature which deals with changes in capital intensity is involved in this problem. The analysis of changes in the Accelerator *per se* has not been treated very fully and changes in capital intensity have received even less attention in the literature on the acceleration principle. True, the inevitable “qualification” has been introduced by numerous writers. To give one example, Haberler’s survey throws us directly into the lap of the theory of capital intensity,<sup>103</sup> which is a sub-

<sup>103</sup> “If demand for the product rises and new machinery has to be installed, the durability of the new equipment may be different. Whether more or less durable machines are employed, whether more or less fixed capital is combined with a given amount of labour and circulating capital, depends among many other things on the

stantial subject in itself and one which cannot adequately be discussed here. Haberler would explain the changes in capital intensity (and thus in the Accelerator) by such factors as interest, wages, and general outlook, not tied solely to the change in consumption demand. To explore these questions would carry us too far afield.

There has, however, been some development along the lines of making the changes in capital intensity part and parcel of the acceleration principle. Harrod has made a beginning in this direction and Hayek has elaborated it and built up a cycle theory around the point. In Harrod's analysis, a change in capital per unit of output is the third dynamic determinant.<sup>104</sup> Harrod points out that an increase in the ratio of capital to output—in our terms the marginal degree of capital intensity—tends to offset a slowing down in the rate of increase of consumption, with the result that capital production may continue to increase.

Here the changes in marginal degree of capital intensity are assumed to result in corresponding changes in the Accelerator. A fall in the consumption element (rate of increase of consumption) may be offset by a rise in the Accelerator sufficient to result in a continued increase in the investment element (rate of investment). The changes in the Accelerator are caused by the introduction of inventories, by changes in the rate of interest, or other factors not directly connected with the consumption element. Moreover, the changes may go in the opposite direction, reinforcing rather than weakening the effect of change in the consumption element.

#### HAYEK'S "RICARDO EFFECT"

Hayek deals with the same question and provides the missing link connecting changes in the Accelerator with the changes in the consumption element.<sup>105</sup> In this way changes in capital intensity (which are taken to determine the Accelerator throughout his analysis) become a part of

rate of interest and the rate of wages and on the general outlook, that is the expectations entertained by producers about the future development of wages, interest and other cost items on the one hand and the future state of demand on the other." Haberler, *op. cit.*, p. 97. Cf. Long, *op. cit.*, pp. 59, 62.

It should be pointed out that "capital intensity" is sometimes defined as a ratio of capital to other factor input. Cf. Fritz Machlup, "Professor Knight and the 'Period of Production,'" *Journal of Political Economy*, Vol. 43, October, 1935, pp. 577-624. For our purposes, however, it is necessary to think of capital intensity as capital per unit of output.

<sup>104</sup> Harrod, *op. cit.*

<sup>105</sup> F. A. Hayek, *Profits, Interest and Investment* (London: George Routledge & Sons, 1939), Part I. Parts of the analysis are presented in his later book, *The Pure Theory of Capital* (London: Macmillan and Co., 1941), pp. 377-96.

the acceleration principle; we need no longer look for outside causes of changes in capital intensity. Since this theory, if valid, would be an important advance in the development of the acceleration principle, we shall examine Hayek's analysis closely. Since the theory, moreover, involves a removal of the assumption of a constant degree of capital intensity, it holds out possibilities of putting the acceleration principle on a more realistic level. An extended evaluation is all the more necessary since the three major comprehensive reviews of the book<sup>106</sup> which have appeared are excessively hostile to Hayek's analysis.<sup>107</sup>

In this study Hayek removes the assumption of full employment which characterized the analysis in *Prices and Production* and examines the situation where unemployment of labor and capital exists. He also assumes rigidity of money wage rates, an assumption which he considers to be empirically justified. Other assumptions are immobility of labor and equipment and stability of interest rates. On these assumptions the analysis runs as follows. During the upswing investment is stimulated, partly through the operation of the acceleration principle. At some point in the upswing, after stocks of consumption goods are exhausted and unemployed resources and manpower are used up, the increment in the demand for consumption goods (the Marginal Propensity to Consume) is greater than the increment in the production of consumption goods (which Hayek calls the Quotient, and which is the reciprocal of what we have called the "Accelerator" of the acceleration principle). As a result of this, prices of consumption goods rise and (since money wages and other costs are assumed to be rigid) the volume of profits rises in all types of enterprise, regardless of the capital intensity of the technique employed. The extent of the rise in the volume of profits being independent of the amount of capital involved, the change in the rate of profit *per unit of capital* will not be uniform; specifically, profit rates will rise to a greater extent in the less capitalistic methods than in the more capitalistic methods.<sup>108</sup> As a result, there will be a tendency to employ less capitalistic methods than before. This means that the Accelerator is reduced. Because of the increase in demand it may well be that investment, production, and employment continue to increase despite the fall

<sup>106</sup> *Profits, Interest and Investment*.

<sup>107</sup> See T. Wilson, "Capital Theory and the Trade Cycle," *Review of Economic Studies* (June, 1940), Vol. 7, pp. 169-79; and C. Welinder, "Hayek och Ricardo-effekten (Tr: "Hayek and the Ricardo Effect"), *Ekonomisk Tidskrift* (March, 1940), Vol. 42, pp. 33-39; N. Kaldor, "Professor Hayek and the Concertina-Effect," *Economica* (November, 1942), Vol. 9 (New Series), No. 36, pp. 359-82.

<sup>108</sup> The proof of this is given below.

in the Accelerator. At some point in the rise of prices and profits, however, the fall in the Accelerator becomes so drastic as to offset the impetus of the upswing. As a result of this, investment, although still at a high level, begins to fall off.

Through the operation of the acceleration principle this fall in the demand for investment goods at any stage is successively reflected and magnified in higher stages with the result that in some of the higher stages substantial reductions in production and employment take place. This contributes to a general fall in demand and income and thus brings about the collapse of the boom and explains the upper turning point. The cumulative upswing now has its counterpart in the downswing. Near the bottom of the depression the forces to which Hayek points again begin operation. Owing to the low level of prices and (by assumption) profits, more capitalistic methods are favored over less capitalistic methods. When the bottom of the downswing is reached—the bottom being set presumably by a minimum of consumption demand or some similar factor—any replacement or purchase of new equipment which does take place tends to be of a relatively capitalistic, and thus, stimulative, sort. This is Hayek's explanation of the revival and the subsequent upswing. Hayek inserts many qualifications, of course, at various points in the analysis.

#### SHIFT TO LESS CAPITALISTIC METHODS IN HAYEK'S ANALYSIS

The crucial stage in the above analysis—aside from the assumption that real wages fall and profits rise in the upswing—is at the point where the rise in profits is said to make less capitalistic methods more profitable than more capitalistic methods. This is based on the so-called "Ricardo effect" which Hayek uses to prove that the degree of capital intensity falls with a decline in real wages. It is worth while for us to study this "effect" in detail since on it hinges the central role given by Hayek to the acceleration principle, and changes in the Accelerator, in explaining turning points in business cycles.

The operation of the Ricardo effect may be illustrated through the use of the following hypothetical example as shown on page 96.<sup>109</sup> Hayek presents his thesis in terms of the Austrian roundaboutness and turnover analysis,—the more roundabout the method of production, the greater the amount of capital invested.<sup>110</sup> The above example postulates

<sup>109</sup> Adapted from Hayek, *op. cit.*, p. 9. Simple interest is assumed.

<sup>110</sup> For the purposes of the example it is not necessary to go more fully into the subtleties of the roundaboutness approach.

Table 10  
OPERATION OF THE "RICARDO EFFECT"

Turnover Period	Initial Profit (Per Cent)		Profit After Price Rise of 2 Per Cent (Per Cent)	
	Per Turnover	Per Annum	Per Turnover	Per Annum
2 years.....	12	6	14	7
1 year.....	6	6	8	8
6 months.....	3	6	5	10
3 months.....	1.5	6	3.5	14
1 month.....	0.5	6	2.5	30

an equilibrium situation where we have various methods of producing the same product, varying in degree of roundaboutness from one month to two years, all yielding the same rate of profit. If the rate of profit is taken at 6 per cent *per annum*, then the two-year method would be yielding profit of 12 per cent on each turnover; the one-year method, 6 per cent; the six-month method, 3 per cent; the three-month method, 1.5 per cent; and the one-month method, 0.5 per cent. Now suppose that the price of the product rises without any corresponding rise in wages, interest, or other costs. If the rise is at the rate of 2 points over the prevailing price, then the profits on each method also rise 2 points in every case, regardless of the amount of capital involved in the method employed; i.e., the profit on each method will be 14, 8, 5, 3.5, and 2.5 per cent, respectively. When this is reduced to a *per annum* basis, the respective rates of return are 7, 8, 10, 14, and 30 per cent, respectively. Thus, as a result of the uniform rise in prices, the least capitalistic method becomes far more profitable in percentage per annum terms than the other methods. Hence, Hayek argues, new and replacement investment will tend to be of a less capitalistic nature than would have been the case without the price rise. This means that the Accelerator of the acceleration principle falls (since changes in capital intensity are implicitly assumed to involve corresponding changes in the Accelerator).

We may convert this example into ordinary terms to illustrate the operation of the principle involved. Suppose two machines valued at \$200 and \$100, respectively, produce the same commodity in a year (with different amounts of cooperating labor).<sup>111</sup> If both methods are

<sup>111</sup> This is not identical with Hayek's "turnover" example, but may serve to indicate the type of problem with which he is dealing.

equally profitable in terms of percentage of capital invested per annum, say 5 per cent, the total profit yielded by the methods will be \$10 and \$5, respectively. If the price of the product rises, without regard to the method of production employed, and the costs remain unchanged, then the added total profit each year will be the same for both methods, say \$10. The total profit yielded by each method then becomes \$20 and \$15, respectively, and the rates of return become 10 per cent and 15 per cent, respectively. Hence, as a result of the price rise, the less capitalistic method yields a greater profit in terms of percentage of capital than the more capitalistic method.

#### INVESTMENT FLUCTUATIONS IN HAYEK'S ANALYSIS

Before passing to an evaluation of this method of demonstrating how a change might take place in the Accelerator of the acceleration principle, we should point out that Hayek does not claim that a rise in prices means that a fall in investment will actually take place. Although he gives the impression that that is what he has in mind at many points where he is speaking loosely,<sup>112</sup> he nevertheless clearly indicates, in those parts where he is explicitly presenting his analysis, that he is not thinking of any such course of events; in fact he stresses the contrary. The increased demand characteristic of the upswing will increase investment, despite the tendency toward a decline in capital intensity; the increased demand will more than offset the fall in the Accelerator with the result that investment continues to rise.<sup>113</sup> This increased investment is, in fact, the essential part of Hayek's analysis for it causes a cumulative rise in incomes, a cumulative rise in consumer demand (relative to the production of consumers' goods), and thus a cumulative rise in prices. Finally, however, the rise in prices is so great relative to the actual physical increase in demand that the fall in the Accelerator brought about by the rise in prices more than offsets the increased demand taken by itself. As a result, the tendency toward the use of less capitalistic methods in new investment will be such that the rate of increase in investment will slow down, investment will eventually come to a standstill, and, beyond a certain point in the height of the boom, actually fall.<sup>114</sup> Likewise, Hayek does not claim that in depression a revival of investment will take place merely because real wages have risen; the unfavorable effects of a fall in

<sup>112</sup> Cf. Hayek, *op. cit.*, pp. 3, 13, 31.

<sup>113</sup> *Ibid.*, pp. 14-15, 20, 55-56.

<sup>114</sup> In Hayek's terms, the fall in the "Multiplier" will overtake the rise in the "multiplicand."



demand will far offset any unfavorable tendency resulting from the rise in real wages, i.e., any increase in the Accelerator, with the result that investment demand will fall despite the rise in real wages.<sup>115</sup>

## SIGNIFICANCE OF HAYEK'S ANALYSIS

With this picture of Hayek's model in mind we may turn to a consideration of the validity of the principle involved as well as to the reality of the conclusions he reaches. Hayek's scheme provides us with an explanation of changes in the Accelerator; if we could accept his analysis as valid and complete we would have a scheme for taking account of cyclical changes in the Accelerator in a statistical study of the acceleration principle. Hayek's analysis is based on the assumption that there are a number of different methods (differing in the relative amounts of capital and labor employed) of producing a given product, and that businessmen will choose among them according to the profit per unit of capital offered by each. If a change takes place raising the rate of return on one above the rate of return on the other, there will be a tendency to adopt the method which yields the higher rate of return. This change in method means a change in the Accelerator, since a different amount of capital equipment will now be needed to make possible a given change in consumption.

Wilson<sup>116</sup> has attacked this assumption as being unrealistic. In the first place, he claims that a peculiar sort of production function is involved. A change in the proportion of capital and labor involves a production function which is convex upward. This he finds unsatisfactory.<sup>117</sup> Wilson forgets that there are initially several different and equally profitable methods of production; this means that there is more than one production function. After the price change a point is selected on one of the production functions and the rest are not employed at this time. Hence Wilson's peculiar curve actually joins points on two separate production functions and his allegations regarding the peculiar shape of Hayek's function are not justified. But is Hayek justified in assuming that these various methods exist? That is a question on which exact data are not available but the presumption is certainly in favor of the existence

<sup>115</sup> That is, the fall in the "multiplicand" will more than offset any rise in the "Multiplier."

<sup>116</sup> Wilson, *op. cit.*

<sup>117</sup> ". . . there is no reason whatever why production functions should have this peculiar shape." (*Ibid.*, p. 174.)

of various methods (involving a variety of proportions of capital to output) of producing most commodities.<sup>118</sup>

Even granted the existence of a variety of methods, Wilson claims that the businessman will not choose among them in accordance with the principles laid down by Hayek. Wilson shows that if two methods are equally profitable to begin with they will remain equally profitable after the price rise.<sup>119</sup> The trouble is that Wilson thinks of *total profit* when he speaks of "relative profitability," whereas Hayek thinks of the rate of *profit per unit of capital* invested. Hayek assumes that, given two methods which yield the same total profit, the businessman would choose the one which involves the smaller capital investment, i.e., which yields the higher rate of profit per unit of capital invested. Wilson assumes that he will be indifferent between the two.

The realism of Wilson's assumption is surely questionable. Even though the rate of interest does not rise, i.e., even though additional units of capital do not cost more, the businessman is still apt to prefer a method involving a smaller amount of capital investment to a method involving a larger amount of capital investment if both methods yield the same total profit at the optimum point.

The real problem with respect to these choices arises out of the likelihood that businessmen will adopt the method they consider preferable. Welinder points out that under dynamic conditions the businessman will not revise his plans to fit a set of conditions which he considers to be of a temporary nature.<sup>120</sup> This is true, but during a prolonged upswing there is a tendency for business to make plans as if the favorable conditions were going to continue.<sup>121</sup>

The fundamental difficulty with Hayek's analysis lies not with these problems but with the empirical assumption that real wages fall in the

<sup>118</sup> "Following Professor Douglas, Mr. Clark tries to fit a 'production function' relating capital and labour to output . . . But there is one obstacle which is quite sufficient to rule out all attempts such as Professor Douglas': the non-existence of a unique 'production function.' With a given volume of labour hours and a given quantity of capital, output will vary according to the type of equipment used. A set of price relationships—amongst which the ratio of wages to product prices is probably the most important—will determine which of the 'production functions' is chosen. There is no reason at all to assume that production in the United States moved along one production function in the period 1899–1923 as is assumed by Professor Douglas . . ." (E. Rothbarth, review of Colin Clark's *The Conditions of Economic Progress in Economic Journal*, Vol. 51 (April, 1941), p. 124.)

<sup>119</sup> "The relative profitability of the two methods has therefore been completely unaffected by the fall in real wages." Wilson, *op. cit.*, p. 176.

<sup>120</sup> Welinder, *op. cit.*

<sup>121</sup> Cf. Pigou, quoted above, p. 84.

upswing, i.e., that prices rise faster than money wages. The data available on this point are not by any means conclusive.<sup>122</sup> Certainly at some stages of the upswing prices rise faster than wages and other costs.<sup>123</sup> The chain of consequences pictured by Hayek is then possible.

Whatever may be the decision on the above questions, Hayek's analysis of the lower turning point must definitely be discarded. Here, he claims, the low level of prices and high level of real wages will make any replacements and new investment more capital intensive than they otherwise would be. As a result the stimulative effect is felt in the investment goods industries and an upswing is started. Since the amount of net investment is often negative at the bottom of the depression, i.e., capital is not even maintained, it is up to Professor Hayek first to show what causes the return up to zero and then to a positive net investment. Only then can his principle operate. After the turning point has been passed, and while real wages are still high (if they are), then the Ricardo effect might show why a recovery at the beginning of the upswing at least is speedier than would otherwise be the case. But it cannot show why the turning point exists in the first place. It must be emphasized that for the Ricardo effect to operate, some investment (either gross or net) is necessary; this exists at the top of the boom but may be negligible at the bottom of the depression. The greater the amount of investment, moreover, the more important the influence of the Ricardo effect. Hence if the Ricardo effect is only a secondary factor in the vicinity of the upper turning point, it becomes a completely negligible factor in the vicinity of the lower turning point.

Hayek's promising analysis—promising, because it purported to give us an explanation of cyclical changes in capital intensity and the Ac-

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<sup>122</sup> See L. Tarshis, "Real Wages in the United States and Great Britain," *Canadian Journal of Economics and Political Science*, Vol. 4 (August, 1938), pp. 362-75; reprinted in *Readings in Business Cycle Theory*; J. T. Dunlop, "The Movement of Real and Money Wage Rates," *Economic Journal*, Vol. 48 (September, 1938), pp. 412-34; L. Tarshis, "Changes in Real and Money Wages," Vol. 49 (March, 1939), pp. 150-54; J. M. Keynes, "Relative Movements of Real Wages and Output," pp. 34-51; J. H. Richardson, "Real Wage Movements," Vol. 49 (September, 1939), pp. 425-41; R. Ruggles, "The Relative Movements of Real and Money Wage Rates," *Quarterly Journal of Economics*, Vol. 55 (November, 1940), pp. 130-49; J. T. Dunlop, "Real and Money Wage Rates—A Reply," Vol. 55 (August, 1941), pp. 683-91; L. Tarshis, "Further Comment," pp. 691-97; R. Ruggles, "Rejoinder," pp. 697-700. Cf. Kalecki, *op. cit.*, pp. 75-92.

<sup>123</sup> Hayek makes an expositional error by emphasizing the fall in real wages. One might plausibly ask, What of the fall in real interest, since money interest has been assumed constant? The fact is that Hayek's theory depends on a rise in prices relative to all costs. He really means a fall in real costs rather than just real wages.

celerator—is reduced to the level of any other single factor considered in the study on capital intensity. The “Ricardo effect” may demonstrate a tendency, but one which may be overwhelmed by other factors, such as demand, expectations, wages and interest, etc. For those changes in the Accelerator which are determined by changes in capital intensity we must rely on the general theory of technological change.

### Asymmetry of the Accelerator

Even though we cannot make broad generalizations concerning those cyclical changes in the Accelerator which are caused by changes in productive technique, it is still possible to indicate broadly the cyclical changes which might take place in the Accelerator. The possibility of such changes has been recognized by others besides Haberler, Harrod, and Hayek, referred to above. Hansen says that the ratio of capital to output “would vary with different phases of the cycle,”<sup>124</sup> but he does not indicate how it would vary. Frisch says that “we could consider the depreciation rate and the ratio between consumer-taking and capital stock as *changing* with time,”<sup>125</sup> but he does not suggest what direction such changes might take in reality and he believes that they “would not materially alter that feature of the relationship in which we have here been interested”<sup>126</sup> (i.e., the effect of replacement). The main effect of that feature, however, was to alter the accepted time sequence, it having been taken for granted by Clark,<sup>127</sup> Mitchell,<sup>128</sup> and Hansen<sup>129</sup> that a reduction in the rate of increase of consumption would be followed by a decline in the production of capital goods. A change in the Accelerator would alter Frisch’s conclusions because an increase in the Accelerator can offset a decline in the rate of increase of consumption, thus preventing or postponing a fall in the production of capital goods. This would upset the generally accepted time sequence between change in rate of change of consumption and level of investment. Many other writers have, of course, indicated that the Accelerator would not be constant, but only a few have dealt explicitly with the nature of the variations over the cycle. Tinbergen, Long, Kuznets, and Pigou, referred

<sup>124</sup> Hansen, *Fiscal Policy and Business Cycles*, p. 276.

<sup>125</sup> Frisch, *op. cit.*, *Journal of Political Economy*, October, 1931, p. 652.

<sup>126</sup> *Ibid.*

<sup>127</sup> Clark, *The Economics of Overhead Costs*, p. 390.

<sup>128</sup> Mitchell, “The Problem of Controlling Business Cycles,” in *The Stabilization of Business*, p. 25.

<sup>129</sup> A. H. Hansen, *Business Cycle Theory* (Boston: Ginn and Company, 1927), p. 113.

to below, have made specific suggestions concerning the direction of cyclical changes in the Accelerator.

In order to consider cyclical changes in the Accelerator we must draw on the foregoing discussion of unused capacity, expectations, etc. There is reason to believe that a considerable degree of asymmetry exists. We may distinguish two types of asymmetry of the Accelerator: (1) the upward Accelerator (giving the effect of an increased rate of increase of consumption) may be different at different levels of business activity; (2) the upward Accelerator may be different from the downward Accelerator (giving the effect of a decreased rate of consumption).

#### CYCLICAL CHANGES IN THE UPWARD ACCELERATOR

The upward Accelerator would appear to reach a maximum somewhere *between* the bottom of the depression and the top of the boom. It is probably very low *at* the top and the bottom of the cycle—at the top because the approach to full employment makes it difficult to increase the production of capital goods; at the bottom because of the underutilized capacity. If businessmen respond during the upswing as postulated by the acceleration principle, then there is certain to be a large amount of underutilized equipment during other parts of the cycle,<sup>130</sup> since the increased investment is capable of taking care of a high level of consumption for a long time. Somewhere in between the bottom and the top, then, we have the maximum upward Accelerator.<sup>131</sup>

#### DIFFERENCES BETWEEN UPWARD AND DOWNWARD ACCELERATORS

If we compare the Accelerator during the upswing with the Accelerator during the downswing we find again that asymmetry exists. The upward Accelerator is limited only by the amount of resources available for the production of capital goods while the downward Accelerator is limited by the amount of net investment and replacement. Disinvestment can take place only to the extent of replacement.<sup>132</sup> Thus, in general, the upward Accelerator tends to be greater than the downward Accelerator. But at the top of the boom, if full employment is reached, the downward Accelerator, however small, exceeds the upward Accelerator.<sup>133</sup> During the downswing a reduction in the rate of *decrease* of

<sup>130</sup> Cf. Kuznets, *op. cit.*, p. 231.

<sup>131</sup> Haberler implies at one point that the Accelerator would be zero until the unused capacity would be fully employed, but this is an extreme view. See Haberler, *op. cit.*, p. 96.

<sup>132</sup> Cf. Tinbergen, *op. cit.*, *Economica*, May, 1938, pp. 166–67.

<sup>133</sup> Cf. Long, *op. cit.*, p. 43.

consumption would not create a positive demand for investment; but it might reduce the rate at which replacement is falling. Hence we cannot get a turning point in this way unless confidence is so favorably affected by the reduction in the rate of decrease as to have a positively stimulative effect.<sup>134</sup>

These possibilities of cyclical variation in the Accelerator are plausible enough to warrant their recognition in a realistic approach to the acceleration principle, although it is not feasible to deal with the problem on a statistical basis. We must recognize the asymmetry even if we do not formulate it precisely.

### “Testing” the Acceleration Principle

The theoretical analysis has shown that the time sequence involved in the acceleration principle is precisely its most uncertain characteristic. The time sequence appropriate to any situation cannot be determined without a consideration of numerous factors, such as stocks, unemployed resources, policy towards these, general state of expectations, distribution of various firms, etc. Unless we are fully familiar with each of these items at every period of time there is no point whatever in comparing consumption and capital formation, whatever time lags we select. Moreover, in so far as the acceleration principle is considered to be only one of the factors explaining fluctuations in capital formation, we would have to try to isolate the acceleration aspect. This is not entirely possible, however, because the acceleration principle operates through price and profit changes; and the degree to which the principle takes effect is determined by virtually every major economic factor.

In short, the theoretical analysis of the acceleration principle leads almost inevitably to the conclusion that, however important the principle may be in determining fluctuations in capital formation, it is not capable of statistical testing—unless, perhaps, the whole economic system is being subjected to a statistical study, if that were possible. Yet Tinbergen has heroically “tested” the principle and found that it does not provide a satisfactory explanation of investment fluctuations, both

<sup>134</sup> Cf. Pigou: “. . . (In order to have) an increase in the demand for instruments, there must be an increase in the quantity of consumable goods demanded in a year; a mere decrease in the rate at which this quantity was decreasing from year to year would not suffice . . . It is, however, still possible that a slackening in the rate of decrease in the demand for consumption goods is the initiating cause. It may react on the instrumental industries, not directly, but by creating in those persons who control them a belief that the tide has turned and that the demand will presently increase.” (Pigou, *op. cit.*, pp. 110–11. Reprinted by permission of the Macmillan Company, publishers.)

absolutely and relative to other explanations, e.g., profits. In light of our theoretical analysis Tinbergen's large-scale venture into the testing of the acceleration principle would appear to be courageous indeed.<sup>135</sup> We shall examine Tinbergen's work closely to see whether he falls into any of the numerous traps which exist or whether he really accomplishes the Herculean task of testing the acceleration principle. The principle has also been studied by Hansen, who makes some far-reaching generalizations on the basis of annual data.

#### DESCRIPTION OF TINBERGEN'S ANALYSIS

Tinbergen distinguishes between two statistical aspects of the acceleration principle:

*a. The Correlation Aspect.* There should be a correlation between new investment in durable capital goods and the *rate of increase*<sup>136</sup> in the production of consumers' goods. This turns our attention to the magnitude of the correlation coefficient.

*b. The Regression Aspect.* The percentage fluctuations in the production of consumers' goods should be *equal* to the percentage fluctuations in the stock of capital goods.

The correlation coefficient would be equal to unity if the rate of increase in the production of consumers' goods is the unique explanation of changes in new investment; or at least the complete explanation where other factors are taken into account in a multiple regression analysis. Otherwise the correlation coefficient is less than unity. Likewise the percentage fluctuations discussed under (b) would be equal to each other

<sup>135</sup> Tinbergen, *op. cit.*, *Economica*, May, 1938, pp. 164-76; and *Statistical Testing of Business-Cycle Theories*, I, Chapters 3-6 and II, Chapters 3, 6, and 7.

<sup>136</sup> It is the *absolute increment*, not the *percentage rate of growth* in consumption which is relevant to the acceleration principle. This point is stressed by Hansen in *Fiscal Policy and Business Cycles*, p. 364, n. 7.

Frisch's final formulation of the principle is, however, partly expressed in percentages:

"A decline in the rate of increase of Consumer-Taking will call forth an absolute decline in the demand for capital goods when and only when the percentage with which the growth rate of Consumer-Taking diminishes per year is larger than the percentage with which the capital goods are worn out per year." R. Frisch, *op. cit.*, *Journal of Political Economy*, April, 1932, p. 254.

Frisch seems to be in error where he uses percentages since, again, the absolute amounts of decline in rate of increase of consumption and the absolute amount of replacement should be compared.

Clark also speaks in terms of a percentage. In his "corrected" statement he makes the point that ". . . the rate of increase of demand must never shrink by more than one-half of one per cent." J. M. Clark, *op. cit.*, *Journal of Political Economy*, October, 1932, p. 691.

only under the severely restrictive assumptions of the most rigorous statement of the acceleration principle. To test the equality aspect it would be necessary to have data on the stock of physical capital goods. Since these are not generally available it is necessary in most cases to concentrate on the correlation aspect. In order to test the less rigid statement of the acceleration principle, where changes in consumers' outlay rather than the physical production of consumption goods are compared with new investment, the same sort of statistical considerations hold. The only change is that consumers' outlay is substituted in every case for production of consumption goods.

Tinbergen attempts to "test" the acceleration principle by examining fluctuations in capital and finished goods (or services) in the following fields: railways, cotton spinning, shipping, and general economic activity.

#### TINBERGEN'S CONCLUSIONS

As a result of his investigations Tinbergen finds:<sup>137</sup>

a. On the assumption that our estimate of iron and steel consumption (or the alternatives used) is a just index of investment activity, there is fairly good evidence that the fluctuations in investment activity are in the main determined by the fluctuations in profits earned in industry as a whole some months earlier.

b. The influence of the other factors included is not considerable and is therefore, in many cases, numerically uncertain.

This leads him to conclude:<sup>138</sup>

The variate . . . , rate of increase in consumers' goods production, shows positive signs in at least one case for each country, but its influence is found to be small. In addition as has been observed in the theoretical part of this chapter . . . , this influence may always be replaced by a shift in the lag assumed, especially in case of a high correlation between investment activity and consumers' goods production.

As a result of the small influence found for the rate of increase in consumers' goods production, Tinbergen does not take account of the acceleration principle in his more detailed analysis.<sup>139</sup>

<sup>137</sup> League of Nations study, I, p. 49.

<sup>138</sup> *Ibid.*, p. 54.

<sup>139</sup> Hansen reaches the same conclusion, partly because of the negative results of the statistical tests of Kuznets and Tinbergen. He mentions that the actual fluctuations in capital goods production are far less than would be expected from the operation of the acceleration principle and he says, "For the most part, the acceleration principle serves only to reinforce investment tendencies initiated under the influence of other factors. The fundamental explanation lies elsewhere." (Hansen, *Full Recovery or Stagnation*, p. 50.) For the 1937 downturn, however, Hansen retracts and says ". . . if the recovery movement is of such a character that the rate of investment is closely



## CRITICISM OF TINBERGEN'S ANALYSIS

In comparing Tinbergen's statistical analysis with our earlier theoretical discussion of the nature of the acceleration principle, we must be struck by the contrast between the two types of approach. The theoretical analysis makes the acceleration principle an integral part of the economic process, involving changes in prices and profits, whereas Tinbergen treats it as virtually a separate entity. The theoretical analysis, moreover, indicates that there is no *a priori* basis for any particular time sequence, in general, whereas Tinbergen takes for granted a particular time sequence. In addition to this, one cannot fail to notice that the time series Tinbergen employs are in most cases of too general and indefinite a nature to be adaptable to so fine a problem as that postulated in the rigid statement of the acceleration principle, which Tinbergen is testing. Finally, and partly related to the preceding, the significance Tinbergen attaches to correlation and regression coefficients, and to slight changes in these, must surely shock students concerned with the applicability of multiple correlation analysis to economic time series. We shall here consider further each of these points in relation to the validity of Tinbergen's conclusions on the acceleration principle. This may facilitate the formation of judgments concerning the applicability of Tinbergen's methods to related economic problems.

## ACCELERATION VS. PROFIT PRINCIPLES

Tinbergen persistently contrasts the acceleration principle and the "profit principle." In analyzing the inducement to invest he speaks of them as "competing" explanations, both in the *Economica* and the League of Nations studies. In the former, for instance, he makes separate tests on the basis of the two "principles" and then compares the results. In the League study of general investment activity he apparently takes as given the relative unimportance of the acceleration principle (presumably on the basis of his *Economica* study; or perhaps on the basis of a series of tests, the results of which are not given) and therefore includes profits in all of his "explanations." Here he merely tests the importance of the acceleration principle as an additional factor.

As has been pointed out in our theoretical discussion, this contrast

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geared to the rate of consumption, it then follows that the principle of acceleration operates with full force subject, however, to certain qualifications with respect to variations in the degree of excess capacity, the age of the capital equipment, etc." (*Ibid.*, p. 281.)

between the two principles is fundamentally incorrect because the operation of the acceleration principle almost invariably will manifest itself through changes in prices and profits. Profits, in fact, would embody the effect of practically all explanatory factors, including the acceleration principle, hence it is misleading to contrast the effects of profits with many individual effects such as the acceleration principle, costs, interest rates, etc.<sup>140</sup> That the so-called "profit principle" gives a better explanation than the acceleration principle is, therefore, not surprising.

Tinbergen's procedure in this connection is most faulty where, as in the study of general investment activity in the League of Nations publication (Vol. I), he includes profit as an explanatory variable in every case and then evaluates the other factors, including the acceleration principle, on the basis of the extent to which they *increase* the correlation coefficient.

Since, on the basis of profits as the sole explanatory variable, the correlations obtained are usually very high (over 0.9), there is very little left for the other explanatory factors however important they may actually be. The importance of the added factors is greatly underestimated by this procedure. However important any of these additional factors may be, the greatest scope allowed them by Tinbergen's method is that of raising the correlation coefficient above the figure obtained by a variable representing profits alone. In the case of the United States, 1919-1933,<sup>141</sup> for instance, Tinbergen uses profit of corporations and share yields in every case. With these as the only explanatory factors he gets a correlation coefficient of 0.986. Then he judges the importance of the other factors on the basis of the extent to which they raise the correlation coefficient above this figure. This allows very little scope for the other factors to demonstrate their importance. A correlation coefficient of 0.986 is at least as high a figure as one could possibly hope for however perfect our "explanation," because of the inevitable errors of measurement and lack of complete applicability of the series employed. Any increase in this coefficient obtained through the addition of other factors is meaningless. Even if it were not meaningless, it would certainly not measure the relative importance of the various factors.

Aside from this additive problem, the inclusion of a global estimate of profits obscures the type of relationship which the acceleration principle attempts to clarify. In terms of profits, the acceleration principle

<sup>140</sup> Cf. T. Haavelmo, "The Effect of the Rate of Interest on Investment: A Note," *Review of Economic Statistics*, Vol. 23 (February, 1941), p. 49.

<sup>141</sup> League of Nations study, I, p. 53.

would point to the rise in profits in the consumption goods industries and the resulting rise in profits in investment goods industries. By including total profits as one of the determining variables, Tinbergen lumps together what, from the point of view of the acceleration principle, are both determining and dependent variables.

#### TIME LAGS

Tinbergen bases his analysis on the assumption that the acceleration principle postulates a lead of the rate of increase in consumers' goods production over the volume of investment per period. In the case of railways, for instance, he uses a one-and-a-half year lag. In the study of general investment activity he speaks of a positive lag but apparently uses synchronous series<sup>142</sup> for the consumers' goods item. In these lags he seems to have been influenced partly by technical considerations such as the time between orders and shipments (as in the case of railways) and sometimes by experimentation for the best fit.

As was pointed out in our theoretical analysis, however, the assumption of a positive lag is valid only for certain special cases; and, in general, no statement of lag can be made without an examination of the amount of excess capacity and of inventories, of policy with respect to these, of expectations, etc. Tinbergen presumably is attempting to see to what extent the rigid statement of the acceleration principle applies in practice. He ignores even the lead-lag considerations introduced by replacements.<sup>143</sup> It is precisely under the rigid statement, however, that one would *not* expect a positive lag. If production is at capacity in the consumers' goods industries, the increased production of consumers' goods will have to wait upon the installation of additional equipment. If stocks of equipment are available in the investment goods industries, the time sequence will depend upon the policy with respect to these stocks. If the stocks are replenished as they are depleted, one would expect the increase in consumers' goods production to synchronize substantially with the increase in investment goods production. If stocks do not exist an increase in investment goods production would have to precede the increase in consumers' goods production.

Only in the case where stocks exist and are for some reason allowed to be depleted will the increase in the production of consumers' goods *precede* the increase in the production of investment goods. But in that case the lag will not be a technical one related in some way to the "period

<sup>142</sup> Cf. League of Nations study, *I*, p. 48 and pp. 51-53.

<sup>143</sup> See R. Frisch, *op. cit.*, *Journal of Political Economy*, October, 1931, pp. 646-54.

of production" but will merely depend on the speed with which the equipment held in stock can be shipped to the consumers' goods industries—a negligible length of time for our purposes. Thus even in the most rigid statement of the acceleration principle, which Tinbergen purports to be testing, there is no warrant for his treatment of lags. For both the rigid statement and the more realistic statement of the acceleration principle, the positive lag is a special case depending on the factors previously listed. This is a particularly crucial problem since, as Tinbergen himself admits, the results obtained in terms of correlation and regression coefficients depend upon the lag employed. The visual method of determining leads and lags is particularly inappropriate for this analysis because both consumption and investment are influenced by common causal conditions which obscure the one-way relationship postulated by the acceleration principle, namely from consumption to investment.

#### STATISTICAL SERIES

One of the main difficulties involved in Tinbergen's analysis may be found in the series he employs. The acceleration principle applies, strictly speaking, between one stage and the next. This must be kept in mind in choosing the time series to be used for a statistical test. The choice of appropriate series is by no means an easy task when using broad categories, particularly in view of the fact that many industries combine both consumption and capital goods production.<sup>144</sup> For specific industries, however, the task should not be so difficult.

In the case of railways, the series Tinbergen employs are reasonably appropriate since he takes traffic on the one hand and rolling stock on the other. The main problem here is that of weighting passenger and freight traffic and Tinbergen's solution seems to be reasonable. The series employed for cotton spinning seem to be less appropriate, namely cotton consumption and the number of spindles. The relation postulated by the acceleration principle in this case would be production of cotton goods rather than consumption. Production for addition to stocks would affect the number of spindles employed even though cotton consumption remains unchanged.<sup>145</sup> In the case of shipping, total tonnage is compared with an index showing ton miles of transport for the chief sea transport commodities (cereal, coal, wood, oil, and nitrate). It would be necessary

<sup>144</sup> Cf. A. Aftalion, *op. cit.*, Vol. I, p. 31.

<sup>145</sup> Consumption may be used on the implicit assumption that stocks remain unchanged.

to see how important these commodities are in transport as a whole to determine the appropriateness of this "transport index."

With respect to the study of general investment activity the series employed are most objectionable. For the prewar and postwar study of the United Kingdom (in *Economica*), for instance, Tinbergen compares pig iron consumption with industrial production. These two stages are, for the most part, not adjacent to each other. A part of industrial production, namely consumers' goods production, depends upon another part of industrial production, namely capital goods production. Only the latter is dependent upon pig iron production. Hence the result obtained can be relevant to the acceleration principle only in a very loose way. For the German prewar study, the comparison was made between consumption of pig iron and industrial consumers' goods production, hence the same criticism of non-adjacent stages applies. In the post-war study for the United States, the comparison made was between producers' durable commodities and pig iron production on the one hand, and industrial production on the other. With respect to the latter two series virtually the same criticism applies as in the case of the United Kingdom. With respect to the first and third series there is a problem of double counting since producers' durable commodities presumably would be included in industrial production.

In the League of Nations prewar studies of general investment activity a series representing consumption was apparently employed on the "explaining side" in every case. For investment, however, consumption of pig iron and steel was used in Germany and the United Kingdom. This is open to the objection of non-adjacent stages previously indicated. In the postwar study for the United States, the series employed seem more appropriate since producers' durable commodities plus non-residential building represent the investment series and consumers' goods production the consumption series.<sup>146</sup>

#### ECONOMIC SIGNIFICANCE OF COEFFICIENTS

Tinbergen makes no tests of the statistical significance of his regression and correlation coefficients<sup>147</sup> in his study of the acceleration principle, since he finds this principle to be of too little importance to warrant the additional work involved. We may agree that, on the basis

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<sup>146</sup> This discussion does not deal with the errors of measurement involved in the various series but merely with the broad question of whether the categories correspond with those postulated in the acceleration principle.

<sup>147</sup> Except in the case of railways, in the League of Nations study.

of Tinbergen's conclusions, it would not be worth while to subject his coefficients to the usual tests of significance. The conclusions themselves are reached, however, through judgments concerning the *economic* significance of the regression and correlation coefficients obtained. We may review the validity of these judgments of the economic significance of the results obtained.

As was pointed out above, the inclusion of profits as a variable invalidates those conclusions which are derived on the basis of the extent to which the correlation coefficient is increased when the acceleration principle is added as a determining variable. Likewise, a comparison between the correlation coefficient obtained for the profit principle and the acceleration principle is of no economic significance since the former includes the effects of the latter as well as the effects of a great many other things. Similar considerations apply with respect to the regression coefficient in the case where profits are included; the inclusion of profits as the determining variable makes the regression coefficient for the acceleration principle lower than would otherwise have been the case. Finally, even if profits had not been included, the regression and correlation coefficients obtained would have been indicative of the importance of the acceleration principle only if the lags were appropriately chosen. As was indicated above, however, the choosing of the lags requires a more detailed preliminary analysis than Tinbergen makes. Hence the lags he adopts may be quite irrelevant. The regression and correlation coefficients may, therefore, be of no economic significance. The coefficients obtained do not, therefore, warrant the conclusions Tinbergen reaches concerning the relative unimportance of the acceleration principle.

#### EVALUATION OF TINBERGEN'S FINDINGS

It appears that Tinbergen begins his statistical analysis with a confused notion of the nature of the acceleration principle, both in itself, and in relation to other economic factors. As a result of this, the statistical results obtained are of no significance in determining the importance of the acceleration principle. Even in the most rigid interpretation of the acceleration principle the time sequence to be expected would not be that which Tinbergen takes for granted. Hence the results he obtains could not be an indication even of the extent to which the operation of the acceleration principle in practice departs from that postulated in its most rigid form. When we add to these considerations the fact that the subtraction of the effect of profits leaves us an erroneous picture of the effect of the acceleration principle, we can see that the results obtained

by Tinbergen's methods would be invalid even if the lag problem were solved. In addition, the series employed in some cases are not such as to give us an indication of the operation of the acceleration principle either in its rigid form or in its loose form. A radically different approach to the problem is necessary if any headway is to be made.

If we are willing to rule out short-run changes in capital intensity other than those occasioned by changes in the degree of utilization of unused capacity, it might be possible to make an approach along the following lines. The first task would be to determine the expected time sequence. This requires a study of: (1) the state of expectations; (2) the existence of stocks; (3) the existence of unemployed resources; and (4) policy in connection with the latter two factors. This only covers part of the field but it includes the major factors. The expected time sequence being determined through a study of these factors in conjunction with the theoretical analysis presented above, we would then have to proceed to a selection of those determining variables which do not overlap the acceleration principle. Clearly overlapping factors, such as profits, may be ruled out at once. With respect to others, such as interest and prices, care would have to be taken to avoid overlapping. Then the various series would have to be chosen so that the stages represented are truly adjacent; in fact, rather than use macro-economic sets of figures it might be preferable to study sets of two contiguous industries. Finally, multiple correlation analysis might be used to determine the relative importance of the acceleration principle in determining fluctuations in investment.

If we have reason to believe that capital intensity is sufficiently variable in the short run to alter considerably the operation of the acceleration principle (as Hayek claims), we might include the Accelerator as a variable and make it a function of the factors which tend to change the relative importance of more or less capitalistic methods. These might be interest, wages, and, according to the Ricardo effect, profits. With respect to the last, care should be taken that the profit figures employed apply solely to the consumers' goods industries and thus do not indicate the *effect* of the operation of the acceleration principle. A project of this sort would clearly be an enormous undertaking and would involve a study of practically the whole economic system.

#### THE TIMING RELATION BETWEEN CONSUMPTION AND CAPITAL FORMATION

The above analysis shows that once we drop the simplifying assumptions of the rigid statement of the acceleration principle the principle

becomes virtually incapable of statistical testing. It lays stress on an important relation between consumption and capital formation—a relation which may assume great significance and which we certainly cannot ignore; but the manifestation of the principle is not such that it is made evident in any form which is capable of treatment by statistical methods. As matters stand at present it would seem that we must take the acceleration principle on faith for the economy as a whole.

This does not mean that nothing can be done along the lines of a statistical study of consumption and capital formation. The timing relation between consumption and capital formation is of interest in itself. In fact, the acceleration principle was originally developed to explain what was believed to be a fact, namely that fluctuations in capital formation precede (and exceed) fluctuations in consumption. Although this is an old question it was brought into prominence in the early '40's by Hansen, who makes some sweeping generalizations concerning the timing relation between consumption and capital formation in his book, *Fiscal Policy and Business Cycles*.

Hansen's work is based on annual data compiled by Kuznets. It must be evident at the outset that any conclusions regarding the lead of one series over another are extremely tentative where only annual data are employed, since the actual turning points may be quite different from those portrayed by the annual figures. Hansen points out that investment and consumption tend to fluctuate together but that their movements are not entirely synchronous. Investment, he says, tends to lead, with consumption following. For instance, the recovery of 1921 began with an increase in investment expenditures, gross investment rising by \$1.8 billion from 1921 to 1922 with consumption continuing to fall (though at a diminished rate) by \$0.7 billion. In the following year both investment and consumption rose greatly. In the recovery of the '30's investment again started first, rising by \$1.1 billion from 1932 to 1933, with consumption still falling by \$1.8 billion.<sup>148</sup> In the downturn of 1929 both investment and consumption declined simultaneously but investment fell sharply from 1929 to 1930 while consumption receded by a relatively small amount. This, he says, "would indicate that also in the downswing consumption tends to follow."<sup>149</sup>

The same sort of lead of investment over consumption is found by

<sup>148</sup> In an earlier work, referring to the recovery from 1935-1937 in the United States, Hansen says, ". . . investment for the most part followed consumption; it did not, except in limited degree, lead the way." (*Full Recovery or Stagnation?*, p. 276.)

<sup>149</sup> Hansen, *Fiscal Policy and Business Cycles*, p. 49.



Hansen in the minor fluctuations as well as in the turning points of the major business cycles.<sup>150</sup> In a minor recession from 1923 to 1934 evidenced by a decline in investment, consumption continued to rise (although at a reduced rate). In the following year, investment jumped ahead with consumption rising only little, indicating the lag in consumption. Subsequently, from 1925 to 1926, investment remained at the high level it had reached, while consumption (according to Hansen's theory, as a result of the stimulus of the previous year's rise in investment) rose greatly. Both consumption and investment remained high through 1929, with some decline of investment in 1928. From these investigations Hansen concludes, "The statistical data during the last two decades tend to support the thesis that the active dynamic factor in the cycle is investment, with consumption assuming a passive, lagging role."<sup>151</sup> The lead of investment over consumption is accentuated, he points out, when consumers' durable goods are included in investment instead of consumption.<sup>152</sup>

Even with annual data, however, it is not clear that fluctuations in capital formation lead fluctuations in consumption. Tinbergen found that "The evidence available is not . . . uniformly affirmative . . ." regarding " . . . the widespread opinion that 'production of investment goods shows the business cycle earlier than production of consumers' goods.'"<sup>153</sup> In the League of Nations study Tinbergen reaches a similar conclusion and says, " . . . a word may be said about the order of the revival in consumers' goods production and producers' goods production, respectively. A good deal of attention is given to this question by Spiethoff,<sup>154</sup> Cassel, Mitchell, and others, and they all hold the opinion that capital goods show the cycle before consumers' goods. Statistically, no evidence of any systematic lag or lead is found, either in the United States after the war, or in a number of other countries."<sup>155</sup>

#### SIGNIFICANCE OF STATISTICAL STUDIES

The conclusions drawn in this chapter both with respect to Tinbergen's attempt at a statistical testing of the acceleration principle and with respect to the timing relation between consumption and capital forma-

<sup>150</sup> *Ibid.*

<sup>151</sup> *Ibid.*, p. 50.

<sup>152</sup> *Ibid.*, p. 64n.

<sup>153</sup> Tinbergen, *op. cit.*, *Econometrica*, July, 1935, p. 253.

<sup>154</sup> Cf. Haberler: "The phenomenon (alleged to be frequent) of consumers' goods industries feeling the setback of the depression much later than the capital-goods industry is regarded as a verification of the [over-investment] theory." Haberler, *Prosperity and Depression*, pp. 78-79.

<sup>155</sup> Tinbergen, League of Nations study, II, p. 187.

tion indicate that the causal connection between consumption and investment is by no means a simple one. If the acceleration principle works at all it apparently does so in a complicated fashion resulting in various timing relations between consumption and investment. This would seem to be a valid conclusion to draw from our reëxamination of Tinbergen's highly rarefied study and from Hansen's more mundane analysis of annual data on consumption and capital formation.

This conclusion is precisely what the theoretical analysis suggests. Only the oddest coincidence would yield a confirmation of the most rigid formulation of the acceleration principle—perhaps a miracle rather than a coincidence would be necessary in view of the impossibility of the usual time sequence under the assumption of full employment.

A statistical study can do no more than find that the statistical results are consistent with the economic theory being tested. Tinbergen found that the statistical results were inconsistent with his conception of the acceleration principle. If, as is contended in this chapter, Tinbergen has an incorrect and to some extent impossible view of the principle, and if, in any case, the tests he applies are not entirely acceptable, then his results need not be considered to be an indication that the acceleration principle is inconsistent with the facts. On the contrary, his statistical material and the statistical material presented in the latter part of this chapter are consistent with the broader view of the acceleration principle developed above. In this sense (which is admittedly a very limited sense, but is as far as statistical testing can go) that broad view is "confirmed."

It would be desirable to show how each variation in investment can be "explained" on the basis of the many factors indicated in the theoretical analysis, but this would necessitate an undertaking which would make the League of Nations study look small in comparison. We must confine ourselves here to pointing out that there is nothing in either Tinbergen's study or in the other data presented here to warrant any decreased emphasis on the acceleration principle in explaining investment fluctuations—but it must be an acceleration principle broadly interpreted so as not to omit factors which clearly influence its operation.

### Conclusions

The above discussion shows that the effects of government expenditures on business investment are not capable of being determined by any simple analysis. Even where changes in business investment are predominantly caused by changes in consumption, i.e., where the acceleration principle is the predominant factor in determining the fluctu-

ations in investment, the time sequence involved is indeterminate unless we know the magnitude of unemployed resources and inventories of equipment, management policy with respect to these, the state of expectations, interrelations among various stages of production, differences among firms, and changes in productive technique. However strongly the acceleration principle may be operating, changes in the consumption element (rate of change of consumption) may *precede, follow, or accompany* changes in the investment element (rate of investment). Moreover, the operation of the acceleration principle need not merely be expressed through changes in consumption and investment or finished products and capital goods but may, and ordinarily will, be expressed through changes in *prices* and *profits*. Finally, the size of the *Accelerator* changes, indicating a changing strength in the relationship described by the acceleration principle.

When we incorporate all these factors into the acceleration principle we certainly alter the principle as ordinarily understood. Yet this seems to be a valid procedure. The acceleration principle points to those changes in capital goods production which are attributable to changes in the production of finished products. Under certain limiting assumptions the exact nature of this relationship can be strictly formulated, e.g., in terms of the actual production of finished products and the actual production of capital equipment with certain specified time lags. If we relax these assumptions and increase the range of possibilities as to time sequence and size of the *Accelerator*, we are still retaining the essential point emphasized by the principle, namely the effect of changes in the rate of change in finished goods production upon changes in investment.

It is quite uninteresting to attempt to test the acceleration principle as originally formulated under severely restrictive assumptions since the assumptions are admittedly not in conformity with reality; and the results obtained would be an indication of the reality or unreality of the assumptions rather than a test of the principle itself. On the other hand, the possibility of testing a *realistically formulated* acceleration principle is remote indeed. An enormous project would be required and even then we might not obtain definite results owing to the existence of a number of intangible factors. The acceleration principle as interpreted here nevertheless remains an important tool for the analysis of changes taking place in business investment at any particular time, when the numerous conditions involved are known or can be estimated. It provides a useful and convenient vehicle for the discussion of the effects which government expenditures may have on business investment.

## Government Expenditures and the National Income



Government expenditures affect the national income by influencing its two components, the volume of consumer spending and the volume of business investment. These two are themselves profoundly interrelated since consumer spending influences the amount of business investment which, in turn, affects the level of employment and income and thus of consumer spending. An analysis of the effects of government expenditures must be concerned with these several causal connections. They are extremely complicated but they cannot be ignored without neglecting one of the main problems in government finance. It is not surprising that many discussions of these relationships and interrelationships have been confusing and inconclusive to say the least. At the risk of being subject to the same criticism, an attempt at clarification will be made here. The effects of government expenditures on consumer spending and business investment, operating primarily through the multiplier and acceleration principles, have been explored in detail in the preceding two chapters. The present chapter deals in a more general way with these principles, their interaction, and their application to practical problems.

In the discussion of this chapter, "government expenditures" are treated as an isolated element of fiscal policy. It is thus assumed that the method of financing the expenditures, whether taxation, borrowing, or printing money, is independent of the expenditures themselves. The Federal Government generally determines its expenditures first, both in aggregate amount and in detail, and then decides how to acquire the necessary funds. State and local governments have less freedom in this respect. In all cases, however, the expenditures in themselves will have certain effects; and the taxes or borrowing or printing of money will also have certain effects in themselves. The effects of the expenditure need

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not be considered a part of the specific tax or loan or currency issue which financed it. In order to determine the effects of government finance as a whole some such concept as "net government release of purchasing power" would be used. The narrower problem of government expenditures alone is being considered here for ease in exposition. In Part VI (Chapters 23, 24, and 25) of this book, after taxation and borrowing have been studied, the impact of government finance as a whole will be considered.

### **Impact on the Demand for Goods and Services**

Government spending may be assumed to have the initial effect of increasing the demand for goods and services of various types. This statement does not presuppose a settlement of any of the controversial issues connected with government spending. It merely deals with the actual paying out of the money by the government and the immediate consequences of that action. A few examples may be mentioned. If the government pays out direct relief it is reasonable to suppose that the people who receive the relief payments will immediately demand goods of some sort, presumably consumer goods. If the government buys war materials the spending of the money by the government has meant an increased production of such materials. If the government has contracted with private firms for the building of roads then those firms will purchase materials and labor with the money. The primary effect therefore may be assumed to be an increase in the amount of goods and services produced.

It is true, of course, that at the very same time that the aforementioned increase in goods and services takes place other sectors of the economy may be so affected by the government action that they simultaneously decrease the amount of goods and services which they produce. It is also conceivable that the money paid out by the government is merely hoarded and that no increase in goods and services takes place. To mention one possibility, this might be true in the case of the fraudulent payment of relief funds. A relief recipient who does not need the money and does not spend it would presumably be in this category. The fact that the private contractor may not spend his share of the money is not of any consequence in this connection. The fulfilment of the contract involves the production of goods and services. The point is that the government purchases the goods and services through the contractor and at this stage we are merely dealing with that very early aspect of the problem as a starting point for an exploration of the subsequent effects.

It is interesting to consider which type of government spending is likely to have the greatest initial impact on the production of goods and services. We may divide public expenditures into the following categories: (1) Direct purchase by the government of commodities, e.g., armaments and supplies, or surplus agricultural commodities. This, in the first instance, involves a receipt of money by private enterprise which in turn distributes it in the form of wages, rent, interest, and dividends, or may retain part of it in the form of business savings. (2) Payments directly to civil servants or work-relief recipients for services rendered. To them these payments—minus personal income taxes—constitute disposable income. This in turn must be spent in order to promote an equivalent amount of production of goods and services. (3) A combination of these, as in the case of a public works program which involves the purchase of materials as well as the direct use of manpower. (4) Transfer payments such as direct relief.

Direct payments to productive consumers (Type 2, above) will go, by and large, to the lower income classes and will almost entirely be spent. The money involved in the direct purchase of goods and services (Type 1, above), will partly find its way into so-called unearned income and will only partly result in increased purchases at the next stage. From the point of view of benefits to the lower income classes in this initial stage a given volume of expenditures of Type 2 will have a greater immediate benefit than will the same volume of expenditures of Type 1. But from the point of view of promotion of business activity there is practically nothing to choose between these two methods. In the case of Type 4, there is no immediate output of goods or services. The choice is in favor of Types 1 or 2 since they immediately constitute a production of goods or services of the amount involved, whereas Type 4 involves a time lag, albeit a short one, between the receipt of income and the expenditure of the funds. Moreover, part of the income of Types 1 or 2 may be saved, so that the subsequent increase in the production of commodities will not be equal to the total amount of money disbursed. After the first stage, however, we may use substantially the same type of analysis for all types of public spending.

### **Government Expenditures and Consumer Spending**

The next stage of the analysis deals with the disposition of the income created by the purchase of goods and services resulting from the government spending. In this discussion a given amount of spending is considered rather than a continuous level of government spending. Of the

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increased income created by the government expenditures part will be spent on consumers goods and part will be otherwise disposed of. The latter is said to be saved, savings being defined as income minus consumption. We may leave aside the saved portion temporarily and concern ourselves solely with the part that is spent on consumers' goods. That part will again cause the production of income of which again part will be spent and part will be saved. Each series of respendingings traceable to a given initial disbursement will show a continuous decrease at each stage but the total amount of income created by the public expenditure program will be greater than the initial disbursement. Each successive spending adds, although in decreasing amounts, to the total of income created. The greater the proportion spent at each stage the greater will be the additions to the total increase in income.

### THE MULTIPLIER PRINCIPLE

If the proportion remains unchanged or changes in some known manner, the exact magnitude of the increase in income promoted in this direct manner may be determined. This has become known as the multiplier principle. For instance, if nine-tenths of all income received is spent, we have the following additions to income where \$1 billion is spent. In the first instance, \$1 billion is added to income. Then, since nine-tenths of this is spent, another  $\$9\frac{9}{10}$  billion is added to income, i.e., \$900 million. The \$900 million is, in turn, spent and nine-tenths of the income thus created is spent in the next stage, thus adding \$810 million to income, making the total of \$1 billion, plus \$900 million, plus \$810 million: i.e., \$2,710 million has thus far been added to income by the initial expenditure of \$1 billion. This process continues indefinitely. If all the additions to income are added together the total addition to income is ten times the initial expenditure, i.e., \$10 billion. This is determined by applying the formula for the summation of an infinite series.

Now this increase of \$10 billion will result only after an infinite number of successive stages of spending is taken into account. If these stages are "successive" in a chronological as well as an analytical sense, an infinite length of time will likewise be needed. But this is no serious limitation to the application of the principle of the Multiplier because (1) the first half dozen or so of the stages gives us the major portion of the \$10 billion and (2) the successive stages need not wait upon each other but through the operation of business expectations, and even consumer expectations, may, roughly speaking, be considered to take place simultaneously to a large extent. In any case, the fine points of analysis

involved need not blind us to the fact that this aspect of the effects of public expenditures is such as to give us a large increase in income with a relatively small initial expenditure, in a relatively short time.

#### PROPORTION OF INCOME SPENT ON CONSUMER GOODS

The crucial point in this analysis is the proportion of income spent on consumer goods: (1) how great is this proportion at the time of public expenditure and (2) what changes, if any, will take place in this proportion in the successive stages of spending? It is difficult to obtain statistics which will precisely fit the concepts of the theory. Nevertheless the statistics are useful in helping to form judgments on the practical issues. A report of the National Resources Planning Board<sup>1</sup> estimated consumption as a percentage of income for various levels of national income as follows (on certain assumptions for which the reader is referred to the Report); \$50 billion, 88.2 per cent; \$60 billion, 84.6 per cent; \$70 billion, 81.8 per cent; and \$80 billion, 78.1 per cent. In other words, the initial proportion is not far from nine-tenths and tends to decrease slightly as the successive stages are approached, i.e., as income is increased. This should not, of course, be confused with the proportion of the increased portion of income which might be spent.

The above figures are averages for the economy as a whole. Different income groups consumed different proportions of their income,<sup>2</sup> in 1935-36

Under \$500,	149.1 per cent;
\$1000-1250,	100.6 per cent;
\$2000-2500,	88.6 per cent;
\$5000-10,000,	64.8 per cent;
\$20,000 and over,	35.4 per cent.

Again this refers to total income and not to any increment in income, but from these figures we can be reasonably certain that, on the average, income disbursed to persons whose income remains under \$1250 would have been entirely consumed in the year considered. In other groups part would have been saved depending on how high the income was. More than half of the income would have been saved, on the average, in the case of persons receiving incomes exceeding \$20,000.

In the initial stage of a government spending program most of the funds disbursed would naturally go to the lower income groups where

<sup>1</sup> *Consumer Expenditures in the United States*, Government Printing Office, 1939, p. 167.

<sup>2</sup> *Ibid.*, p. 20.



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practically all of the income would be spent, according to the above figures. In successive stages, where disbursements are made through the ordinary process of buying and selling, various income groups would benefit. We need not, therefore, expect the community's average to be different from that given in the previous paragraph. That is, the proportion might be very close to unity in the first spending stage and then would settle down to the community's average after that stage.

### EXPECTATIONS AND RELATED VARIABLES

Thus far we have been concerned with the effects which can be directly traced to the dollars involved in the initial public expenditure. With the announcement of a large public expenditure program, expectations of businessmen, and for that matter of consumers, may be such that a large increase in business activity takes place beyond that which can be directly traced to the successive stages of spending outlined above. On the other hand, if there is any truth in the claim that a large deficit financing program lowers the expectations of businessmen (it is not necessary to consider here the reasons for this), it is conceivable that there will be a tendency for business activity to diminish, thus offsetting the favorable effects described above. These secondary consequences of a public spending program—the favorable ones being the basis for a theory of pump-priming which is discussed later in this chapter—not only cannot be ignored but also in many cases are often the most important of the effects of a public expenditure program, even though they are often overshadowed in academic discussions by the analytical exactness of the multiplier sequence.

### SAVINGS AND BANK CREDIT

It may now well be asked, What of that portion of income which has been saved in the successive stages of the operation of the multiplier effect? These savings are not assumed—as many who misunderstand the principle of the Multiplier think—to be drawn off into hoards. What happens to these savings whether they increase the supply of loanable funds, i.e., are used for the purchase of securities or are actually held in the form of idle balances, does not matter much where we have, as we do, a large amount of bank credit available. The important point is that income saved is, by definition, merely income which is not spent on consumption. Even if it is not hoarded it is not necessarily spent on capital goods either—it may be used for the purchase of securities and the funds may *then* be used for the purchase of capital goods. But with

readily available bank credit the savings do not determine or limit, and in only a small degree affect, the volume of investment in capital goods.

Any expansion resulting from the government expenditures will necessitate an increased supply of loanable funds: part of these funds may come from the saved portions of income and part may come from the banks as well as from idle balances of private individuals. This is, however, a question of the terms on which the expansion can be financed rather than of the direct stimulus to expansion, with which the multiplier principle in itself is concerned. The credit situation, and thus what happens to the saved portions of income, cannot be ignored in determining the sum total effect of a public spending program. But in determining the magnitude of the expansionary *stimulus*, given the necessary funds (from whatever source), what happens to the saved portions of income need not be taken into account immediately.

### Government Expenditures and Business Investment

In considering the effects of a public expenditure program it is necessary to take account of the fact that the demand for capital goods is derived from the demand for the goods which they produce. The latter may be other capital goods or consumption goods. The fact that the demand for the various types of goods may fluctuate in divergent directions does not necessarily disprove this derived demand relationship. When there is an increased demand for consumption goods, e.g., through a public expenditure program, the profitability of using capital goods also tends to increase. Where one or all classes of capital goods approach full utilization the demand for the capital goods also increases with a resulting increase in business investment and national income. Similarly, when the demand for certain capital goods is increased, the demand for other capital goods may be stimulated. In this manner the public spending program tends to promote business investment and thereby increase national income.

### ACCELERATION PRINCIPLE

A refinement of the derived demand analysis, namely the principle of acceleration, gives us an idea of the relative magnitude of investment which can be promoted in this manner. If the rate of consumption is more or less constant from year to year and the amount of capital goods is merely maintained at a stationary level, then an increase in the rate of consumption, say by 10 per cent, may be assumed to require an increase in the *amount* of capital equipment by 10 per cent (although

technological changes and the existence of unused capacity will alter this percentage somewhat). Now assume that replacement was 10 per cent of the total volume of capital goods. The changes considered here mean that the *annual* production of capital goods *doubles*. In this case, then, a 10 per cent increase in the annual production of consumption goods caused a 100 per cent increase (i.e., a doubling) in the annual production of capital goods.

### QUALIFYING FACTORS

These figures are used here merely to indicate the point brought out by the acceleration principle; in actual practice, the relative increase in the production of capital goods will vary with the degree of under-utilization of equipment and the state of expectations, to say nothing of the fact that many outside factors may offset any favorable tendency caused by the increase in consumption taken by itself. Furthermore, it must be emphasized that the acceleration principle applies to any two capital goods industries which are adjacent to each other in the production process. An increased production of capital goods may be geared to the production of other capital goods and not consumption goods. In all cases, however, the timing relation between fluctuations in the various stages is indistinct. The entire subject is tied up with the broader question of profit expectations and the inducement to invest.

### The Theory of Pump-priming

The multiplier theory is frequently *identified* with the theory of pump-priming; or at least the two theories are discussed in the same context without any indication of the special assumptions on which each is based. This identification actually involves a serious error since it implies considerably more far-reaching effects of public expenditures than can validly be attributed to them in every case.<sup>3</sup> The theory of the Multiplier confines its attention to the initial expenditure and traces the course of the money injection on certain restrictive assumptions. As pointed out above, the effects of this money injection depend (assuming readily available credit) upon the proportion of income that is spent. The multiplier theory in itself does not ordinarily take into account the induced effects, both favorable and unfavorable, attendant upon the initiation of the public expenditure program.

<sup>3</sup> Cf. J. H. Williams, *American Economic Review* (February, 1941) p. 57 "Not the least of our dangers is that of confusing this rather mechanical monetary concept [the multiplier] with the deeper-seated forces with which we should be mainly concerned in our analysis of the economic effects of deficit spending."

## INDUCED EFFECTS

Various possible and probable induced effects may actually take place. The initiation of the public expenditure program may conceivably carry with it the fear of a runaway inflation so that private investment is discouraged. On the other hand, the expectations of businessmen may be favorably affected by the spending program—as they may well be in view of the increased incomes placed in the hands of the public—with the result that a large amount of private investment takes place, which in turn has a multiplicatory effect.

## PUMP-PRIMING ASSUMPTIONS

The theory of pump-priming adds to the multiplier theory the latter assumption, i.e., that private investment beyond that necessitated by the multiplier theory in itself will take place. It also adds the further assumption that the induced private investment will take place even after the increased government expenditures cease and that such investment is sufficient to offset the unfavorable effects of the reduction of public expenditures. These assumptions, it will be evident, are not of the sort which we may readily make realistically without a careful survey of the actual situation, especially with respect to the degree of unused capacity and the state of business confidence.

The existence of induced investment, it should be stressed, is not sufficient for the pump-priming theory to be substantiated in practice: induced investment must *continue* even if public expenditures drop. Where business expectations are of a particularly short-term variety, i.e., businessmen are willing to make short-term but not long-term investment, and are very cautious in making any expenditures not directly required by current demand, it is extremely likely that the fall in public spending will be accompanied by a general fall in business activity. This, it has been claimed, was the situation in 1937.<sup>4</sup> Be that as it may, one must certainly not take it for granted that the public expenditure program will have a self-perpetuating stimulative effect; i.e., the operation of the Multiplier does not necessarily mean that the pump-priming theory will work. The pump may give forth water only so long as we continue to prime it.

<sup>4</sup> For a discussion of this problem see Harold M. Somers, "The Performance of the American Economy Since 1860," Chapter 32 in *Growth of the American Economy* (H. F. Williamson, ed.), New York: Prentice-Hall, 1944.

### The Theory of the Savings-Investment Gap

The above discussion has been mainly in terms of the expansionary effect of government spending. Current economic thought, mainly associated with the names of Keynes and Hansen, also concentrates on another important function of government spending, namely that of preventing the fall in the national income which results from the tendency for the rate of intended saving<sup>5</sup> to outrun the rate of intended private investment. This we may call the Theory of the Savings-Investment Gap. It also provides a convenient basis for discussing what has loosely become known as the stagnation thesis and the theory of a mature economy.

The argument runs somewhat as follows.<sup>6</sup> There is a tendency for a certain substantial portion of national income to be saved, i.e., not spent on consumption, each year. If an equivalent amount of money is not invested for the actual formation of capital, part of the saved portion of income will, in effect, either be hoarded or will cause losses (or both) so that national income (which is equal to the sum of consumption plus capital formation) will fall. If, on the other hand, the volume of actual capital formation is greater than the saved portion of income, a rise in national income will take place. The difference between savings and investment is the savings-investment gap. It is always closed after the fact by price and income changes which cause unintended savings and investment. Now what determines how great the investment will be in comparison with the saving?

#### EXCESS OF PROSPECTIVE SAVINGS OVER PROSPECTIVE INVESTMENT

Savings may be considered a direct function of income in the sense that not only will there be a certain proportion of income saved (e.g., in life insurance, business savings, mortgage amortization, etc.) but also the amount of saving increases as the national income increases, perhaps even at an increasing rate (but for our purposes the latter condition, known as Keynes' "psychological law," does not matter). Even if national income remains at a constant level there will be a substantial volume of

<sup>5</sup> Here we are not using the term "Saving" in the Keynesian sense where it is identical with Investment, but rather in the Ohlinian sense (or some variant) in which Savings and Investment may differ.

<sup>6</sup> See Alvin H. Hansen, "Price Flexibility and the Full Employment of Resources," *The Structure of the American Economy: II. Toward Full Use of Resources* (National Resources Planning Board, June, 1940), pp. 27-34.

savings and when it moves to a higher level the volume of savings will rise. Investment, however, bears no such functional relationship to national income. Merely by keeping each stock of capital at a constant level it is possible to maintain a given level of output of goods and services, i.e., of national income. In other words, the rate of net investment need merely be zero to maintain a given level of income. In order to increase the output of goods and services, i.e., to raise the national income, net investment will ordinarily be necessary, i.e., a net increase in the stock of capital. But once the addition to the stock of capital is made and the higher level of national income is attained, again no net investment is necessary. At the same time, as pointed out above, the volume of savings is substantial for any given level of income and rises with any higher volume. Hence in the nature of the case we can see why there might be a tendency for savings to outrun investment.

#### EXCESS OF PROSPECTIVE INVESTMENT OVER PROSPECTIVE SAVINGS

It is quite possible, of course, that an inflationary rather than a deflationary tendency might develop. Investment may outrun savings and national income may rise beyond the point where substantially full employment is reached. The result would be an inflationary rise in prices. This might occur when large private investments are made and savings are small. It may also occur where government expenditures for war purposes are large and the public consumption expenditures also are high with savings low.

#### INVESTMENT OPPORTUNITIES

The reason why the gap, excess of savings over investment and therefore the tendency for income to fall, need not always exist, is that new investment opportunities are constantly opening up, e.g., a new industry, like railways, automobiles, electric refrigerators; or old industries are expanded, e.g., housing, with the result that the level of investment is greater than that merely required to maintain the former output of goods and services. If, however, the new investment opportunities do not exist, the natural tendency for a gap between savings and investment manifests itself and national income tends to fall.

#### FUNCTION OF THE GOVERNMENT

It was pointed out above that a prospective gap between savings and investment always disappears through price and income changes. It is not necessary for the government to intervene unless it wants to avoid

those price and income changes. Where a deflationary gap develops the government may decide to step in and take up some of the savings and convert them into investment, e.g., by public works. The alternative would be a fall in national income with its resulting effects upon the level of employment, tax revenues, etc. Hence where there is a lack of investment opportunities public expenditures financed out of savings (either through bonds, progressive taxation or printing money) are necessary merely to *maintain* the level of national income, let alone raise it. This involves a compensatory program of government spending. In case of an inflationary gap the government's function would be either to curtail investment or increase savings (e.g., by reducing consumption) and thereby close the gap without incurring inflation.

### Conclusions

The fullest understanding of economic and business-cycle theory must be invoked for any adequate analysis of the influence of government expenditures on the national income. A tentative approximation to the influence on consumption is provided by the multiplier principle but any attempt at a definitive study must consider many psychological and other influences which introduce a disturbing amount of variation in the factors involved in the multiplier analysis. The effects on business investment cannot be treated apart from the complicated question of the inducement to invest. The acceleration principle provides a convenient starting point but not more.

Snap conclusions such as those involved in the pump-priming theory imply assumptions regarding the inducement to invest which are frequently not realized under the conditions which usually prevail when a large government spending program is undertaken. The theory of the savings-investment gap is merely a neutral descriptive device capable of being adapted to both inflationary and deflationary conditions. It is used as a framework for the exposition of the theory that compensatory government spending must be used to fill the gap left by inadequate investment opportunities; and likewise for policy recommendations under which government would reduce inflationary pressures. In considering the effects of government expenditures on the national income the major caution is to avoid considering purely mechanical devices such as the multiplier principle, the acceleration principle, and the theory of the savings-investment gap as short-cuts which make unnecessary a study of the basic controlling factors in the economy, such as consumer and business expectations.

**Part III**  
**Taxation**





## Trends in Taxation

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There is much more involved in making changes in the tax system than appears on the surface. The purpose of the taxes must be settled: do we wish merely to derive revenue or achieve some non-financial end, or both? The principles on which the taxes are to be based must be kept in mind while working out the details of the tax structure: is the tax burden to be distributed according to ability-to-pay; benefits received; the extent of "earned" as opposed to other income; the achievement of full employment; or simply expedience? Certain practical considerations must be taken into account: the possible yields of various rates and forms of taxation; the justice of the proposed tax structure; the cost of administration; and the economic and social consequences. Finally, after the taxes are tentatively formulated on the basis of the purposes, principles, and practical considerations mentioned above, an appropriate tax base and rate structure must be established. This involves a decision on whether the taxes will be proportional, regressive, or progressive.

A moment's reflection will convince the student that the purposes, principles, practical considerations, and progressivity of a tax are not really distinct aspects of the fiscal system but actually form a unit. They tentatively separate the different levels of tax policy formation which must finally be integrated. For instance, the ability-to-pay principle leads generally to a progressive tax. The "full-employment principle," however, may or may not lead to such a tax, depending on the economic conditions which prevail at the time. Moreover, if the sole purpose of the tax is to raise revenue, it may be possible to set up a tax system following any one of a number of principles, giving full regard to several practical considerations and using any one of the possible rate structures. These few examples are given here merely to indicate the necessity of a separate discussion of what may be called the four "p's" of a tax structure—*purposes, principles, practical considerations, and progressivity*—

despite the apparent overlapping and repetition which exists in the discussion of these several topics.

### Purposes of Tax Policy

The purposes of tax policy are considered only in a broad sense. Two purposes are distinguished: financial and non-financial. Taxes may be imposed for the purpose of raising revenue or the purpose of achieving some non-financial end. Regardless of which of these two purposes may have been intended at the time that the tax law was written, both effects are ordinarily achieved in practice by any tax. There seems to be a trend in the direction of recognizing more and more the non-revenue purposes and effects of taxation.

The distinction between a "revenue tariff" and "protective tariff" illustrates the point. If a high protective tariff is imposed the aim is primarily non-financial, namely to keep certain goods out of the country. If the tariff is so high that none of the specified goods do enter the country then the revenue is nil. But if some of the goods enter and pay duty the Treasury derives some revenue. The United States tariff is generally a protective tariff, yet, in the fiscal year 1948, \$422 million was derived in gross customs receipts. This may be compared with total budgetary receipts of \$46,362 million in the same year. The estimates for 1949 were \$378 million and \$46,499 million, respectively.<sup>1</sup>

Likewise, a revenue tariff cannot fail to have some protective effect. The customs duty, however small, interposes a barrier to the importation of the commodity. The effectiveness of the barrier depends not only on the amount of the duty but also on its shifting and incidence. In so far as the barrier operates at all, non-financial effects are felt as well as financial.

The same sort of dual effect of ostensibly single-purpose taxes is encountered in other cases. A sales tax imposed for revenue purposes cannot fail to influence consumption. An excise tax designed to discourage consumption of harmful commodities will also raise some revenue unless the imposts are prohibitively high. For instance, the tax on marihuana yielded \$23,581 in the fiscal year 1945 and the taxes on narcotics (taxes on opium, taxes on coca leaves, and special taxes) yielded \$732,436 in the same year.<sup>2</sup> The tax on oleomargarine, likewise designed to discourage its use, yielded \$2,219,010 on the colored product,

<sup>1</sup> U.S. Treasury Department, *Treasury Bulletin*, August, 1948, p. 2.

<sup>2</sup> U.S. Treasury Department, *Annual Report of the Secretary of the Treasury on the State of the Finances for the Fiscal Year Ended June 30, 1945*, p. 482.

\$1,355,745 on the uncolored product, and \$1,928,718 through special taxes.<sup>3</sup> The purpose of these taxes is clearly non-financial yet the taxes are financially productive to some extent.

### Principles of Tax Policy

An individual tax and the tax structure as a whole may be framed so as to conform to prescribed principles. The selection of the appropriate principle is primarily a matter of basic philosophy—of ultimate ends—and is scarcely amenable to economic analysis. The method adopted to achieve the ends is another matter. It is subject to considerable, although controversial, economic analysis. The alternative principles which may be followed are listed below and discussed briefly.

The approach to the problem considered here may be illustrated by a particular tax. Suppose that it is decided to impose an income tax. Should the tax be framed so as to derive the revenue mainly from those who are best able to pay, from those who will benefit most from the expenditures derived from the tax, from those who have received their income from property, from those who will help promote employment or curtail inflation thereby, or from those who will complain the least when they pay it? These are the questions to be answered in deciding the principles which are to guide the formation of tax policy.

### THE ABILITY-TO-PAY PRINCIPLE

Taxing on the basis of ability to pay seems to be taken for granted in many parts of the federal tax structure. According to this principle those who have the greatest wealth or income pay most of the tax regardless of any benefits they may or may not derive. The federal personal income tax with its progressive rates is clearly an example of this. The higher income groups pay a proportionally larger part of their income to the government than do the lower income groups. In 1948 an unmarried person earning \$5000 after deductions but before exemptions would pay a tax of \$810.72 or 16.21 per cent of his total income after deductions. If he earned \$100,000 he would pay \$58,762.24 or 58.76 per cent of his total income after deductions. (These figures are all after the reductions in tax rates made in the Revenue Act of 1948.) The inheritance tax structure is similar in this respect. The wartime excess profits tax, although based primarily on another principle, can be considered to have been formulated partly with a view to taxing those who can afford

<sup>3</sup> *Loc. cit.*

## TAXATION

to pay. Luxury taxes, such as those on jewelry and furs, may be based on the assumption that only those who can afford to buy such items will actually buy them. To the extent that this assumption is borne out in practice, the luxury taxes are based on ability to pay. But where the luxuries are bought by those who cannot really afford them the taxes cannot be considered in the ability-to-pay category.

A corollary of the ability-to-pay principle is taxing to equalize the distribution of income and wealth. Since the higher incomes are taxed more heavily, the tax structure itself has the effect of equalizing the distribution of wealth and income. The government expenditures can mitigate or accentuate the tendency.

The doctrine of ability-to-pay has been criticized severely by Professor Kendrick. His reasoning, in essence, is that it is impossible to make comparisons of sacrifice between individuals because of their wide differences in feelings, attitudes, and responses.<sup>4</sup> Professor H. K. Allen has also criticized this principle, but on the grounds that it is incompatible with the institution of private property.<sup>5</sup>

### THE BENEFIT PRINCIPLE

Another possible basis for taxation is the benefit principle whereby the individual or firm pays according to the benefits derived from the government's expenditures. The determination of benefits is difficult except where the tax is really a fee for a specific service rendered. Usually tax revenues must be considered as a whole and expenditures likewise. An individual or business firm benefits not from any specific service financed by the taxes it pays, but rather from governmental services as a whole, financed by taxes as a whole. A taxpayer benefits from national defense, fire protection, health services, and innumerable other governmental activities. A firm may even benefit from relief expenditures in so far as its business is stimulated thereby.

What is the value of these varied services to the person or company paying the tax? The benefit is hard to measure unless it be in terms of the income which the taxpayer is enabled to earn or the property which he is enabled to keep as a result of the multifarious governmental activities of protection, promotion, education, and what-not. But if taxes

<sup>4</sup> M. Slade Kendrick, "The Ability-to-Pay Theory of Taxation," *American Economic Review*, Vol. 29, March, 1939, pp. 92-101. (Partly reprinted in Harold M. Groves, *Viewpoints on Public Finance*, pp. 13-19 [New York: Henry Holt, 1947].)

<sup>5</sup> H. Kenneth Allen, "The Ability-to-Pay Principle and Private Property," *The Tax Review*, Vol. 9, June, 1948, pp. 24-28.

are imposed according to income and wealth they are substantially in accordance with the ability-to-pay principle. Thus it becomes difficult to dissociate the benefit principle from the ability-to-pay principle in those cases where the taxpayer benefits from general governmental services. The benefit principle can be distinguished clearly only where the tax revenue is earmarked to finance a specific service rendered the taxpayer.

A "cost-of-service" principle is sometimes distinguished from the others. If the tax is imposed in accordance with this principle the persons who receive the benefits from the expenditures will pay the costs incurred. This may therefore be considered a refinement of the benefit principle and there seems to be no reason to list it separately.

#### THE "EARNED-INCOME-CREDIT" PRINCIPLE

There is a third tax principle which sometimes finds its way into the tax laws. For want of a better name we call it the "earned-income-credit" principle after a feature of the federal income tax law which existed a few years back. Wages and salaries were given a special deduction in computing the tax liability. The underlying theory was that those who derived their income by work of one sort or another should be favored; or, in effect, that income which the tax law considered "unearned" income, such as rent, dividends, and interest should be penalized. To some extent, the same philosophy underlay the excess profits tax. The war profits, above a certain level, were considered windfalls which were not attributable to any effort on the part of management. Rather they were due to war conditions over which management had no control. Inheritance taxes, likewise, are based partly on this principle. The legatee did not earn the money he receives hence he should be taxed at high rates. On the other hand, the tax laws sometimes run directly counter to this principle. The income tax of the City of Philadelphia, for instance, is really an "earnings" tax. Income from sources other than employee compensation and business is not covered by this so-called "income tax."

#### THE "FULL-EMPLOYMENT" PRINCIPLE

Taxes may be so designed as to stimulate production and employment without regard to considerations of ability-to-pay, benefit, and "earnedness." The idea of *incentive taxation* falls into this category. Under various proposals of incentive taxation the tax structure is devised so as to stimulate production and employment. The merit-rating systems of unemployment insurance, for instance, are designed to encourage stability of employment. Under such systems the employer

either receives a rebate or is subjected to a reduced unemployment insurance tax if he maintains a certain prescribed degree of stability in employment. The undistributed profits tax was intended partly as a stimulus to consumption by forcing the distribution of profits to shareholders. The taxation of bank deposits is sometimes proposed as a method of stimulating spending. All of these plans are aiming at some high level of employment which is sometimes referred to as "full employment." For convenience all such principles of tax policy are classified under the "full employment" principle. There seems to be a trend in the direction of giving these principles a greater and greater part in framing tax policy.

The aim of tax policy may sometimes be to curtail rather than promote spending. Wartime tax policy had this aim in large part. Since the type of economic analysis involved is similar to that used in following the "full employment" principle, there does not seem to be any need to create a separate classification.

### THE "EXPEDIENCY" PRINCIPLE

Sometimes taxes are imposed without any more noble purpose than to get the most revenue with the least trouble. The policy then is purely one of expediency. The inheritance taxes are based somewhat on this principle: the person who earned the money is not here to object to the tax. This principle is behind "hidden taxes" such as excises imposed at the point of manufacture and thereafter included in the price. The idea behind such taxes is crudely stated as "what the public doesn't know won't hurt them." The taxation of small, unorganized groups which do not have powerful lobbies will often be greater than the favored lobby-powerful groups. Burdensome taxes on hucksters in some communities are in the former category. Frequently the only principle used in tax revision is that of political expediency in this case. Many of the loopholes in our tax laws can be traced to political expediency of this sort.

### Practical Considerations in Framing Tax Policy

Regardless of the basic philosophy of the tax law—the underlying purposes and principles—there are some practical considerations which the policy-maker must take into account. In some cases this means that the main principle must be compromised and concessions have to be made to other principles. Considerations of yield, justice, administrative costs, and economic and social effects are among those which must be taken into account.

## YIELD

If the primary purpose of the tax is to raise revenue the estimates of yield must of course play an important part in framing the tax law. The aim may be to raise a specified amount of revenue through the use of a tax built on some sort of ability-to-pay principle. But economic factors and other practical considerations may be such as to preclude the possibility of raising a sufficient amount of revenue through a strict adherence to this principle. For instance, a city may decide to raise \$10 million of revenue through a progressive income tax based on the ability-to-pay principle. However, it is found that a bracket tax exceeding, say 20 per cent, will diminish rather than increase revenue by driving high-income persons and businesses from the city. In order to obtain the \$10 million the administration finds that it has to tax medium-income wage-earners heavily—and it can do so because they are not likely to leave the locality. This is a case where the ability-to-pay principle has to give way before practical considerations of tax yield.

The productivity of a tax will be of no consequence, of course, in those cases where the tax is designed to serve non-financial ends. Yet in some instances tax yield may serve as an indicator of the effectiveness of the tax in achieving the desired non-financial end. A heavy income tax imposed on the lower brackets with a view to curtailing consumption in wartime will be effective roughly to the extent that it achieves a transfer of funds from the income receivers to the government. In this sense, the yield indicates (although it does not measure precisely) the effectiveness of the tax in curtailing consumption.

On the other hand, the yield may sometimes be an inverse indicator of the effectiveness of the tax in achieving non-financial ends. A protective tariff designed to keep out certain goods completely is 100 per cent effective if it yield no revenue, provided that smuggling is not taking place.

## JUSTICE

The tax administrator cannot leave out of account considerations of equity and justice. This is true even if a concession to these factors makes it necessary for him to deviate somewhat from his main principles or purposes. There are, of course, moral reasons why the tax structure should be fair. There are equally persuasive ones in the fields of practical politics and economics.

No law can be enforced if it is against the will of the people. If a



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tax law is generally considered to be unfair, evasion and avoidance will take their toll to such an extent that the tax will sooner or later have to be abandoned as a result of political pressure or economic dislocations. The emphasis is on what people *think* is just. The Machiavellian tax administrator frames his tax laws and accompanying publicity so as to convince the people that the distribution of burden is equitable. Through hidden taxes such as excises imposed at the point of manufacture, the true nature of the imposts is hidden. The tax structure may actually be unjust and inequitable but it may be tolerable because its true nature is disguised. Moral considerations dictate that justice be done but the tax-framers' ingenuity often permits of persistent injustice and inequity.

### ADMINISTRATIVE COSTS

Tax collection costs money. Any tax that is proposed must be judged not only by its yield but also by the costs that have to be incurred to derive that yield. A large administrative cost will be considered wasteful and the tax involved will not receive public sanction.

A clear example of variations in administrative costs may be found in customs duties. If we take the total internal revenue as a basis of comparison we find that in the fiscal year 1945 the Bureau of Internal Revenue expended \$144,786,969 to collect a total of \$43,675,865,945. This gives a cost of \$0.33 to collect \$100. In 1944 the figure was \$0.32 or only slightly less.<sup>6</sup> Thirty-three cents to collect a hundred dollars seems to be a very reasonable figure. Customs duties were, however, more expensive. In fiscal 1945 it cost \$26,211,092 to collect \$561,101,058 or \$4.67 per \$100. In 1944 the figure was only \$3.44.<sup>7</sup> If these amounts seem high, it must be remembered that a large amount of time is spent by the Customs Service in *not* collecting, i.e., in enforcing the protective tariffs. This fact is accentuated by the costliness of collection in some districts. The following table discloses the wide disparity in costs of collection. It will be noted that the Alaska and Sabine districts spent more money than they collected. Alaska spent \$354.76 to collect \$100 and Sabine spent \$238.98. The Kentucky district was the most "profitable," the cost being only twenty-eight cents to collect \$100. Indiana and Pittsburgh were close with thirty-two and thirty-three cents, respectively. Buffalo (\$4.66), Omaha (\$4.88), Virginia (\$4.81), and Wisconsin (\$4.46) were near the national average of \$4.67.

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<sup>6</sup> *Annual Treasury Report 1945*, p. 208.

<sup>7</sup> *Ibid.*, p. 201.

Table 11

## COST OF COLLECTING CUSTOMS DUTIES, 1945\*

<i>District</i>	<i>Cost to Collect \$100</i>	<i>District</i>	<i>Cost to Collect \$100</i>	<i>District</i>	<i>Cost to Collect \$100</i>
Alaska.....	\$354.76	Maine and New Hampshire...	\$13.61	Rochester.....	\$ 8.36
Arizona.....	7.08	Maryland.....	7.60	Sabine.....	238.98
Buffalo.....	4.66	Massachusetts..	1.72	St. Lawrence...	15.86
Chicago.....	1.46	Michigan.....	3.64	St. Louis.....	2.92
Colorado.....	5.19	Minnesota.....	3.27	San Diego.....	18.49
Connecticut....	2.76	Mobile.....	3.89	San Francisco..	5.59
Dakota.....	15.64	Montana and Idaho.....	11.71	South Carolina.	10.37
Duluth and Superior.....	2.20	New Orleans...	8.98	Tennessee.....	1.44
El Paso.....	8.32	New York.....	6.02	Vermont.....	16.66
Florida.....	3.92	North Carolina.	.90	Virginia.....	4.81
Galveston.....	7.39	Ohio.....	1.05	Washington....	10.07
Georgia.....	7.17	Omaha.....	4.88	Wisconsin.....	4.46
Hawaii.....	11.32	Oregon.....	6.02	Average....	\$ 4.67
Indiana.....	32	Philadelphia...	2.39		
Kentucky.....	.28	Pittsburgh.....	.33		
Laredo.....	10.43	Rhode Island...	1.08		
Los Angeles....	3.24				

\* Data derived from *Annual Treasury Report 1945*, pp. 702-3. (The data cover the fiscal year 1945.)

## ECONOMIC AND SOCIAL EFFECTS

Finally, as a purely practical matter, the tax-framer cannot ignore the economic and social effects of any revenue-raising measure. These may be in terms of production and employment or the distribution of income and wealth. The purpose of a given tax may merely be to raise revenue but its practical consequences may be so harmful as to require its complete abandonment. Where the purpose of a tax is to curb inflation, the effects on the distribution of wealth may be so drastic as to warrant radical modification of the provisions of the law. Regardless of the purposes and principles of the tax the tax-framer must consider the economic and social effects of a tax because of the possible political repercussions.

## Progressivity of the Rate Structure

The task of determining the precise nature of the tax still remains after the purposes, principles, and practical administrative aspects have

## TAXATION

been given due consideration. What rates are to be imposed? What exemptions and deductions are to be allowed? What is to be the basis of the tax? What variations in base or rates are to be allowed between taxpayers? These are a few of the myriad questions which must be answered in order to translate the fundamental considerations discussed in this chapter into an operating tax.

### TAX BASE

The taxable item which remains after exemptions and deductions are allowed for is known as the *tax base*. The tax base for purposes of economic analysis may be quite different from the legal tax base. A few examples will suggest the difference. It is important to derive it properly because the true nature of a tax structure may be obscured by an incorrect notion of the base. The tax base is usually determined rather easily in the case of an income tax but it is relatively difficult in the case of a property tax.

**Example 1.** An income tax prescribes a rate of 20 per cent on net taxable income under \$2000. A certain taxpayer has an income of \$5000 but his exemptions are \$2500 and deductions \$1500. The legal tax base in his case is then \$1000. For purposes of economic analysis, however, the tax base will often be considered the full \$5000. In this case the taxpayer pays \$200 on an income of \$5000, or 4 per cent.

**Example 2.** The property tax rate in a certain community is \$30 per \$1000 of assessed valuation. Taxpayer A has a home assessed at \$5000 on which he has a veteran's exemption of \$2000. The assessment in this case is assumed to be at the full normal market value of the house. Taxpayer B has a home assessed at \$25,000 on which there is no exemption. However, the assessment in this case is at only 50 per cent of full normal market value. The legal tax base for A is \$3000 and for B it is \$25,000. The tax liabilities are \$90 and \$750, respectively. However, if we allow for the disparity in assessment policy we find that A pays a tax of \$90 on property that is worth \$5000 and B pays a tax of \$750 on property that is worth \$50,000. This gives us effective rates of \$18 per \$1000 and \$15 per \$1000, respectively. For purposes of this computation the full value of the property, with correction for under- or overassessment, and without allowance for exemptions, is used as the base.

### TAX RATE

The tax rate is the amount of tax per unit of tax base. In the case of the income tax the rate is usually expressed as a percentage, i.e., as a

certain amount per hundred. In Example 1, above, the rate is 20 per cent of the legal tax base which is the income after exemptions and deductions. When the entire income is used as the tax base, we find that the rate, for this particular taxpayer, is only 4 per cent. In Example 2 the rate is \$30 per \$1000 or 3 per cent of the legal tax base. When the full normal market value is used as the tax base the rate turns out to be \$18 per \$1000 or 1.8 per cent for Taxpayer A and \$15 per \$1000 or 1.5 per cent for Taxpayer B.

### TAX LIABILITY

The entire amount of tax owing when the tax rate is applied to the tax base is the tax liability. In Example 1 the tax liability is \$200. In Example 2 the tax liability is \$90 for Taxpayer A and \$750 for Taxpayer B.

### COMPUTATION OF PROGRESSIVITY

With the information given above it is possible to determine the progressivity of a tax. *Proportional taxation* exists when the tax rate is a constant percentage of the tax base. The 1945 excess profits tax, for instance, was  $85\frac{1}{2}$  per cent of excess profits regardless of the amount of the latter. Computed on the legal tax base this would be a case of proportional taxation. A tax of 10 per cent on all income, of whatever size, would be another example. The property tax of \$30 per \$1000 mentioned in Example 2, above, is also a case of proportioned taxation where the legal tax base, the assessed value after exemptions, is used. However, in the true economic sense the tax is not proportional if the full normal market value is used as the base. This is because the true rate is \$18 per \$1000 for one taxpayer and \$15 per \$1000 for another.

*Regressive taxation* exists when the tax rate declines as the tax base increases. In the example just mentioned we find this to be true. The taxpayer owning the \$5000 house pays at the rate of \$18 per \$1000 or 1.8 per cent. The taxpayer owning the \$50,000 house pays at the rate of \$15 per \$1000 or 1.5 per cent.

*Progressive taxation* exists when the tax rate increases as the tax base increases. The clearest example is the personal income tax in the United States. The following table gives the bracket rates in 1948 before the various percentage reductions which are described in detail in Chapter 9. It will be observed that the rate in each bracket gets higher and higher from the initial figure of 20 per cent until it reaches 91 per cent for income in excess of \$200,000. The spread from the initial to the final bracket

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*Table 12*

**INDIVIDUAL INCOME TAX: 1948 TAX RATES\***  
 (COMBINED NORMAL TAX AND SURTAX BEFORE PERCENTAGE REDUCTIONS)

<i>Net Income After Deductions and Exemptions</i>	<i>Tax</i>
Not over \$2000	20%
Over \$2000 but not over \$4000	\$400, plus 22% of excess over \$2000
Over \$4000 but not over \$6000	\$840, plus 26% of excess over \$4000
Over \$6000 but not over \$8000	\$1360, plus 30% of excess over \$6000
Over \$8000 but not over \$10,000	\$1960, plus 34% of excess over \$8000
Over \$10,000 but not over \$12,000	\$2640, plus 38% of excess over \$10,000
Over \$12,000 but not over \$14,000	\$3400, plus 43% of excess over \$12,000
Over \$14,000 but not over \$16,000	\$4260, plus 47% of excess over \$14,000
Over \$16,000 but not over \$18,000	\$5200, plus 50% of excess over \$16,000
Over \$18,000 but not over \$20,000	\$6200, plus 53% of excess over \$18,000
Over \$20,000 but not over \$22,000	\$7260, plus 56% of excess over \$20,000
Over \$22,000 but not over \$26,000	\$8380, plus 59% of excess over \$22,000
Over \$26,000 but not over \$32,000	\$10,740 plus 62% of excess over \$26,000
Over \$32,000 but not over \$38,000	\$14,460 plus 65% of excess over \$32,000
Over \$38,000 but not over \$44,000	\$18,360 plus 69% of excess over \$38,000
Over \$44,000 but not over \$50,000	\$22,500 plus 72% of excess over \$44,000
Over \$50,000 but not over \$60,000	\$26,820 plus 75% of excess over \$50,000
Over \$60,000 but not over \$70,000	\$34,320 plus 78% of excess over \$60,000
Over \$70,000 but not over \$80,000	\$42,120 plus 81% of excess over \$70,000
Over \$80,000 but not over \$90,000	\$50,220 plus 84% of excess over \$80,000
Over \$90,000 but not over \$100,000	\$58,620 plus 87% of excess over \$90,000
Over \$100,000 but not over \$150,000	\$67,320 plus 89% of excess over \$100,000
Over \$150,000 but not over \$200,000	\$111,820 plus 90% of excess over \$150,000
Over \$200,000	\$156,820 plus 91% of excess over \$200,000

\* Based on U.S. Treasury Department, Internal Revenue Service, Form 1040-ES, 1948.

rate would become even more marked if income-before-deduction-and-exemptions were used as the base.

*Progressive taxation* is a special form of progressive taxation and is included in the latter. This is the case where the increase in the rates does not take place as fast as the increase in the base. In the above table it will be noted that the \$20,000-\$22,000 bracket is taxed 56 per cent, the \$22,000-\$26,000 bracket is taxed 59 per cent, and the \$26,000-\$32,000 bracket is taxed 62 per cent. In both changes from 56 per cent to 59 per cent and from 59 per cent to 62 per cent there is a rise of three percentage points in the bracket rate. The size of the brackets increases, however, from \$2000 to \$4000 to \$6000. Thus the tax rate rises three

percentage points for an increase of two thousand dollars in tax base; then it rises three percentage points for an increase of four thousand dollars in tax base; finally it rises three percentage points for an increase of six thousand dollars in tax base. The increase in tax rate is not so rapid as the increase in tax base. This is a case of degressive taxation. Not all parts of this progressive income tax are degressive. In the first three brackets of the table the rates are 20, 22, and 26 per cent. The first increase is two percentage points and the second is four percentage points. The brackets are all of the same size, however, in this early part of the tax table. Here, then, we have a case of a progressive tax which is not degressive.

It might seem to the reader that there is a discrepancy between the illustrations given above and the various definitions in so far as the latter are in terms of brackets. The definitions are stated in over-all terms and not in bracket terms. The same qualitative result is obtained either way, however, and that is all that is necessary for purposes of the definitions. If the brackets are of uniform size and the bracket tax rate rises, the over-all rate also rises. The percentage rise in the bracket tax rate is not the same as the percentage rise in the over-all rate but that does not matter for this purpose. If the first \$2000 is taxed 10 per cent and the second \$2000 is taxed 20 per cent, the over-all rate rises from \$200 per \$2000 or 10 per cent to \$600 (\$200 plus \$400) per \$4000 or 15 per cent. Thus by definition this is a case of progressive taxation.

### Trend of Tax Collections in the United States

A brief examination of some statistics on tax revenues will indicate the relative importance of the respective taxing jurisdictions—federal, state, and local—and will also suggest the relative importance of individual taxes. This is essential in maintaining a proper perspective on the issues involved in the discussions of subsequent chapters.

#### TAX COLLECTIONS BY GOVERNMENTAL UNITS

The growth of tax collections of governmental units over the past thirty-five years is shown in Table 13 on page 144. Federal, state, and local revenues are included.

From \$2.7 billion in 1911 revenue rose to a peak of \$8.8 billion in 1920. It fell off slightly during the next few years and then began to rise again to a peak of \$10.3 billion in 1930. After another dip for a few years a steady upward climb persisted almost without interruption to the high

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*Table 13*  
**TAX COLLECTIONS BY GOVERNMENTAL UNITS, 1911-1946\***  
 (EXCLUSIVE OF PAYROLL TAXES FOR SOCIAL SECURITY)  
 (IN MILLIONS)

<i>Year</i>	<i>Federal</i>	<i>State</i>	<i>Local</i>	<i>Totals</i>
1911.....	\$ 614	\$ 300	\$1,753	\$ 2,697
1912.....	640	300	1,783	2,723
1913.....	672	300	1,801	2,773
1914.....	682	350	1,868	2,900
1915.....	630	366	1,941	2,937
1916.....	731	364	2,015	3,140
1917.....	1,040	410	2,142	3,592
1918.....	3,898	460	2,210	6,598
1919.....	4,040	528	2,374	6,942
1920.....	5,741	600	2,446	8,787
1921.....	1,975	700	2,519	8,194
1922.....	3,621	858	3,158	7,637
1923.....	3,203	917	3,285	7,405
1924.....	3,355	1,017	3,518	7,890
1925.....	3,140	1,017	3,736	7,983
1926.....	3,123	1,264	4,001	8,688
1927.....	3,479	1,355	4,248	9,082
1928.....	3,367	1,507	4,464	9,338
1929.....	3,550	1,612	4,510	9,672
1930.....	3,633	1,780	4,879	10,292
1931.....	2,812	1,992	4,931	9,735
1932.....	1,891	1,851	4,716	8,458
1933.....	1,878	1,672	4,520	8,070
1934.....	2,992	1,909	4,640	9,541
1935.....	3,653	2,059	4,756	10,468
1936.....	3,910	2,540	4,754	11,204
1937.....	4,877	2,932	4,740	12,549
1938.....	5,277	3,124	4,740	13,141
1939.....	4,765	3,057	4,780	12,602
1940.....	4,861	3,273	4,800	12,934
1941.....	6,819	3,573	4,800	15,192
1942.....	11,845	3,917	4,706	20,468
1943.....	21,194	3,941	4,700	29,835
1944.....	40,377	4,087	4,700	49,164
1945.....	42,477	4,350	4,700	51,527
1946.....	39,045	4,883	4,682	48,610

\* Data derived from "Total Tax Collections in 1946," *Tax Policy*, Vol. 14, No. 5 (May, 1947) p. 5.

level of \$51.4 billion in 1945. The average during the prewar years 1935-1940 was in the neighborhood of \$12 billion.

### FISCAL IMPORTANCE OF INDIVIDUAL TAXES

The relative importance of the various individual taxes in 1946 is shown in Table 14. The traditional classification of taxes placed one group in the category of *direct* taxes and the other in that of *indirect* taxes. The former includes excess profits, inheritance, payroll, property,

Table 14  
TAXES IN ORDER OF FISCAL IMPORTANCE: 1946\*  
(EXCLUSIVE OF PAYROLL TAXES)  
(IN MILLIONS)

Tax	Federal	State (Preliminary)	Local	Total (All Units)	Per- centage of Total Col- lections
Income.....	31,258	831	31 <sup>a</sup>	32,120	66.08
Property.....		226	4,314 <sup>b</sup>	4,540	9.34
Alcoholic beverages.....	2,526	464	c	2,990	6.15
Gasoline.....	180	900	c	1,380	2.84
Tobacco.....	1,166	199	c	1,365	2.81
General sales and use.....		901	70 <sup>d</sup>	971	2.00
Inheritance, estate, and gift.....	677	113	c	820	1.69
Motor vehicles.....	366	431	c	800	1.64
Customs.....	435	..	..	435	.89
Other.....	2,137	785	267	3,189	6.56
	\$39,015	\$1,883	\$4,682	\$48,610	100.00

\* Data derived from "Total Tax Collections in 1946," *Tax Policy*, Vol. 14, No. 5 (May, 1947), p. 4.

<sup>a</sup> From individual city reports for Philadelphia and Washington.

<sup>b</sup> 1945 figures for cities over 25,000, plus 1931 figures for counties, plus 1942 figures for other local units.

<sup>c</sup> Recent figures not available. Included in other.

<sup>d</sup> 1942 figure.

and poll taxes, and the latter includes tariffs, excises, sales, and processing taxes. The terms direct and indirect, however, are unsatisfactory because they are based on a presupposition as to the final incidence of the tax. John Stuart Mill has said, "A direct tax is one which is demanded from the very persons who, it is intended or desired, should pay it."<sup>8</sup> The

<sup>8</sup> John Stuart Mill, *Principles of Political Economy*, Vol. 2, Book V, Chapter 3, Article I, p. 418 (New York: D. Appleton and Co., 1865). (From the 5th London edition.)



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intention of the legislators, even if there were one, is not always carried out. Since the question of *ultimate* incidence is more in the realm of metaphysics than in economics, it is best to drop these objectionable terms. It is much less misleading to classify taxes without respect to the question of incidence and call them "taxes on income and wealth" and "taxes on commodities and services." The grand total of \$48.6 billion for all governmental units came mainly from income taxes. Some 66 per cent was derived from this source. The property tax came as a poor second with 9 per cent. Alcoholic beverage taxes provided 6 per cent. Gasoline, tobacco, general sales and use, inheritance, estate and gift, motor vehicle, and customs together contributed about 12 per cent of the total.

The great current importance of taxes on income and the relative unimportance of taxes on commodities has an interesting historical aspect. Commodity taxes are extremely popular with tax administrators largely because of the relative stability of their yield in both good times and bad. The main reason for this is that they affect consumption which, by and large, is not subject to fluctuations so great as those of either income as a whole or capital formation (i.e., the change in the rate of addition to the stock of wealth). Over thirty years ago Seligman observed, "Step by step during the nineteenth century in Europe and more recently in some of our advanced American commonwealths the personal tax is giving way to the real tax, the tax on things, the specific tax."<sup>9</sup> The tremendous revenue possibilities of income taxes in good times have lured tax administrators away from reliance on the greater stability but lower yield of commodity taxes.

<sup>9</sup> E. R. A. Seligman, "Newer Tendencies in American Taxation," *Annals of the American Academy of Political and Social Science*, Vol. 58, 1915, p. 1.

## Incidence and Effects of Taxation

What happens when a tax is imposed? This is a large question requiring an elaborate answer. The process of obtaining the answer must be broken into convenient workable parts. Here the traditional distinction between *incidence* and *economic effects* suggests itself. The analysis of incidence tries to determine “on whom the more immediate burden of the tax rests.”<sup>1</sup> The subject of economic effects, however, has been mainly concerned with “the ultimate economic condition to which a tax gives rise.”<sup>2</sup>

It is evident that there is almost complete overlapping between these two aspects of the problem since it is impossible to decide where the tax rests without knowing its effect on such items as production, consumption, savings, etc.; and it is impossible to know what the effects are without knowing something about the shifting of the tax. As a result, the term “incidence” is often broadly defined, e.g., by Due, as “the manner in which the burden of the tax is finally allocated as among various groups in the economy. This can be determined only after consideration of all readjustments which occur as a result of the tax, including such secondary reactions as changes in the prices of the factors.”<sup>3</sup> In a broad definition of this sort, the definition of economic effects

<sup>1</sup> *The Report of the Colwyn Committee of 1927* (United Kingdom: Committee on National Debt and Taxation, *Report*), p. 106. The Colwyn Committee worked three years, from 1924 to 1927, on the national debt and on the incidence of existing taxation, with special reference to their effect on trade, industry, employment, and national credit. Evidence was taken from 62 witnesses, including bankers, economists, financial experts, and representatives of numerous societies, guilds, congresses, and councils. See the review by W. H. Coates, *Journal of Royal Statistical Society*, Vol. 90, 1927, pt. 2, pp. 353-64.

<sup>2</sup> H. A. Silverman, *Taxation: Its Incidence and Effects*, p. 89 (London: Macmillan & Co., Ltd., 1931).

<sup>3</sup> John F. Due, “The Incidence of Retail Sales Taxes,” *Bulletin of the National Tax Association*, Vol. 25, (May, 1940), p. 226, n. 1.

becomes practically identical with that of incidence. It is thoughts of this sort which have prompted Benham to say that "the old distinction between the incidence and the effects of a tax is merely a hindrance to clear thinking."<sup>4</sup>

The broad definition of incidence is not very helpful in actual economic analysis. In the economic system everything affects everything else and it is impossible to carry through any analysis if everything is to be taken into account at once. Barring the use of a complete econometric model of the system, it is necessary to break the analysis of any economic problem into various steps, coördinating them at convenient intervals, adding a touch of judgment and even common sense here and there. Hence in this book we retain the old distinction between incidence and effects as a first approximation. The distinction is essentially along the lines of the definitions given at the beginning of this chapter with the understanding and admission that neither part of the analysis is independent of the other.

### Impact, Shifting, and Incidence of Taxation

The most important initial question to be settled in determining the effects of taxation is, "Who actually pays the taxes?" This may appear to be an unnecessary question or, at least, one with an obvious answer. We merely have to look up the tax law, one might think, and find out who pays the tax according to law. At any rate, the law itself seems to assume that the legal payer of the tax actually does pay the tax. An illustration of this may be found in the deductibility of certain state taxes for federal personal income tax purposes. If the respective state law covering the gasoline tax, for instance, says that the tax is to be paid by the consumer, then the tax is deductible. If the respective state law says that the tax is to be paid by the retailer, then the tax is not deductible by the consumer. The legal assumption is that the law has actually determined who pays the tax.

Economists, being generally very hard to satisfy, are not in any sense satisfied with the legal assumption. Law can no more determine who, precisely, pays the taxes in a free economy than it can determine how much productive effort an individual should put forth in a year. The legal point of tax payment is only a starting point. The legal payer may try to force someone else to pay, and he may succeed. This is generally

<sup>4</sup> Frederic C. Benham, review of *The Incidence of Income Taxes* by Duncan Black, *Economica*, New Series, Vol. 7, May, 1940, p. 204. Cf. Duncan Black, *The Incidence of Income Taxes*, Chapter 9 (London: Macmillan & Co., Ltd., 1939).

not in violation of the law, but rather belongs in a realm which the law does not touch. The law may require a retailer to add the tax onto the consumer's bill, but it does not prevent him from reducing the base price of the articles at the same time. When the retail price of the article is set by law, as under the fair trade laws in some states, then the retailer's hands are tied to some extent but he can find other ways to force the consumer to absorb some of the tax, e.g. through changes in service.

There are other instances where the law has tried to interpose obstacles to the individual's attempts to make someone else pay his taxes. When the federal withholding tax was first imposed during World War II, some workers succeeded in forcing their employers to pay the tax themselves. The amount of tax involved was, however, considered part of the worker's remuneration by the Internal Revenue authorities. Thus if the employer paid the tax the worker was in effect getting an increase in wages. In so far as wages were frozen, this was against the law. But quite apart from this legal restriction, the increase in wages was itself taxable for income tax purposes. For instance, a person earning \$40 per week and required to pay \$10 tax might force his employer to pay the \$10 for him. But this would mean that the worker was illegally evading some tax. Since the employer paid \$10 for him, his total income was really \$50. The total tax might then be \$12. By paying only \$10, \$2 worth of tax was being illegally evaded. These legal obstacles to making someone else pay the tax are only exceptions. In any case, they restrict such efforts to only a limited extent. There is always some opportunity to make someone else pay some of your tax sooner or later.

In trying to discover who pays the taxes, a distinction is made between *impact*, *shifling*, and *incidence*. These terms and several of their variants are defined and illustrated below.

#### IMPACT OF A TAX

*Impact of the tax is the point where the tax is imposed by law.* The impact of the personal income tax is on the individual who pays it. The impact of the corporation income tax is on the corporation. The impact of the retailer's excise tax is on the retailer even if he invariably adds the tax to the consumer's bill. The impact of a gasoline tax which is specified by law as being paid by the consumer is on the consumer even though the seller of the gasoline acts as the collecting agent for the government and does all of the bookkeeping involved. The person who turns the money over to the government is not necessarily at the point of impact. The sole clear-cut criterion for impact must be found in the

tax law itself. In the case of the personal income tax the employer acts as collecting agent for part of the tax, the withheld part, but none of the impact is on him. In the case of unemployment insurance taxes the impact is entirely on the employer in most states. The impact of the old-age pension Social Security taxes is partly on the employer and partly on the worker even though the employer acts as collecting agent for the entire amount. This distinction between the impact of a tax and the collecting agent is not always made clearly, with the result that a false start is made in the discussion of tax shifting and incidence. The term "initial impact" will generally be used here to emphasize that the initial payer of the tax is referred to. The term *impact* is defined so that the word *initial* is really redundant, but the two words are nevertheless retained for emphasis.

#### SHIFTING OF A TAX

*Shifting of a tax is the process of forcing someone else to pay the tax.* The worker who obtains an increase in wages to offset the income tax which he has to pay shifts the tax to his employer. The employer, in turn, may raise the price of the product and thereby shift the tax to the consumer, who may be the worker himself. The tax may be shifted in whole, in part, or not at all. It may be shifted many times before finding a final resting place, or it may be shifted only a few times. Shifting may take various forms. One distinction, based on the direction of the shift, is made between *forward shifting* and *backward shifting*. Another distinction, based on the period of time considered, is made between *market-period shifting*, *short-run shifting*, and *long-run shifting*. These distinctions may be clarified by a few general remarks before definitions and specific examples are provided.

The possibility of shifting a tax may be considered from various angles. Will the price of an existing supply of goods be changed as a result of the tax? Will the price at which the (variable) output of given plants is sold be changed? Will the price at which the output of plants, variable in number and productive capacity, be changed? Evidently all of these questions should be considered in studying the shifting of taxes. Because of the different factors to be taken into account it is convenient to separate the three analyses, but this does not mean that they are three alternative problems. A businessman may concurrently be making market-period, short-run, and long-run decisions. There is only the one problem, the shifting of the tax. A full study of the shifting of any tax must take account of each direction of shifting and each "period" of

shifting. This makes a total of six sets of analyses (forward shifting in the market period, short-run and long-run; and backward shifting in the market period, short-run, and long-run).

### *Distinction Between Forward and Backward Shifting*

*Forward shifting is shifting the tax by charging more for goods or services.* The taxed manufacturer who forces his customers to pay part or all of a tax by raising the price of the goods he sells is shifting the tax forward. The taxed worker who forces his employer to raise his wages is shifting the tax forward. It is important to remember that it is the *seller* who shifts the tax forward. In so far as an individual sells anything at all, there is the possibility (which may not be realized) of shifting the tax forward.

*Backward shifting is shifting the tax by paying less for goods or services.* The taxed manufacturer who forces down the price of raw materials which he buys is shifting the tax backward. The taxed worker who insists on and succeeds in paying a lower price for the goods he buys is shifting the tax backward. Backward shifting is done by the buyer. Anyone who buys a good or service may be able to shift backward a tax which is imposed on or is shifted to him.

### *Market-period Shifting: Forward and Backward*

*Market-period shifting is shifting which is accomplished through a change in the price of an existing supply of goods.* Forward market-period shifting takes place when the seller raises the price at which he sells an existing supply of goods. Backward market-period shifting takes place when the buyer reduces the price at which he buys an existing supply of goods.

Forward market-period shifting is illustrated by the grocer who has substantial stocks on hand at a time when a tax is imposed on retail sales. The initial impact of the tax is here taken to be on the grocer himself. If he leaves unchanged the price at which he sells the existing supply to his customers, then there is no forward market-period shifting of the tax. To the extent that he raises the price at which he sells his existing supply, there is some forward market-period shifting.

Backward market-period shifting may be illustrated by the grocer's customer when the latter has to pay a larger tax on his income. If the customer can force a reduction in the price at which the grocer sells goods out of his existing supply, then the customer has succeeded in shifting the tax backward. Since the reduced price applies to an existing supply of goods, this is a case of backward market-period shifting.

*Short-run Shifting: Forward and Backward*

*Short-run shifting is shifting which is accomplished through a change in the price of a prospective supply to be produced with fixed productive facilities.* This is illustrated by the case of the manufacturer who has a certain plant and equipment. If the price at which the output sold changes as a result of a tax, it may be said that short-run shifting takes place. *Forward short-run shifting* occurs when the seller raises the price at which he sells the prospective output of a plant with given capacity. *Backward short-run shifting* takes place when the buyer forces a reduction in the price at which he buys the prospective output of a plant with given capacity.

Forward short-run shifting may be demonstrated by the following example. A manufacturer of men's shirts has a plant which can produce up to a thousand shirts a day. If he sells the shirts at two dollars each he can sell his whole daily output. That has been his practice and he intends to continue. Now a tax of fifty cents is imposed on each shirt. If he wants to shift the tax completely he has to raise the price to \$2.50, at which price he will only be able to sell perhaps 800 shirts per day. To the extent that he adopts this plan he engages in forward short-run shifting. He is shifting the tax by raising the price of what he sells; and his action is confined to his present plant, merely changing the price and thus the output. The actual extent of the change in amount demanded, if any, will depend on demand conditions. His final decision in the matter will depend on a complex of factors. These are not dealt with here but will be considered in dealing with the shifting of particular taxes.

Backward short-run shifting would take place if the above manufacturer would try to shift the tax by buying his materials cheaper rather than raising the price of his shirts. He will not be able to do so very often, and, if he does, he may not be able to obtain sufficient material to keep his output up to a thousand shirts a day. If he pays ten cents less than before for the material he puts in each shirt he may, for instance, have to cut his output to 850 per day. What he will decide to do will, again, depend on a number of factors to be considered later. But in so far as he succeeds in passing on some of the tax in this way, he may be said to be engaging in backward short-run shifting.

*Long-run Shifting: Forward and Backward*

*Long-run shifting is shifting which is accomplished through a change in price resulting from a change in productive capacity.* The change in capacity may come about through expansion or contraction of individual

plants or the entry or exit of firms into or out of an industry. *Forward long-run shifting* occurs when the price charged for goods or services rises as a result of a change in productive capacity attributable to a tax. *Backward long-run shifting* occurs when the price paid for goods or services is reduced as a result of a change in productive capacity attributable to a tax.

Whether a reduction in capacity occasioned by a tax results in an increase or decrease in price depends partly on cost conditions in the industry. A cutting-down in the size and number of plants in some lines of business may reduce costs generally in the remaining plants (i.e., long-run increasing costs—costs increase with expanded capacity and they decrease with reduced capacity) or it may increase costs generally in the remaining plants (i.e. long-run decreasing costs—costs decrease with expanded capacity and increase with reduced capacity). In some cases a reduction in capacity may have no effect on costs (i.e. long-run constant costs). The extent to which these cost conditions influence the price depends on the demand conditions, the degree of competition, and similar factors. This matter, too, will receive a more detailed study in connection with individual taxes.

Forward long-run shifting may be illustrated by the tax on retail sales of groceries suggested above. As a result of the tax some of the grocers, presumably those who are barely holding on anyway, may be forced out of business. The cost conditions and the conditions of competition may be such that prices generally rise in the retail grocery line. This may be considered a case of forward long-run shifting because the tax has been passed on by the sellers as a result of a change in productive capacity.

Backward long-run shifting would occur if, as a result of the reduced number of grocers, the remaining grocers were able to get their goods at a lower price from their suppliers. This might occur because there is less competition by the remaining grocers—a likely result of a reduction in number of competitors. Or it may occur for any number of reasons on the cost or demand side.

#### INCIDENCE OF A TAX

*Incidence of a tax is the final resting place of the tax.* If the income tax is actually borne by the millionaire and he does not shift it to anyone else, then the incidence is on him. A reasonable question is, however, "Won't he *ever* shift the tax to anyone?" It would be a rash person indeed who would say that the tax would *never* be shifted to anyone else.



It is clearly necessary to make the term "incidence" a relative term pertaining to a specified period of time with known characteristics.

For each phase of the analysis of tax shifting there must be some conclusion reached as to the tax incidence. This means that there is *market-period incidence*, *short-run incidence*, and *long-run incidence*. This may seem to be an excessive degree of classification especially in view of the fact that "incidence" is usually taken to be something unique. But a moment's reflection will reveal that it is impossible to make a statement about incidence that applies to all periods. In the absence of any qualification, "incidence" presumably means the "final" incidence after all possibilities of shifting are allowed for.<sup>5</sup> But is it not interesting and important to know who actually pays the tax imposed on an available supply of goods, such as those on the grocer's shelves, mentioned above? The answer gives us the market-period incidence. And is it not at least equally interesting and important to know who actually pays the tax imposed on a variable output of a given plant? The answer gives us the short-run incidence.

The "final" incidence of the tax may perhaps be identified with the long-run incidence. The final or long-run incidence is then on the person who pays the tax when every allowance is made for changes in productive capacity as well as changes in output. It must be recalled that the analysis of shifting is confined to the possibility of changing the price of goods or services. The fact that someone else may eventually pay part of the tax as a result of, say, a general depression somehow attributable to the tax does not change the final incidence but comes in the category of economic effects. Even the possibility of pressure on relatives or friends or of political pressure to force someone else to share the tax should be taken into consideration,<sup>6</sup> but the term "shifting" loses most of its analytical and practical utility if it is not confined more closely.

<sup>5</sup> Compare von Mering who adopts Pantaleoni's definition: "Incidence of the tax: this is the locale of the *final burden*," and says on his own account: "The economic effects which follow from the moment of impact of a tax until the *ultimate incidence* of that tax constitute the subject matter of the theory of tax shifting." Otto von Mering, *The Shifting and Incidence of Taxation* (Philadelphia: The Blakiston Company, 1942), p. 3. [Italics added].

Groves also speaks of "incidence" and "final burden" as if they were synonymous. See Harold M. Groves, *Postwar Taxation and Economic Progress* (New York: McGraw-Hill Book Company, 1946), p. 108.

<sup>6</sup> The term "sideward shifting" has been suggested to me by Richard N. Schmidt to cover the case where a tax is shifted neither forward nor backward but is forced onto relatives and friends.

### Competitive Conditions

The detailed distinctions regarding direction of shifting and period of shifting which were made above greatly increase the possibility of applying tax shifting theory to a particular problem. The actual extent of shifting which occurs will, however, depend on the competitive conditions which prevail. It is important to know whether pure competition, monopolistic competition, monopoly, oligopoly, or one of the numerous other competitive situations prevails.<sup>7</sup> These various possibilities will be taken into account in the analysis of shifting, although it would manifestly be impossible to consider the shifting of every tax under each one of the possible competitive situations.

### Taxation of Economic Surplus

A basic element in the study of the shifting and effects of taxation is the theory of economic surplus. It arises in connection with most of the taxes to be discussed later in this book. *Economic surplus is any amount that is paid over and above what is absolutely necessary to purchase a good or service or hire a factor of production.* This is traditionally known as "economic rent" and "quasi-rent," but these terms frequently cause confusion with ordinary rent payments. Since it is almost impossible to avoid a confusion between economic rent and the rent payments actually made, the term economic surplus is used here instead. The term "quasi-rent" is applied to those surpluses which arise in connection with other factors than land. The distinction is made largely on the grounds that the economic rent on land will always exist because of the fact that land cannot be produced. In connection with the other factors, it is assumed that the rents that are created are only temporary. As larger amounts of the factor are produced, the surplus paid will be removed. A more detailed discussion of economic rent is necessary before its origin in connection with land and other factors can be understood fully and the taxation of economic surplus can be studied. Before going into the details of the analysis, it may be worth while to point out by way of encouragement that economic rent or surplus is not merely a theoretical concept but rather that it has some very practical connotations.

<sup>7</sup> See E. D. Fagan and R. W. Jastram, "Tax Shifting in the Short Run," *Quarterly Journal of Economics*, Vol. 53, August, 1939, pp. 562-89.

## ECONOMIC SURPLUS ON AGRICULTURAL LAND

Agricultural land varies widely in fertility. The quality of the produce may be the same from many pieces of land but the quantity may differ greatly. The product may sell at the same price per unit whether it comes from the better or poorer land. With the same expenditure of labor and equipment the various pieces of land will yield different amounts of produce. Since the human contribution directly and indirectly, i.e. through labor and equipment, is the same, the differences in amount of product must be attributed to natural conditions. These natural conditions include fertility of the soil in the narrow sense and also general climatic conditions. Thus the better land will yield a surplus which is not attributable to any human element but is attributable directly to the contribution of natural conditions. If we use that land which barely meets its production costs as a base for purposes of comparison, then we can measure the magnitude of the economic surplus by comparing the proceeds from the sale of the produce on the better land with the value of the produce on the base land. Since the fertility of land will always vary from one piece to another, economic surplus will always be found. It must be emphasized that this surplus is not a reward for any human effort but is a contribution of nature itself. If the surplus were removed the incentive for human effort should not be impaired.

The economic surplus mentioned above comes from nature's contribution to the produce. Whether the landlord or the tenant or tax collector or someone else gets that economic surplus will depend on competitive conditions, bargaining power, and similar factors. The shrewd landlord may be able to exact a rent payment which is sufficient to transfer to him the entire economic surplus. The tenant still makes enough to induce him to remain on the land because the surplus is something over and above all of the production costs in the form of his labor, the cost of equipment and materials, and so on. It is not inconceivable that the tenant may be able to arrange the rent payments to be so low that the entire economic surplus actually accrues to him. On the other hand, it is quite conceivable that the tax collector steps in and takes most of the economic surplus. The tax collector may get his share of the surplus by taxing the property owner or the tenant. Any other factor of production may through some strategic position be able to receive some or all of the economic surplus.

That there is a surplus attributable to differences in natural conditions cannot be denied, but who actually receives the surplus is a matter

of individual arrangement or accident. It is likely, however, that since the amount of fertile land available is limited and there is likely to be a high degree of competition for that land, then in the long run the rent payments may fully exhaust the economic surplus. In other words, the surplus accrues to the landlord. The present landlord may, of course, have taken this into account when he purchased the land. In other words, the value of the land may have capitalized the economic surplus. That simply means that the landlord expects to get it. But it is nevertheless a true surplus attributable not to any human element but to natural conditions.

### ECONOMIC SURPLUS ON NONAGRICULTURAL LAND

Variations in the productivity of nonagricultural land are just as marked as in the case of agricultural land. By "productivity," of course, we do not mean exactly the same type of physical produce as in the case of agricultural land. There is no doubt, however, that pieces of land of the same size are much more valuable economically in one part of the city than in another. In the downtown commercial section of any city there will be pieces of land with a very high value per foot. In outlying or in rundown sections of the same city the land may be of little use. The explanation lies, not in any human effort, but in the *location* of the land. Of course human factors played a large part in determining the economic development of the city and its various sections but with respect to the differential productivity of the presently existing locations no human effort is involved. The same number of salespeople working equally hard, the same amount of display space and display equipment will yield a much larger volume of sales in the good downtown location than in the other locations. The location itself makes a contribution to the productivity of the land over and above the human effort directly and indirectly expended at the present time.

Urban and other nonagricultural land then yields an economic surplus which is comparable in every way to that yielded by agricultural land. Differences between different locations for commercial or industrial or other purposes will always exist. As long as the differences remain, the surpluses will remain. Sections of the city may rise or fall in productivity but taking nonagricultural land as a whole it will always be possible to find differences in productivity (commercially or industrially speaking) between various pieces of land. Aside from the long-term growth of the country it is generally true that the rise of one area is accompanied by

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the decline of another. Thus the differentials remain. And the economic surplus remains.

Again a question arises as to who receives this economic surplus. If a tenant makes a long-term lease in an area which in the course of the lease grows in commercial or industrial importance, then the tenant will be the beneficiary of the economic surplus contributed by the improving location. But when a new lease is made in areas which are well established commercially or industrially, it will invariably take account of the advantages of the location. The rent payments will be high enough to transfer to the landlord most if not all of the surplus. Just how much of the surplus is actually transferred to the landlord will depend on the state of knowledge or ignorance on both sides, the degree of competition for the occupancy of the different places, and similar factors. Moreover, tax assessments, with some lag, take account of the advantages of location and therefore the differential economic value. Thus the tax collector takes from the landowner some or all, and in some cases more than all, of the economic surplus. If the tenant is fortunate enough to have arranged a rent payment which exhausted only a part of the economic surplus, then in many cases the income tax collector will share the economic surplus with him. In the case of an area which has declined but with respect to which outstanding leases still provide for high rent payments, it may well be that those rent payments exceed the economic surplus and the tenant loses money unless he can somehow make up the difference on other factors of production which he employs.

### ECONOMIC SURPLUS ON GOODS

Surpluses similar to those which arise on land may be evident in other assets. A piece of equipment which is temporarily in short supply may be able to exact a return which is far greater than that which would ordinarily be necessary to encourage its production. Another way of looking at it is to say that the return is greater than that which it could obtain in alternative uses, i.e. the opportunity cost. But what the assets could obtain in alternative uses of course depends on the area defined. An asset used in a single firm could readily find employment in competing firms in the same industry. But the asset may not be adaptable to other industries and therefore may not be able to find a very large return in those industries. As the area covered expands, the alternative uses which are still available may become less and less productive, i.e. the opportunity cost gets smaller and smaller. Therefore in deciding on the magnitude of the economic surplus accruing to any particular fixed

asset at any particular time it is necessary to consider the alternatives which are available at that time.

The economic surplus so determined can be taxed away without any detrimental consequences during the period of time for which the surplus calculation is appropriate. Since the fixed asset is receiving the return in excess of what it could get in any other use, then to remove the excess would not provoke the transfer to other uses.

The surpluses obtained on plant and equipment are not likely to be of a permanent nature. This is true quite apart from the fact that the assets will wear out. If a surplus is being enjoyed by an asset, the presumption is that the production of the asset will be expanded. That will ultimately reduce the return so that the surplus is reduced or wiped out completely. Monopolistic factors would of course interfere with this process and it is quite conceivable that some equipment, perhaps harvesting equipment, will enjoy a surplus for its producers throughout its life. There is nevertheless a difference between the economic surplus on goods and that on land. Regardless of the degree of monopoly, the differential on land will remain and thus surpluses will remain. Such cannot be said of man-made pieces of equipment. Thus, generally speaking, the surpluses on assets other than land may be considered of a temporary nature. Nevertheless the surpluses may be large and if taxed away there cannot be any significant repercussions immediately. The encouragement to the increased production of assets is removed, however, and in this indirect way the taxing away of the surplus will have its effects.

Some goods are not reproducible and they will permanently have an economic surplus. This is true of *objets d'art*; a rare painting or a piece of sculpture will increase rather than decrease its value as time goes on. One cannot say it commands a price which far exceeds its opportunity cost because in such cases the concept of opportunity cost really loses its meaning. Nevertheless it is true that there is a considerable surplus which can be taxed away without any substantial economic consequences. Since the items taxed are not used in production of any sort, this conclusion is not surprising.

#### ECONOMIC SURPLUS FROM HUMAN EFFORT

Individuals may find that their efforts yield a surplus over and above what they could obtain in alternative occupations, i.e. over and above the opportunity cost. As in the case of fixed assets, just what the opportunity cost is, is a matter of definition of the area and the time involved. A skilled mechanic may find that conditions are temporarily such that

he could command a return far above what he could obtain elsewhere. A great surgeon and an outstanding singer are in the same category. The taxation of the economic surplus, since it is by definition an amount over and above what the individual could obtain elsewhere, would not interfere with the performance of the services. However, the prospect of the economic surplus will *attract* individuals into those occupations and the removal of the surplus through taxation will remove the attraction. Thus it cannot be said that the taxation of economic surplus will be devoid of economic consequences.

Entrepreneurial effort may also yield a surplus. Windfall profits are the clearest example. The firm may be going along making a reasonable profit, perhaps just sufficient to keep the businessman in the industry. War or extremely prosperous conditions may provide a profit far above anything needed to keep the firm in operation and a profit which is not attributable to any activity on the part of the individual. The profit was beyond his vision and outside the scope of his decision. To tax such profits away would not therefore result in any alteration of production and would not induce the businessman to drop out of this industry. The lure of such a windfall might have acted as a beacon to other prospective businessmen. Removal of that lure would reduce the amount of investment in this industry below what might otherwise have taken place. Surpluses in business profits may of course arise through other than windfall methods but in so far as large profits are actually the result of superior initiative and ability, then there may not be a true economic surplus because such initiative and ability will probably have alternative uses in other occupations or even in other industries. Hence it cannot be assumed that a large profit is necessarily evidence of a surplus. The circumstances surrounding the creation of the profit must be taken into account. The excess profits tax during the war was in part designed to remove the windfalls. In so far as it did that it could not discourage enterprise.

### **Method of Analysis of Shifting and Incidence**

For the most part, tax shifting theory which actually deals with the same problems as price theory is at least twenty-five years behind the latter. In other words, tax shifting theory makes use of an out-of-date price theory. The results are less realistic than can be obtained with the more powerful tools of present-day price theory. In the following chapters some attempt is made to use modern price theory.

Before going into a detailed analysis in an attempt to answer the

question, "Who pays the tax?" it is necessary to refer briefly to that school of thought which answers, "Everybody." When all conceivable adjustments have been made, this answer is probably valid—"probably" because by the same token that we are able to say that everyone pays the tax we are also able to say that no less than infinity of time is necessary for all conceivable adjustments to work themselves out.

On the basis of this sort of philosophy of tax shifting some tax theorists have adopted an extremely defeatist attitude toward the problem of tax shifting: since we know in advance that the tax will be shifted to everyone, there is nothing more to be said. This position, held in varying degrees, is most unhelpful. There are many reasons for attempting to study various tax shifting "cases": (1) Even if everyone does pay the tax it is still important to know roughly what proportion is borne by different economic groups in the community; (2) since it must be granted that the "diffusion" of the tax cannot take place immediately, it is again important to know which portion of the economy bears the tax soon after it is imposed, which portion bears it at a later stage, and so on; and (3) it is important to know by what process, i.e. through the change in what economic variables, the shifting of the tax takes place at various stages. It is with an answer to these questions that the formation of a tax policy should be concerned. The glib statement that everybody pays the tax is not only unhelpful but is also misleading in its implications.

None of these questions can, of course, be answered in a strictly quantitative manner. Some economists have, in fact, gone so far as to say that since the extent of tax shifting has not or cannot be measured we can say nothing useful about the problem. This again is an untenable attitude. As long as we can tell anything about "more or less" in "shorter or longer" periods of time—which we can without resorting to exact figures and dates—we have contributed something even though it is not so much as we should like. Tax policy decisions are going to be made anyway. The question is not whether exact criteria can be set up but whether the likelihood of serious mistakes can be reduced.

One further point must be mentioned in this connection. Sometimes a lengthy and consequently extremely disheartening list is given of the many economic variables which have to be taken into account in any adequate analysis of the shifting process, with the implication that the number of variables is so great that there is nothing one can say about the incidence of taxation. This type of attitude, however, leaves out of account completely the possibilities inherent in logical analysis. At first, only a few of the relevant factors are considered. A tentative solution is



obtained, then the factors which were left out of account are introduced one by one and the results are modified accordingly. The existence of a large number of relevant factors complicates the analysis but does not necessarily make the solution indeterminate. Admittedly no general result applicable to all cases can, moreover, be obtained. The various results under various sets of conditions can be given and the analyst can merely hope (usually in vain) that the solution obtained for one set of conditions will not be applied indiscriminately to conditions of an entirely different sort.

### **Method of Analysis of Economic Effects**

The same considerations apply when we consider broader effects such as those on consumption and standard of living, production, enterprise and employment, saving and capital formation, distribution, business fluctuations, and economic progress. Again it is not possible to give any one answer, but it is possible to state the various effects which may be expected under different sets of conditions. Taxation involves a transfer from the taxpayer to the government; this transfer may impinge in the first instance on: (1) hoards, i.e. the holding of idle cash balances, or money which would not have been spent; (2) investment either in securities of some sort or in actual physical capital; (3) consumption of goods and services; or (4) some combination of these. The effects of a tax depend on how these economic variables are affected.

If the tax reduces current monetary savings of some individuals out of their income, it may affect hoards, the purchase of securities, or the purchase of physical capital. Of these three possibilities (idle balances, securities, physical capital) only the last directly affects capital formation and then only if the physical capital involved would have been newly produced. If the second effect is felt, i.e. on securities, we cannot be sure there will be any unfavorable effect on capital formation since credit produced by the banks may be easily available. As for the case where idle balances are impinged upon, the effect is not felt directly but has to wait upon any steps taken to replenish the idle balances. Hence the tax which reduces "savings"—and this point strikes at the fundamental fallacy running through 90 per cent at least of the tax shifting literature—need not necessarily affect the actual formation of capital and would not in an economy of excess reserves and readily available supplies of credit. In fact, it can often be expected to have no detrimental effect whatsoever. On the other hand, any tax which reduces consumption and thus ostensibly increases "savings" might have an unfavorable

rather than favorable effect where production, enterprise, and employment are closely geared to the volume of consumption.<sup>8</sup>

The economist must find out who actually does pay the taxes as a starting point in an analysis of their economic effects. This statement may seem to be belied by the bulk of contemporary "fiscal policy" discussion which purports to study the economic effects of specific taxes but does not make an intensive study of who actually pays the taxes. This is like discussing the effects of an operation without knowing just what part of the body has been operated on.

It is true, of course, that any economic process may be considered in the category of economic effects. Thus shifting of a tax to someone else has its economic effects. A distinction between shifting and economic effects is, however, convenient. The shifting process is concerned with passing the tax on to someone else by changing the price. Other consequences of the tax, including those attributable to the change in price, may be considered to be "economic effects." If a tax is imposed on a millionaire and he does not change the price at which he buys or sells either an existing supply, a variable supply from a fixed capacity, or a variable supply from a variable capacity, then we can say that no shifting takes place. But what of his heirs? If the millionaire's net estate is less because of the income tax he paid during his lifetime, will not his heirs suffer? Will not the tax be "shifted" to them? Should not this possibility be included in the study of shifting and incidence? It could, of course, be so considered, but it would be confusing to the study of shifting to broaden the subject so. It is preferable to consider the above possibility in the category of economic effects. Yet an attempt to draw too sharp a line between shifting and other effects would hamper the analysis. Shifting is one type of economic effect. There are others, equally important.

In discussing the effects of a tax, it is clearly necessary to have a fairly definite notion of where the incidence is. A few crude examples may be mentioned by way of illustration. If the tax is imposed directly on idle balances and is borne by them, thus making the holding of idle balances more costly, an increase in spending may be expected. If on the other hand the tax is based on income and is merely paid out of idle balances, few immediate effects will result. Finally, the use of the tax revenues, i.e. government expenditures, may be considered in deciding

<sup>8</sup> Professor Fellner has recently denied the closeness of relationship. See William Fellner, *Monetary Policies and Full Employment* (Berkeley, University of California Press, 1946), especially Chapter 2.

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whether any particular tax is “good or bad” in those cases where expenditures and revenues are closely intertwined. But in order to take account of expenditures it is necessary to break up the problem into two parts: (1) The effect of an acquisition of the revenue, i.e. the tax in itself, and (2) effect of spending the revenue, i.e. the expenditures. In this Part only the first question will be discussed. Since the volume of expenditures is generally not uniquely related to the volume of tax revenues,<sup>9</sup> the entire question of expenditure is discussed separately. The economic effects of these various elements of the fiscal system are then coordinated in the concluding Part of this book.

<sup>9</sup> A notable exception is the processing tax under the Agricultural Adjustment Administration where there was a close relation between revenues and expenditures.

## The Income Tax: Introductory

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One of the most important topics in the field of public finance is the shifting of the income tax. Some persons claim that the tax can be shifted and others claim that it cannot. Both are quite emphatic in their assertions. The matter has been of considerable practical importance because the conclusions have been used in recommendations for income tax policy. In general, those who claim that income taxes can be shifted argue that they should be reduced or removed because of their resulting detrimental effects on the economy—especially the income taxes on business firms. Those who claim that income taxes cannot be shifted are usually more callous and indifferent to pleas for relief on the grounds that the resulting effects on the economy are negligible. Sometimes the argument is reversed and it is claimed that because the corporation income tax cannot be shifted it should be reduced as a matter of equity. In fact, it is quite impossible to indicate all of the combinations of shifting analysis and policy recommendations which may be found on this subject.

### **Confusions in Analysis of Incidence and Effects**

What is the reason for these differences in the treatment of the income tax? Those apparent disagreements which are worthy of serious study disclose a failure to recognize differences in assumptions and terminology rather than disclose the commission of mistakes in reasoning or judgment. Some experts are obviously dealing with their problem on the assumption of short-run conditions while others are concerned with the long run. Some are basing their analysis on the assumptions of pure competition while others are working with monopolistic competition or monopoly. On the terminological side, there are wide differences in the definition of “shifting” and “incidence” and in the distinction made between incidence and economic effects. At the basis of the confusion is

perhaps a reluctance to be "theoretical," i.e. make use of the services of economic theory. The effect has been a telescoping of the analysis for a variety of practical situations with the inevitable result of confusion and the creation of disagreements that are apparent rather than real.

### Development of the Income Tax in United States<sup>1</sup>

A federal income tax was proposed in 1815 and a tax of this sort was collected during the Civil War but the tax at present in effect actually dates from the Revenue Act of 1894. The income tax acts of the Civil War were upheld unanimously by the Supreme Court in two decisions but the law of 1894 was declared invalid nine months after it was passed. This was in the case of *Pollock v. The Farmers' Loan and Trust Company*. The Court decided that the income tax was to be treated like a direct tax and was therefore subject to the constitutional requirement that such taxes should be in proportion to the population. In order to avoid this constitutional difficulty a tax on corporate income passed in 1909 was called an excise tax and was imposed for the privilege of carrying on or doing business as a corporation. It imposed a rate of 1 per cent above the exemption of \$5000. The Supreme Court held the tax constitutional in the case of *Flint v. Stone Tracy Company*.

In order to impose an ordinary income tax a constitutional amendment was necessary. This was passed by the Congress in 1909 and was ratified by a sufficient number of State legislatures in 1913. This became known as the sixteenth amendment which states:

The Congress shall have power to lay and collect taxes on incomes, from whatever source derived, with apportionment among the several States, and without regard to any census or enumeration.

An act of 1913 based on this amendment was sustained by the Supreme Court in *Brushaber v. Union Pacific Railroad Company*. Since that date there have been numerous Revenue Acts dealing with income taxes.

A few of the highlights of the history of the federal income tax since 1913 may be mentioned. In 1916 the tax covered nonresident aliens. In 1917 an excess profits tax was imposed and provision was made for information at the source. In 1918 individuals and partnerships were exempted from the excess profits tax. By the Act of 1921 the excess

<sup>1</sup> See Roy G. and Gladys C. Blakey, *The Federal Income Tax* (New York: Longmans, Green & Co., 1940). For recent information, see current issues of Prentice-Hall or Commerce Clearing House, *Federal Tax Course*.

profits tax was repealed and separate treatment of capital gains and losses was instituted. Subsequently numerous changes in rates and exemptions were made. In 1933 under the National Industrial Recovery Act a new capital stock and excess profits tax was imposed. In 1934 a credit for earned income which had been abolished in 1932 was restored.

Under the Revenue Act of 1936 a tax on undistributed profits on corporations was imposed. Personal holding companies which were taxed by earlier laws were heavily hit by the Act of 1937. The Act of 1938 abolished the surtax on undistributed profits but maintained the same principle by providing for a reduced effective rate for corporations which distributed their entire net income. The distinction between long- and short-term capital gains and losses was also introduced. In 1939 the tax on undistributed profits of corporations was completely removed and reductions of exemptions and increases in rates were made in 1940 and a new excess profits tax was imposed. Five-year amortization of emergency facilities was also provided. The tendency for a heavier tax burden was continued in the Acts of 1941 and 1942. The Current Tax Payment Act of 1943 was especially important in putting individuals on a "pay-as-you-go" basis. This was accomplished through withholding by employers and through current declarations of income by non wage-earners. The Act of 1943 repealed the earned income credit and made other revisions. Numerous changes were made in 1944 and 1945. In the latter year, particularly, the excess profits tax was repealed, as was the capital stock tax and declared value excess profits tax. Some reductions in rates were also made.

Transfers of securities to foreign corporations to avoid income tax may be referred to here. Such transfers were penalized by a special tax which was in force in 1946. The tax was  $27\frac{1}{2}$  per cent of the excess of the value of securities over a certain adjusted basis. The tax was imposed on the transfer of stocks or securities by a citizen or resident of the United States to a foreign corporation as paid in surplus or as a contribution to capital. Transfers by domestic corporations or partnerships or by domestic trusts were also covered as were transfers to foreign trusts or partnerships.

In addition to federal taxes on incomes there have been a number of state governments and local units which have adopted income taxes. These are considered in Part V of this book.

Brief summaries of the individual and corporate income taxes are provided in later chapters of this book. An up-to-date tax service should be consulted for detailed provisions and rates.

### Income Tax Law of 1948

Three important revisions in the income tax law were made in 1948.<sup>2</sup> (1) Personal exemptions were increased from \$500 to \$600 for each taxpayer and each dependent; with the same increase in the special exemptions for the blind and persons over 65. (2) The equivalent of "community property" tax returns was provided for, thus placing all states on the same basis as the twelve states in which husbands and wives are permitted to pool their income, each filing a return on half the total, thereby paying lower surtax rates. (3) Reductions in tax rates, amounting to 12.6 per cent on first \$100 of actual tax paid under 1947 rates; about 7.4 per cent from \$400 to \$100,000; and 5 per cent thereafter.

The effect of these changes is shown in the following comparative table which lists the taxes paid by a married man with two children. The figures for income are after deductions but before exemptions.

EFFECT OF 1948 INCOME TAX REVISIONS FOR MARRIED PERSON WITH TWO DEPENDENTS WHERE INCOME IS EARNED BY ONE SPOUSE

Income*	Prior to 1948 Law		Under 1948 Law
	Non-community Property States	Community Property States	All States
\$ 2,500.....	\$ 95	\$ 95	\$ 17
3,000.....	190	190	100
4,000.....	380	380	266
5,000.....	589	570	432
10,000.....	1,862	1,615	1,361
25,000.....	8,521	6,099	5,476
50,000.....	24,111	18,164	16,578
100,000.....	62,301	49,590	45,643

\* After deductions but before exemptions.

### Plan of Analysis

In analyzing the economic effects of the income tax it is necessary to separate the discussion of the personal income tax from the discussion of the business income tax. In the latter case we are dealing with the taxpayers who are out to make a profit. In the former we are dealing with wage-earners, rentiers, pensioners, and the like who are not in

<sup>2</sup> See *New York Times*, March 28, 1948, p. 2E, or any current tax service.

business on their own account. Because of the differences in the sources of personal income, separate treatment is accorded the major items. There is, of course, the overlapping group of persons who are engaged in unincorporated business and are subject to the personal income tax. The analysis required for them more closely resembles that for the business income tax than the personal income tax, and will be so considered in the following chapters.



## Income Taxation: Wages and Salaries

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An analysis of the incidence and effects of individual income taxes must make a distinction between personal service income and property income. The federal tax law used to make a distinction along these lines but it no longer does so. "Earned income" is a term usually applied to income derived from the current sale of personal services as in the case of wages and salaries. "Unearned income" is a term usually applied to income derived from the current sale of capital services as in the case of income from property. This is the subject of the next chapter. The taxation of capital gains is considered separately in Chapter 12. The so-called "payroll" taxes are treated in Chapter 15.

### INDIVIDUAL INCOME TAX RATES

A brief indication of the burden of individual income tax rates which became effective in 1948 has been presented in the preceding chapter, which may be used as a convenient reference for subsequent discussions. Since rates or other relevant provisions are changed frequently it is, of course, impossible to present any description which would be generally applicable. The following summary of the main provisions of the federal individual income tax is provided merely to give some indication of the order of magnitude of the amounts involved.

Individual income taxes in 1948 provided for exemptions of \$600 for each taxpayer, an exemption of \$600 for the spouse, and \$600 for each dependent. There was a normal tax of 3 per cent and a graduated surtax ranging from 17 per cent on the first \$2000 to 88 per cent on surtax net income exceeding \$200,000, subject to percentage reductions of the tax. Combining the normal and the surtax and allowing for the percentage reductions, we had 16.6 per cent on the first bracket, and 82.1 per cent on the top bracket. Under the "splitting" provisions which were

put into effect in 1948, each half of the joint income of husband and wife was subject to the above rates. Certain short devices were applicable for persons whose adjusted gross income was less than \$5000. There was also an individual tax ceiling which provided that the aggregate normal and surtax charges were not more than 77 per cent of the total net income. Partially taxable government bond interest was subject to the surtax. A system of withholding taxes of wage and salary earners was in force. The purpose was to collect as much as possible of the income tax currently. Certain income recipients were required to report their expected income periodically and pay a tax accordingly.

### **Incidence of a Tax on Wages and Salaries**

The taxation of wages and salaries brings us into the large field of wage determination. The short run here would be the period in which the number of persons with the proper skill and experience for a particular occupation is a given factor. The variable then is the number of hours which these people work and, possibly, the efficiency with which they apply themselves. The long run is the period in which the number of persons with the proper skill and experience for a particular occupation is a variable factor. The number of hours which these people work and their efficiency are all the more variable as a result. The market-period analysis is of little practical importance in this type of problem.

Any shifting in the personal income tax which takes place must be either: (1) *Forward* shifting to the employer, if any, or (2) *backward* shifting to the seller of consumption goods. It has been pointed out elsewhere that forward shifting will not take place where the income tax payer is an annuitant or pensioner. Otherwise, and this holds also for backward shifting, the extent of the shifting which takes place will depend on how low are the income tax exemptions—the lower the exemptions the greater the amount of shifting we may expect. This holds for two reasons. The lower the income tax exemptions the more the income tax impinges on consumption, thus increasing the incentive to shift the tax; and also the lower the exemptions the greater the likelihood of the income tax affecting organized groups of workers whose strength makes possible shifting of the tax where it otherwise might not occur.

Where shifting takes place, however, we come upon what appears to be a paradox. Forward shifting tends to result in increased cost and prices; backward shifting tends to result in lower prices. The paradox is partially solved when we consider the fact that the latter are retail prices of consumption goods while the former may be prices at any point in

the distributive system and may not be consumption goods, although *eventually*, of course, when all adjustments are made, the tax will be distributed nearly everywhere. The fact remains that in the short period it tends to foster a price discrepancy—at the expense, in the first instance, of the middle man. The major part of the tax may, however, remain on the income recipient.

#### FORWARD SHIFTING IN THE SHORT RUN

A general tax on wages and salaries may be shifted forward in the short run if the individuals generally decide to withhold some of their labor. What would prompt them to do so? The individual presumably wants to raise his standard of living as high as possible. In general (but not always), the working hours are a means to an end, namely the provision of income with which to keep alive and enjoy the leisure hours. An income tax which cuts the return he obtains from his work might affect him in two opposite ways: (1) he may decide that the returns are inadequate for the work he does and that therefore he should work fewer hours with the result that he has more leisure hours but less money to spend during them, or (2) he may decide that his total income after taxes is inadequate and therefore he should work longer hours with the result that he has fewer leisure hours but more money to spend during them. In so far as he does any saving out of his income and the tax merely means that he saves less, the choice will be between current work and future consumption.

Whether the individual will behave like (1) or (2) will depend partly on his income and his other resources and partly on the strength of his preference for leisure over work. In general, a working person in the higher income brackets may be expected to cut down his working hours as a result of an increase in income taxes. A person lower down the income scale may have to increase his working hours in order to keep up his standard of living. In the large middle territory of moderate income the answer will depend on the individual himself.

The following numerical example, Table 15, combines these possibilities. When the wage rate is very low, a reduction in wage rate (or an increased tax) will result in an increase in number of hours worked. At somewhat higher rates a reduction in wage rate (or an increased tax) will result in a reduction in number of hours worked. The reader must be warned against extending this table uncritically in either direction.

This table is set up for 10¢ differences in net income after tax. In practice, the tax is based on total income (wage rate multiplied by hours

Table 15

RELATION BETWEEN WAGE (NET OF TAX)  
AND HOURS WORKED

<i>Wage Rate Per Hour (Net of Tax)</i>	<i>Number of Hours Worked Per Week</i>
20¢	80
30¢	60
40¢	50
50¢	45
60¢	40
70¢	40
80¢	40
90¢	40
\$1.00	45
1.10	50
1.20	60
1.30	60
1.40	55
1.50	50

worked) and the tax per hour worked is obtained by dividing the total tax by the number of hours worked. Under a strictly proportional income tax without deductions or exemptions, the tax would be a fixed percentage of the hourly rate. Under a progressive tax system, the tax would be a lower percentage for the lower incomes. In neither case would it be likely that a round number like 10¢ would represent the amount of tax per hour worked. But in the absence of a specific rate schedule the 10¢ intervals in Table 15 will serve to explain the point.

The actual figures applicable to any individual will, of course, vary. Moreover, the possibility of changing the number of hours worked per week will not exist in all industries. Although it is true that both wages and hours are set in many collective bargaining agreements, both apply merely to some standard work week, after which extra hours may be worked at overtime wages. The minimum rates acceptable to the union are presumably influenced in some measure, at least, by the attitudes of the members. If not, absenteeism and high rate of turnover will prevail. Such attitudes are depicted in Table 15 and others that may be constructed.

The interpretation of Table 15 is based on the assumption that an increased income tax will have the same effect as a wage cut in deter-

mining how many hours a week an individual would be willing to work. If income taxes were paid annually in the year following that in which the income was earned, this assumption would not be very realistic. But with a withholding system the worker tends to regard his wage-after-taxes as his actual wage. In ordinary times, at least, patriotic fervor is not adequate to make the worker overlook a wage cut which comes through taxes any more than he would overlook any other type of wage cut.

In the low-wage range of Table 15, it will be seen that increased income tax results in an increase in number of hours worked. For instance, when the wage is cut from 40¢ to 30¢ an hour, the number of hours worked is increased from 50 to 60 hours per week. Thus it would follow that a tax of 10¢ deducted from a wage of 40¢, leaving a net of 30¢, would result in an increase in number of working hours from 50 to 60.

At somewhat higher wages the tax will have no effect on number of hours worked. For instance, a net wage of 70¢ will yield 40 hours of work and so will a net wage of 60¢. If a tax of 10¢ is imposed on a wage of 70¢, there will be no effect on number of hours worked.

At still higher wages a tax will reduce the individual's incentive to work and will therefore cut down the number of hours he works per week. At a rate of \$1.10 per hour the worker is willing to spend 50 hours a week at work. If the tax reduces his return to \$1.00 he is willing to work only 45 hours. At very high rates the reaction to a tax is the same as at very low rates. The imposition of a 10¢ tax on a \$1.50 income, for instance, increases the number of hours worked from 50 to 55.

The various possibilities are illustrated more generally in Figs. 1-4. For ease in drawing, a uniform absolute amount of tax is assumed to be paid on the income derived from each hour's work. The effect of a progressive tax system is indicated in the discussion. Fig. 1 represents the case where a decrease in net wage rate results in a decrease in number of hours worked. The curve  $WW$  shows that relation between wage rate and number of hours worked. The curve  $W'W'$  represents the net amount after the deduction of that income tax per hour appropriate to the total income obtained by multiplying the wage rate and the number of hours for each point shown on  $WW$ . The line  $W'W'$  is merely a guiding line to assist in finding the net wage after the tax is imposed. It is not a real line showing a relationship between wages and hours. This is shown only by  $WW$ . Assume the wage rate to be  $OP$  and the number of hours worked per week to be  $OM$ . This gives a weekly income of  $OP \times OM$  or  $OPRM$ . At this weekly income the total tax per hour worked comes to  $PQ$ . But

at a net income of  $OQ$  per hour the worker is willing to work only  $ON$  hours. Under a progressive tax system the worker would not actually reduce his work week all the way to  $ON$  because as he reduces his work week he falls into lower tax brackets so that the tax deduction per hour worked is not fully  $PQ$ .

Fig. 2 deals with the case where an increase in net wage rate results in a reduction in number of hours worked. In this case the reduction of net wage rate from  $OP$  to  $OQ$  because of the tax results in an increase in number of hours worked from  $OM$  to an amount approaching  $ON$ . Fig. 3

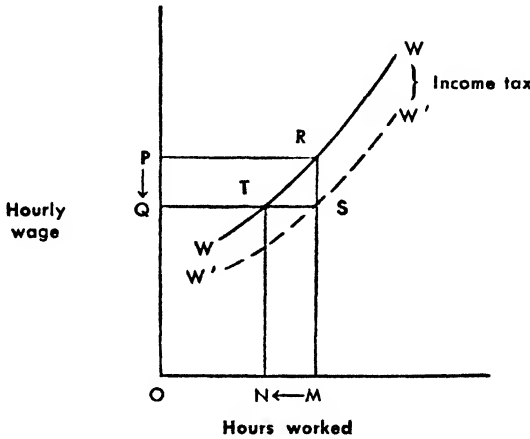


FIG. 1. A case where a decrease in net wage rate results in a decrease in number of hours worked.

demonstrates the case where the number of hours worked does not depend on the net wage rate. The imposition of a tax of  $PQ$  does not change the number of hours worked,  $OM$ . Fig. 4 combines a number of possibilities and describes the type of behavior depicted in Table 15. The low wage section  $ab$  is like Fig. 2. The section  $bc$  is like Fig. 3. The higher wage section  $cd$  is like Fig. 1. Then there is a section  $de$  like Fig. 3 again and, for very high wages, a section  $ef$  like Fig. 2. This is the celebrated "backward-rising" supply curve of labor.

The above considerations provide some indication of the way in which the supply of labor in the short run might react to a general income tax. As a general matter, a reduction in labor supply would have the effect of raising wages, thus shifting the tax to the employer. An increase in supply of labor would tend to reduce wages. These statements hold in the absence of institutional barriers, such as union policy. In this case, not only would the tax *not* be shifted to the employer but, in the

TAXATION

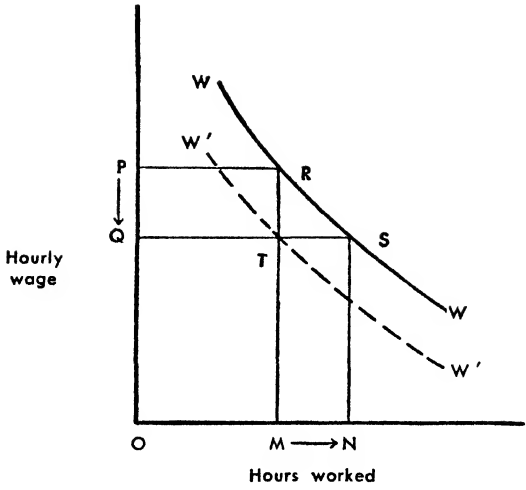


FIG. 2. A case where a decrease in the net wage rate results in an increase in the number of hours worked.

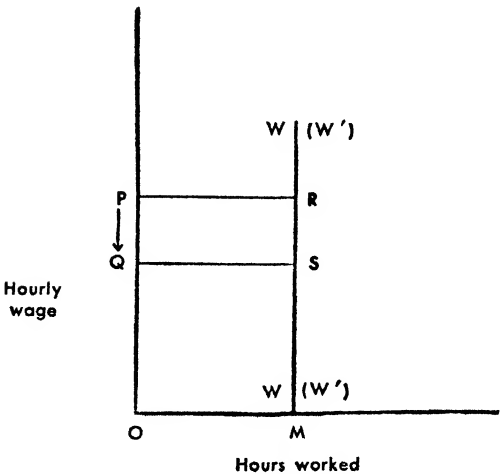


FIG. 3. A case where a change in the net wage rate has no effect on the number of hours worked.

workers' mad scramble to maintain their income after taxes, the employer might even gain some benefit through further competition for jobs and reduction in wages assuming that trade unions cannot stand in the way. One might wonder, then, why employers do not cut wages to obtain the same sort of benefit. The answer lies mainly in the fact that the tax is general while general wage cuts are difficult to accomplish. Moreover, the employers would have to be confident that they were in

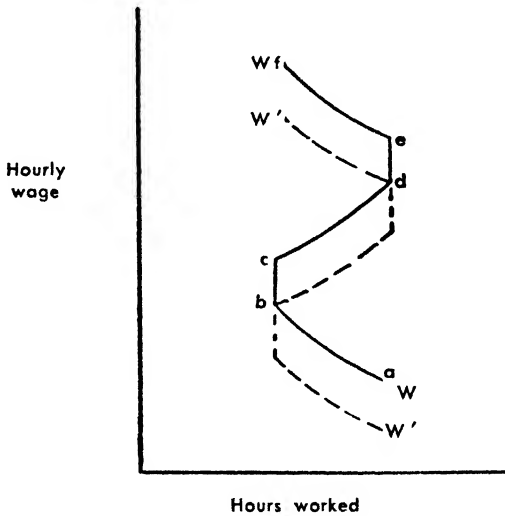


FIG. 4. An illustration of the type of behavior depicted in Table 15.

the backward-sloping part of the supply curve of labor before venturing a wage cut.

The forward shifting of a general income tax in the short run will then depend on the distribution of the wage-earning population among the various types depicted in Figs. 1-4. If the major portion of the income is earned under conditions most like those depicted in Fig. 1, i.e. section *cd* of Fig. 4, then the imposition of an income tax will tend to reduce the supply of labor and raise wages, thus shifting part or all of the tax to the employer. If the major portion of the income is earned under conditions most like those depicted in Fig. 2, i.e. sections *ab* and *ef* of Fig. 4, then the imposition of an income tax will tend to increase the supply of labor and reduce wages so that none of the tax is shifted to the employer but, on the contrary, he benefits through increased competition for work. If the major portion of income is earned under conditions most like those depicted in



Fig. 3, i.e. sections *bc* and *de* of Fig. 4, then the imposition of the income tax will have no effect on the supply of labor and none of the tax will be shifted forward to the employer.

Turning now to guesswork, it seems likely that there have been times in American history when most of the population paying income taxes were in a high enough income bracket to be able to work less when the reward was less, as in Fig. 1 and section *cd* of Fig. 4. If such were the case, some of an increased income tax on wages and salaries would be shifted forward to the employer in the short run. This was certainly true for some workers when the withholding system was first introduced in the United States and workers became more aware than they had been before of the relation between their day-to-day earnings and the income tax.

BACKWARD SHIFTING IN THE SHORT RUN

The likelihood of backward shifting in the short run depends to a large extent on the success which the workers have had in shifting the tax forward to the employer. If the readjustment of wages and hours is such that the workers' weekly take-home pay is reduced, then a strong

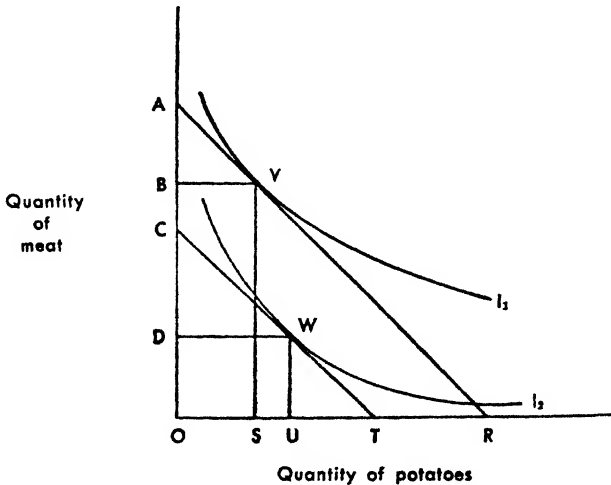


FIG. 5. A case where a reduction in income results in an increase in demand for a commodity.

possibility of backward shifting exists. The reduction of take-home pay will cause a general reduction in demand but with a considerable degree of variation from commodity to commodity. The less necessary a commodity is, the more likely that the demand for it will be reduced to pro-

vide sufficient funds for the more necessary commodities. There may actually be an increase in demand for some commodities, such as potatoes, to take the place of the more expensive commodities, such as meat, which some of the workers may no longer be able to afford after the income tax. This possibility is illustrated in Fig. 5. In this diagram  $I_1$  and  $I_2$  represent indifference curves showing the marginal rates of substitution between meat and potatoes for an individual. The price line is  $AR$ , which is set at a level appropriate to the individual's income. An income tax is then imposed on the individual. The amount of the tax is such that at prevailing prices it is equivalent to  $AC$  of meat or  $TR$  of

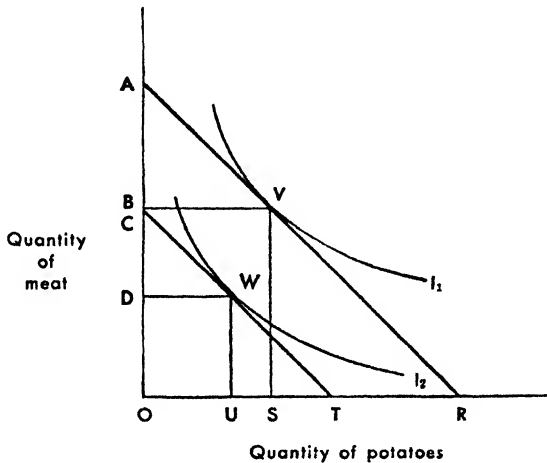


FIG. 6. A case where a reduction in income results in a decrease in demand for two commodities.

potatoes. The new price line is then  $CT$ , which is parallel to  $AR$  since prices are assumed to have remained unchanged. Before the tax was imposed the price line  $AR$  was tangential to indifference curve  $I_1$  at point  $V$  with the result that  $OB$  units of meat and  $OS$  units of potatoes were consumed. After the tax is imposed the new price line  $CT$  is tangential to the indifference curve  $I_2$  at point  $W$ , with the result that  $OD$  units of meat and  $OU$  units of potatoes are consumed. It will be seen that although the consumption of meat has decreased from  $OB$  to  $OD$ , the consumption of potatoes has increased from  $OS$  to  $OU$ . The potatoes would be considered an "inferior good."<sup>1</sup> The case where the consumption of both meat and potatoes would be diminished is illustrated in Fig. 6.

<sup>1</sup> See J. R. Hicks, *Value and Capital*, pp. 28-29 (Oxford: The Clarendon Press, 1939).

## TAXATION

The reduction in demand will result in either a fall in price or a reduction in amount demanded, or both, depending on the flexibility of prices in the industry producing the commodity under consideration. To the extent that a price reduction takes place, the tax will have been shifted backward to the seller of goods and services. This is by no means an unlikely possibility under actual conditions. The only question involved is whether this tendency should be classified as "shifting" or "economic effects." It may be desirable to regard as "economic effects" all influences working through general consumer demand even though they follow directly from the imposition of the tax.

To some extent the reduction in take-home pay will mean a reduction in savings of individuals rather than a falling off in demand for goods and services. This reduces the likelihood of backward shifting. There are some slight possibilities of shifting through a change in interest rates, but this is a large subject and it is not worth while to go into details at this stage. The section covering the taxation of income from securities deals with this matter.

### LONG-RUN SHIFTING

The possibility of shifting a wage tax in the long run depends on changes that may take place in the supply of labor available for particular fields of economic activity. Even if the income tax is general there are practical differences in enforcement. Payroll taxes are much more easily enforced than taxes on business and professional income. Heavy income taxes may be a factor in inducing people to set up a small business for themselves rather than work for a wage or salary. This would reduce the supply of wage labor and tend to shift the tax forward.

A general income tax uniformly enforced will probably have few long-run effects. A slight possibility exists of a tendency to promote a change in retirement age, but it may operate in both directions. The fact that the government takes part of the income may make it more difficult to accumulate a retirement fund and may therefore postpone retirement, thus increasing the labor force. On the other hand, the fact that the government reduces the net reward for work may induce some individuals to retire earlier. Basically, the same type of consideration applies here as in the short run—the attitude toward leisure and work and the need for income. On balance, it seems likely that the income tax postpones rather than advances the average retirement and thereby increases the supply of labor. This prevents a long-run forward shifting of the income tax. Such long-run shifting as takes place probably is backward

shifting through the general reduction in demand, but this is probably a very minor factor.

Some possibility of long-run shifting exists at the lower end of the income scale if tax exemptions are low and the tax rates high. Living on relief is an alternative possibility which cannot be ruled out of account. Certainly in England it has been the full-time occupation of even succeeding generations of workers. Of course the tax rates would have to be very high and the exemptions very low. Experience with unemployment insurance (although not by any means to be considered the same as relief or the dole) indicates that taxes have been a factor in influencing an individual to accept the benefits rather than go to work. Although a particular individual may not receive insurance or relief payments for long, a substantial although changing body of such individuals does exist. In so far as the magnitude of the group is increased by the existence of an income tax, it may be said that forward long-run shifting takes place because the reduced supply of labor (with fairly stable consumer demand) will tend to raise the wage level.

In summary, it seems reasonable to conclude that some forward long-run shifting of the income tax on wages and salaries takes place. There is very little likelihood of backward long-run shifting. In other words, the employer may bear part of the tax but merchants who sell the goods to the wage-earners probably will not.

#### SHIFTING A TAX ON INCOMES OF "NON-PRODUCTIVE" CONSUMERS

Pensions and annuities are often really deferred wages and salaries. Sometimes, however, they represent savings out of income and sometimes outright payments by the government. Direct relief payments are also outright payments by the government. All of these may be considered incomes of "non-productive" consumers in that no service is currently being performed. The likelihood of shifting may be treated briefly here by making use of the foregoing discussion of wages and salaries.

The possibilities of backward shifting to sellers of consumers' goods and services are roughly similar to those found in the case of a tax on wages and salaries. The prospects of forward shifting are, however, radically different. Those non-productive consumers who are entirely dependent upon annuities, pensions, and relief cannot shift a tax forward because they do not sell anything of any kind and cannot effectively (except as noted below) exert pressure for larger allowances. No amount of pressure, occasioned by a tax or anything else, can increase the pay-

ments received under an annuity purchased at some time in the past. The same is true of industrial pensions. High taxes may prompt a firm to increase the pension payments it promises workers still in its employ but existing pensions are seldom touched. In the case of recipients of government pensions and direct relief, the problem is a little more complicated. No recognized commodity, not even labor-power, is being sold, hence forward shifting in the ordinary sense is impossible. All that these people have "for sale" is their one-vote-every-so-often. If they "sell" their vote to the party or candidate offering to "pay" the most in the form of pensions or relief, there is the possibility of a process resembling shifting.<sup>2</sup> Relief strikes and riots tend to have similar results. But at best these are minor and uncertain influences. The party or candidate, if elected, may or may not keep his promises; and a hunger strike on the part of relief recipients does not result in any immediate financial loss (except to themselves) such as that experienced by an employer faced with a strike of his workmen as a result of a tax.<sup>3</sup> It is doubtful whether these tendencies should be considered "shifting" at all.

### Effects of a Tax on Wages and Salaries

From the foregoing analysis of the shifting of an income tax on wages and salaries it would seem that the incidence depends largely on the level of income subjected to the tax. The effects on consumption depend in large part on how low the exemptions are. Some years ago the Colwyn Committee found that the income tax in Great Britain had the effect of reducing consumption to some extent. Exemptions were relatively low. Luxury expenditure was not materially affected; extravagance even resulted. For the most part the economies in consumption which took place were effected by those with moderate earned incomes. It was with respect to them that the real sacrifices were found to have been made.<sup>4</sup> To the extent that consumption was curtailed, production would, of course, be curtailed. Aside from this the Colwyn Committee found that "the effects of high income taxation have been almost negligible in the field of employments and professions; over a great part of the industrial field, while appreciable, they have not been of serious moment."<sup>5</sup>

<sup>2</sup> Alternatively, the *real* value of annuities, pensions, and relief allowances could be raised by successful political agitation in favor of *deflation*.

<sup>3</sup> Cf. Harold M. Somers, "Note on Taxes and the Consumer," *American Economic Review*, Vol. 28 (December, 1938), pp. 736-37.

<sup>4</sup> *Colwyn Committee Report* (Report of the Committee on National Debt and Taxation, Great Britain, 1927), p. 39.

<sup>5</sup> *Ibid.*

SAVINGS AND INCENTIVE TO SAVE

According to the Colwyn Committee, the income tax seems to have had an adverse effect on the extent of savings, but it does not seem to have had such an effect on the incentive to save.<sup>6</sup> As may be expected, the effect on savings was found mainly with respect to the higher income tax payers. Since the graduation of the tax is very steep in England there has taken place, according to the Colwyn Committee, a redistribution of saving power in favor of the moderate and lower income groups.<sup>7</sup> We must qualify these findings by the consideration that they refer to individual money savings and say nothing about actual capital formation.

The same distinction between individual money saving and social capital formation must be borne in mind in studying the work of Colm and Lehmann. These authors obtain some useful and interesting statistical results. They show that if income tax rates of the Revenue Act of 1936 were applied to incomes over \$5000, the annual savings would be curtailed by:

- \$100-\$300 million, compared with 1932 tax rates
- \$800-\$1000 million, compared with 1928 tax rates
- \$1500-\$1700 million, compared with the case where no income taxes existed.<sup>8</sup>

They carry this analysis a step further and show the curtailment of savings by broad income classes compared with 1930. The data they present here are:<sup>9</sup>

Income Classes (\$)	No. of Tarpayers	Reduction in Savings			
		Lower Estimate		Higher Estimate	
		(million \$)	(%)	(million \$)	(%)
5-15,000.....	674,000	85	4.7	152	8.3
15-200,000.....	135,000	503	20.5	653	26.5
Over 200,000.....	2,000	543	80.5	543	80.5
Totals.....	811,000	1,131	22.8	1,347	27.1

<sup>6</sup> *Ibid.*

<sup>7</sup> *Ibid.*, p. 40.

<sup>8</sup> Gerhard Colm and Fritz Lehmann, "Economic Consequences of Recent American Tax Policy," *Social Research*, Supplement I, 1938, p. 33.

<sup>9</sup> *Ibid.*, p. 43. The data have been rounded in the original and do not necessarily add to the totals indicated.

**TAXATION**

In considering the way in which this distribution of "saving power" might affect property holding, Colm and Lehmann show the sources of property income in 1930 in which year, as may be seen from the following table, the wealthier classes had most of their fortune invested in stocks.<sup>10</sup>

<i>Sources of Property Income</i>	<i>Income Classes</i>		
	\$5000- \$15,000	\$15,000- \$150,000	Over \$150,000
Corporate stocks.....	32%	59%	82%
Unincorporated business.....	41	21	7
Real estate.....	9	5	2
Bonds and other interest-bearing assets.....	18	15	9
	100%	100%	100%

The lower brackets in that year had their assets mainly in the form of deposits, real estate, and life insurance.<sup>11</sup>

**Conclusion**

All this is very interesting and important in any consideration of the economic effects of the personal income tax. But we should not be mistaken about the implications of these tables. When, for instance, Messrs. Colm and Lehmann refer to "annual savings"<sup>12</sup> being "curtailed" and then talk of the center of "capital formation"<sup>13</sup> shifting downward and then speak of the effect of this downward shift in "capital formation,"<sup>14</sup> the implication is quite clearly that capital formation is diminished by the income tax. Here, however, the authors are unquestionably being influenced by a carry-over from the Hayekian-full-employment-all-savings-are-invested-and-all-investment-comes-from-savings-economics. It cannot be stated too emphatically or too repeatedly that with a banking system amply supplied with credit facilities such as we have now, it cannot be assumed that a fall in the money savings of private individuals necessarily results in a fall in capital formation.

<sup>10</sup> *Ibid.*, p. 46.

<sup>11</sup> *Ibid.*, p. 47.

<sup>12</sup> *Ibid.*, p. 33.

<sup>13</sup> *Ibid.*, p. 44.

<sup>14</sup> *Ibid.*, p. 46.

## Income Taxation: Interest and Dividends

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Separate treatment is seldom accorded income from securities in discussions of the shifting and incidence of income taxes. There are, however, some interesting problems which arise here and do not appear in connection with wages and salaries. The present income tax in the United States taxes both interest income and dividends except where specifically exempt. Although the legal distinction between bonds and stocks and thereby between interest and dividends is very sharp, the two have many similarities for economic and business purposes. Both are returns received from the ownership of securities, or, looking at it another way, they are both the reward for keeping assets in a less liquid form than cash but more liquid form than real property or goods. However, an important difference lies in the fact that interest payments are deductible for tax purposes while dividend payments are not.

### DETERMINATION OF INTEREST RATES

An analysis of the shifting of a tax imposed on interest income requires familiarity with the theory of interest-rate determination. What determines the price paid for securities and thus the yield on those securities, given the interest or dividend rate? As a first step it is convenient to think of the demand and supply of securities just as we think of the demand and supply of anything else. The familiar factors of productivity of capital, time-preference, liquidity preference, and monetary policy determine the prevailing interest rates through their influence on the demand and supply of securities.<sup>1</sup> The demand for securities is another way of saying supply of loanable funds because such funds are used to

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<sup>1</sup> See Harold M. Somers, "Monetary Policy and the Theory of Interest," *Quarterly Journal of Economics*, Vol. 55, May, 1941, pp. 488-507. Reprinted in *Readings in the Theory of Income Distribution*, pp. 477-98 (Philadelphia: The Blakiston Company, 1946).



purchase securities. The supply of securities is another way of saying demand for loanable funds because such funds are received from the sale of securities. In the discussion of interest-rate determination it is customary to speak of the rate of interest as being determined by the supply and demand of loanable funds instead of the demand and supply of securities.

### **Effects of Income Tax on Demand and Supply of Loanable Funds**

In this analysis it is assumed the competitive conditions and other economic conditions are such that lenders will be willing to lend more money at a higher rate than at a lower rate of interest and that borrowers will be willing to borrow more money at a lower rate than at a higher rate. In other words, it is assumed that the demand curve for loanable funds is downward sloping to the right and that the supply curve of loanable funds is upward sloping to the right. These assumptions are not necessary to the analysis but are helpful and are probably realistic.

#### **DEDUCTIBILITY OF INTEREST EXPENSE**

A practical approach to the shifting and incidence of a tax on the interest income of the lender must take account of an important provision of the tax law as it affects the borrower, namely the deductibility of interest expense in computing income tax liability. The supply curve of the lender indicates the various amounts of funds he is willing to lend at various rates of interest. The imposition of a tax on this income will generally mean that a higher rate of interest than before will be required to induce the lender to make a loan of any given amount. Effectively, this means a shift of the supply curve to the left. And this ordinarily would result in an increase in the interest rate charged to borrowers. But the expense of an increase in interest rate will be borne partly by the government because interest is a deductible expense. When this tax saving is considered, it will be seen that a borrower will be willing to pay a higher rate of interest than without the tax saving for a given amount of money since part of the expense is to be borne by the government. The deductibility of interest expense means that the demand curve for loanable funds will be farther to the right than it otherwise would be. The extent of the shift in the demand need not be the same as the shift in the supply curve. A given progressive tax on income will affect lenders and borrowers differently depending on the income tax bracket they happen to be in. The amount of tax paid by lenders on interest income

need not be the same as the amount of tax saving enjoyed by borrowers on interest expense. The different possibilities here yield different results—some of them quite surprising and important.

In order to avoid misunderstanding it must be emphasized that we refer here solely to the interest income and interest expense aspects of an income tax. The imposition of a general income tax where none existed before may have drastic effects on many economic factors including the propensity to borrow and the propensity to lend, hence on the demand and supply of loanable funds. We are not attempting to deal here with these general effects. We assume that the demand and supply curves we use embody whatever influence the non-interest aspects of the income tax may have had. We now attempt to determine what additional changes take place in these curves when the taxation of interest income and the deductibility of interest expense are allowed for.

#### ANALYSIS OF POSSIBLE CASES

Some of the possibilities are illustrated in Figs. 7-11. *DD* represents the demand for loanable funds and *SS* the supply of loanable funds. As pointed out above, the imposition of a tax on interest income has the effect of shifting the supply curve to the left. The new position of the supply curve is represented by *S'S'*. The deductibility of interest expense has the effect of shifting the demand curve to the right. The new position of the demand curve is represented by *D'D'*. The vertical distance between the *S'S'* and *SS* curves represents the amount of tax paid by lenders, stated as a percentage of the amount of loans, and computed on the interest income shown on *S'S'*, which is likewise stated as a rate on the amount of loans. The vertical distance between the *D'D'* and *DD* curves represents the amount of tax saving accruing to borrowers as a result of the deductibility of the interest rate indicated on *D'D'*. This tax saving is computed as a percentage of the amount of loans per annum, just like the interest rates shown on *DD* and *D'D'*. The precise distance between *S'S'* and *SS* and between *D'D'* and *DD* will depend on the tax structure and the income of the lenders and borrowers respectively, as well as on the various interest rates and loans indicated by the curves themselves. The tax is here assumed to be a uniform number of percentage points regardless of the interest rate. This is an "oversimplifying" assumption and is made for convenience of exposition. The qualitative results are the same if we have a proportional, degressive, or progressive tax. The tax might have been computed as a certain proportion of the interest. The tax would then be greater at higher interest rates than at

lower interest rates. A changing proportion would imply that a change in the interest rate would move the taxpayers into a different tax bracket.

*Case 1: Tax Liability = Tax Saving*

Fig. 7 represents the case where the tax paid by lenders on interest income (expressed as a percentage of loans per annum) is equal to the tax saving by borrowers on interest expense (expressed as a percentage of loans per annum). The initial prevailing interest rate is  $OR$  and the amount of loans, is  $OM$ . The imposition of the tax on interest income shifts the supply curve to  $S'S'$  and the deductibility of interest expense

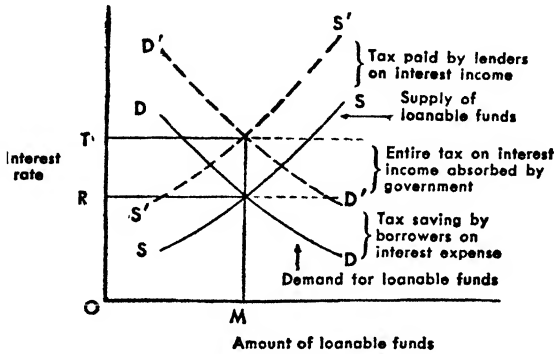


FIG. 7. A case where a tax paid by lenders on interest income is equal to the tax saving by borrowers on interest expense.

shifts the demand curve to  $D'D'$ . The new rate of interest is  $OT$ . The amount of loans is  $OM$ , the same as before the tax was imposed. The net interest income rate and the net interest expense rate are  $OR$ , the same as before the tax was imposed. Thus the entire tax on interest income is absorbed by the government through the deductibility of interest expense.

*Case 2: Tax Saving Is Zero*

Fig. 8 represents the case where interest income is taxable but interest expense is not deductible. When the income tax is imposed on interest income the supply curve shifts to  $S'S'$  but the demand curve  $DD$  remains unchanged. The interest rate rises from  $OR$  to  $OT$  and the amount of loans is reduced from  $OM$  to  $ON$ . Since interest expense is not deductible, the net interest rate paid by borrowers likewise rises from  $OR$  to  $OT$ . But since interest income is taxable the net interest rate earned by lenders falls from  $OR$  to  $OW$ , since  $WT$  is the part of the interest rate paid out

as income tax.  $RT$  is the portion of the tax on interest income shifted from lenders to borrowers.  $RW$  is the portion of the tax absorbed by the lenders.

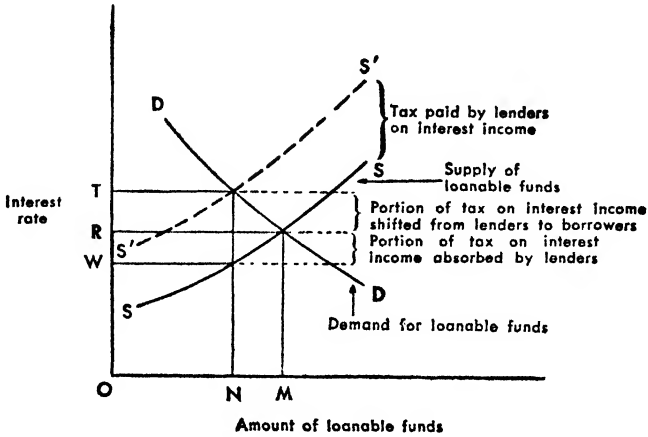


FIG. 8. A case where interest income is taxable but interest expense is not deductible.

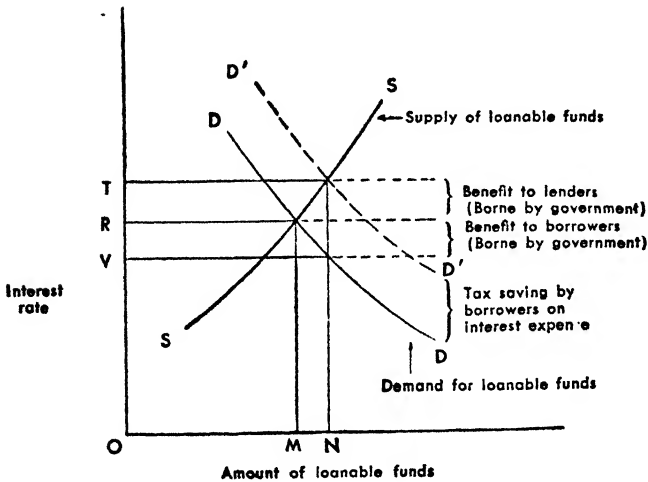


FIG. 9. A case where interest income is not taxed but interest expense is deductible.

*Case 3: Tax Liability Is Zero*

Fig. 9 represents the case where interest income is not taxed but interest expense is deductible. When interest expense becomes a de-

ductible item the demand curve shifts to  $D'D'$ . The supply curve  $SS$  remains unchanged. The interest rate rises from  $OR$  to  $OT$  and the amount of loans is increased from  $OM$  to  $ON$ . Since interest income is not taxed, the net interest income rate likewise rises from  $OR$  to  $OT$ . The net interest expense, however, falls from  $OR$  to  $OV$ , since  $VT$  is the amount of tax deduction when the interest rate is  $OT$ . Both borrowers and lenders gain, therefore. Borrowers gain  $RV$  and lenders gain  $RT$ . The amounts are borne by the government through the deductibility of interest expense.

*Case 4: Tax Liability Exceeds Tax Saving*

Fig. 10 represents the case where the tax paid by lenders on interest income exceeds the tax saving by borrowers on interest expense—both expressed as a percentage of loans per annum. The shift in the supply curve from  $SS$  to  $S'S'$  as a result of the taxation of interest income is greater than the shift in the demand curve from  $DD$  to  $D'D'$  as a result of the deductibility of interest expense. The interest rate rises from  $OR$  to  $OT$  and the amount of loans is reduced from  $OM$  to  $ON$ . The net interest income rate is  $OW$ , since  $WT$  is the tax on interest income when the interest rate is  $OT$ . The net interest expense rate is  $OV$  since  $VT$  is the tax saving on an interest expense of  $OT$ . Of the total tax  $WT$ ,  $RW$  represents the portion of the tax absorbed by the lenders through a reduction in net income,  $RV$  represents the portion of the tax shifted to borrowers through a rise in net interest expense, and  $VT$  represents the portion of the tax absorbed by the government itself through the deductibility of interest expense.

*Case 5: Tax Saving Exceeds Tax Liability*

Fig. 11 represents the case where the tax on interest income is less than the tax saving on interest expense. The imposition of the tax on interest income results in a shift in the supply curve from  $SS$  to  $S'S'$  which is less than the shift in the demand curve from  $DD$  to  $D'D'$  resulting from the deductibility of interest expense. The interest rate rises from  $OR$  to  $OT$  and the amount of loans increases from  $OM$  to  $ON$ . The net interest income rate rises from  $OR$  to  $OW$  since  $WT$  is the tax on the interest rate  $OT$ . The net interest expense rate falls from  $OR$  to  $OV$  since  $VT$  is the tax saving on an interest expense of  $OT$ . Both borrowers and lenders benefit in this case at the expense of the government. The entire tax on net income,  $WT$ , is absorbed by the government and at the same

INCOME TAXATION: INTEREST AND DIVIDENDS

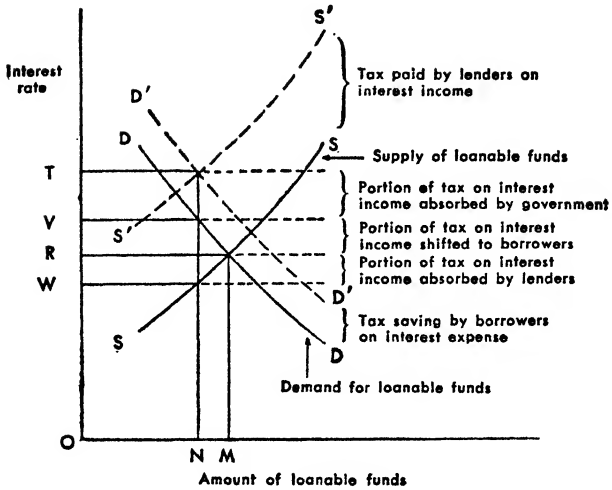


FIG. 10. A case where the tax paid by lenders on interest income exceeds the tax saving by borrowers on interest expense.

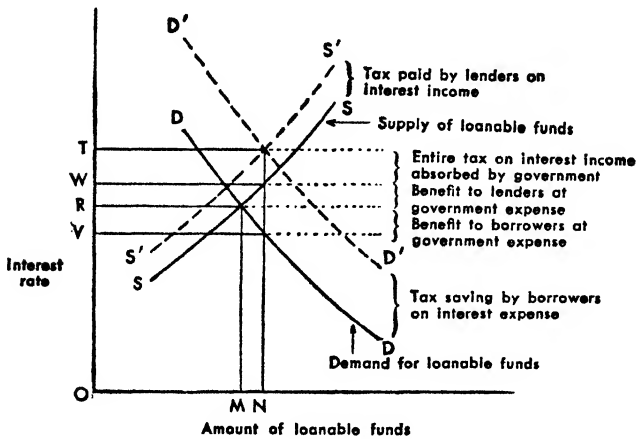


FIG. 11. A case where the tax on interest income is less than the tax saving on interest expense.

time the rise of  $RW$  in net interest income of lenders and the fall of  $RV$  in net interest expense of borrowers are absorbed by the government.

#### SHIFTING OF A TAX ON INTEREST INCOME

The question whether a tax imposed on interest income can be shifted may be answered on the basis of the above analysis. The downward sloping demand curve and the upward sloping supply curve are assumed throughout. The tax structure is assumed to be progressive. On this assumption, the actual shifts in the curves would be different from those indicated above but the qualitative results would be the same.

1. *Where interest expense is deductible for tax purposes and borrowers and lenders are at the same income level, the tax is shifted completely to the government.* The interest rate will rise by the exact amount of the tax. (See Fig. 7.) The net interest income after tax will be the same as before interest income is taxed and interest expense is made deductible. Likewise the net interest expense after tax saving is considered will be the same as before the tax was imposed. The rise in interest rate as a result of the tax is such that the lenders' net income after tax is not changed and the borrowers' net income after tax is not changed. The government pays its own tax. Subjecting interest income and interest expense to the tax law under such conditions is a rather useless process, to say the least.

This situation is probably the prevailing one for most present-day corporate bond issues since they are bought to a large extent by large corporations and high income recipients. By and large it is likely that the income level of borrowers and lenders for this type of loan is about the same. The prevailing interest rate is higher as a result of the tax. The tax on interest income, however, is not absorbed by the lender but is nominally shifted to the borrower who, because of the deductibility of interest expense, is able to pass it on to the government.

2. *Where interest expense is not deductible for tax purposes, the tax on interest income is shifted partly to borrowers and is partly absorbed by the lenders.* The interest rate rises by an amount less than the tax. (See Fig. 8.) The borrowers pay a higher interest rate but by an amount less than the tax. The lenders' net income after tax is less than before but not by the full amount of the tax.

This situation would prevail under a variety of possible conditions. (A) It might occur if interest expense were treated like dividend payments for tax purposes and were removed as a deductible item. The present discrimination between interest and dividend payments might prompt such a move. (B) It would also occur in connection with low

income borrowers who do not pay a tax—a possibility that would arise if exemptions, credits, and other deductions were high. (C) It would also apply to borrowing by governmental bodies and institutions who do not pay income tax and therefore cannot deduct interest expense. The tax on interest income in all these cases would be borne only partly by the lenders and would be shifted partly to the borrowers. Where the government is the borrower it really pays part of the tax itself because of the higher interest rate which results.

3. *Where interest income is exempt from tax, the deductibility of interest expense benefits both borrowers and lenders.* The interest rate rises but by an amount less than the tax. (See Fig. 9.) The borrowers' net interest expense is reduced by an amount less than the tax. The lenders' interest income is raised.

This situation applies to governmental bodies and non-profit, non-taxable educational, religious, and charitable institutions who hold bonds, mortgages, and interest-bearing bank accounts. Their influence on the loan market is as indicated above. They actually benefit from the income tax where interest expense is deductible by the borrowers. The interest paid to the lenders is higher than it would otherwise be. Yet the borrowers gain too because the net interest rate they pay is less than it would be if interest expense were not deductible.

4. *Where interest expense is deductible but lenders are at a higher income level than borrowers, the tax is shifted partly to borrowers, partly to the government, and is partly absorbed by the lenders.* The interest rate rises but by an amount less than the tax on interest income. (See Fig. 10.) The borrowers' net interest expense rate is somewhat higher than before and the lenders' net interest income rate is less than before but by an amount less than the tax. The increase in net interest expense rate and the reduction in net interest income rate do not account for the full amount of the tax. The rest is shifted back to the government.

This situation prevails in the small loan market where the borrowers can be assumed to be at a low income level relative to the lenders. The tax paid by the lenders, such as the finance companies, is shifted partly to the borrowers. These pay more than they otherwise would even after due allowance is made for the deductibility of their interest payments in computing their income tax.

5. *Where interest expense is deductible but lenders are at a lower income level than borrowers, both lenders and borrowers achieve a net gain at the expense of the government.* The interest rate rises by an amount greater than the tax on interest income. (See Fig. 11.) The net interest income



rate is greater than before the tax was imposed. The net interest expense rate for borrowers is less than before the tax on interest income was imposed. The government thus not only absorbs an amount equal to the full tax on the interest income of lenders but also absorbs an amount over and above that with the result that the net interest expense of borrowers is less than before.

This will occur in cases where the funds of a large number of small lenders are used to finance a big borrower. The widespread distribution of corporate bonds among individuals and firms who are in lower tax brackets than the corporations would yield this result. The corporations would find that the tax forced up the interest rate but the net rate they paid after deducting interest as an expense would be less than before. The individuals and firms who loaned the money have more left after paying the tax than they had before the tax provisions were imposed. The total loans increase, most likely implying expanded economic activity. In this case, those provisions of the income tax which make interest income taxable and interest expense deductible, have a stimulating effect on the economy.

### Taxation of Dividends

A tax on dividend income may be discussed in the same framework as that on interest income. We may use Fig. 8 of this chapter for reference.

Dividend payments are not deductible for income tax purposes, hence there is no shift in the  $DD$  curve as a result of the tax. The  $SS$  curve shifts left to  $S'S'$  as a result of the imposition of a tax on dividend income. The price of shares may be expected to fall so as to raise the yield (before taxes) from  $OR$  to  $OT$  but reduce the net return of shareholders from  $OR$  to  $OW$  after the tax on dividend income is deducted. The shareholders thus absorb  $RW$  of the tax. The portion of the tax  $RT$  may be said to be shifted to the corporation involved in a limited sense. The increased dividend rate  $OT$  would have to be expected on any new issues of shares to be saleable in the prevailing market in old securities, which does yield  $OT$ .

It might seem to be a sacrilege to discuss shares of stock in a framework so similar to that of bonds and to treat dividends and dividend-yields like interest and interest-yields. The shareholders of course earn not only the dividends but also an increase in equity resulting from undistributed earnings of the corporation. Except on liquidation, the shareholder benefits from this, in so far as he does at all, through increased market value of the shares. In the case of bonds there is no actual in-

crease in equity. But the existence of undistributed profits will tend to strengthen the market value of bonds because of the increased security thereby afforded the bondholders.

The reaction of shareholders to a tax on dividend income might therefore be very much like the reaction of bondholders to a tax on interest income. In both cases we would expect the supply curve of funds available for investment in securities,  $SS$  in Fig. 8, to shift in the direction of  $S'S'$ . Because of the legal and psychological differences between dividends and interest, the extent of the shift would not be the same in both cases.

There is a possibility that the imposition of a general income tax including a tax on dividends would actually shift the demand curve for funds. The taxation of business income might reduce the demand just as the taxation of dividend income might reduce the supply. This is a question which will have to be deferred to the chapter on the taxation of business income.

#### EFFECTS OF EXEMPTION OF DIVIDEND INCOME

Given a corporate income tax there is a question about the desirability of taxing dividend income—the question of “double taxation.” The proposal to reform the tax system by eliminating double taxation of dividends is discussed in Chapter 16. The above analysis of Fig. 8 applies to this problem. Leaving aside the possibility of a change in dividend policy, the removal of dividend income from taxation would be expected to raise prices of existing shares so as to reduce the dividend yield from  $OT$  to  $OR$ . The net dividend income of shareholders would rise from  $OW$  to  $OR$ . The amount of funds put into shares would increase from  $ON$  to  $OM$ . Corporations would find it easier and cheaper than before to obtain funds through stock sales. A shift from bonds to stocks would almost certainly take place. A collapse of the bond market cannot be ruled out any more than a boom in the stock market. It is hardly necessary to say that the equity of such action is very questionable. A sudden change in the rules of the game to the advantage of stockholders and the relative disadvantage of bondholders cannot be justified merely by a cry of “double taxation.” The proposal to remove this double taxation, although advanced in all sincerity and integrity, encounters the difficulty mentioned above.

The possibility of restricting the exemption of dividend income to new securities might appear to have some merit and avoid the difficulty mentioned above. This would make new stocks relatively attractive over

bonds and old stocks. A downward pressure on the prices of the latter two types of securities would be inevitable. Nor can we ignore the ease with which the purpose of the tax exemption might be evaded by replacing old stock issues with new. Regulations might be established to prevent such evasion. It is evident, however, that the exemption of dividend income is a much more complicated affair than it appears on the surface.

Quite apart from these serious effects on the money markets, there is a question about the desirability of creating a tax exempt refuge for high incomes. All of the arguments which have been advanced, with success, against tax exempt bonds may be marshaled here and with some new arguments added. In particular, since large shareholders may control the corporation and its dividend policy in some cases, there is a danger of evasion of the capital-gains tax. The corporation might pay out all earnings as tax-exempt dividends, thus avoiding an increase in equity and dampening any rise in market value. The gross examples of high-income receivers paying no tax of any sort might equal the old abuses that prevailed when capital losses were offset fully against income.

### Conclusions

The prevailing differential treatment of interest and dividends is often considered a reason for making a change. Such differential treatment would appear to be inequitable. But it can be assumed that the money markets have already allowed for the differences in the prices paid for stocks and bonds. In so far as holders of available funds actually do believe that bonds are preferable to stocks because of the double taxation factor, bond prices are higher and stock prices are lower than they would otherwise be. A person buying stocks gets them for a lower price to compensate him for any disadvantage he suffers from the double taxation factor. The buyer of bonds pays a higher price to offset the privileges he allegedly obtains. This is not to say that such price differentials actually exist but merely to indicate that if security buyers do really feel that the double taxation factor is of any importance the prevailing market prices will have been adjusted to take account of their preferences. The differential tax treatment is after all of long standing and it is reasonable to assume that the appropriate market adjustments have been made. Thus any inequity which exists cannot be at the present security holders' level. At the level of the issuing corporation it is not a question of equity but of cold business practice. It is true that the deductibility of interest payments presents a strong argument for bond financing and that bond financing has cyclical disadvantages.

## The Capital Gains Tax

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These are a few points in our tax system with respect to which emotion seems to dominate reason and extreme statements are preferred to considered judgments. The capital gains tax is one of these. To many it seems to strike at the very roots of a free enterprise system. An example of this view is given in the following newspaper account of a statement made some years ago by a generally sound and respected statesman and banker:<sup>1</sup>

Repeal or drastic reduction of the capital gains tax was urged today by General Charles G. Dawes, chairman of the City National Bank of Chicago, as the first step in unshackling private business and in building up national income to sustain vast expenditures for national defense.

The national income cannot be increased from its present \$70,000,000,000 a year to a desired \$100,000,000,000, the former Vice President of the United States declared, so long as this tax devastates business, throttles recovery and retards employment.

Since then we have had the Revenue Act of 1942 which made some important revisions and improved the treatment of corporations as compared with individuals.<sup>2</sup>

There is some possibility of giving the capital gains tax a prominent place in the tax system. Serious consideration has been given a proposal made by Henry Simons in 1937 for the use of a thoroughgoing capital gains tax as a substitute for the taxation of corporate income.<sup>3</sup>

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<sup>1</sup> *New York Times*, November 15, 1940, p. 45.

<sup>2</sup> For a handy comparison see the section on "Corporate Capital Gains and Losses" in Arthur H. Kent, "The Legal Machinery of the Present Corporate Income Tax System," *Proceedings of the National Tax Association*, 1947, pp. 73-74.

<sup>3</sup> See the evaluation of this proposal in Richard B. Goode, *The Postwar Corporation Tax Structure*, pp. 23-27 (Washington: Treasury Department, Division of Tax Research, 1946); and Harold M. Groves, *Postwar Taxation and Economic Progress*, pp. 59-62 (New York: McGraw-Hill Book Co., 1946).

We may review briefly some of the characteristics of taxation of capital gains and losses in the United States. Broadly speaking for both individuals and corporations, the dividing line for short-term and long-term capital gains and losses is six months. The short-term gains are taxable as ordinary income while only 50 per cent of long-term gains are included as taxable income and these are taxable at a maximum rate of 50 per cent; hence for practical purposes there is a maximum tax rate of 25 per cent on long-term capital gains. Corporations can offset capital losses against gains but cannot offset losses against income (except for certain specified losses in a special category). Unused capital losses may be carried-over for the five succeeding taxable years and written off fully against allowable gains or income up to \$1000 per year.

This chapter attempts to evaluate the capital gains tax in economic terms. Two questions are asked: (1) Does the tax accentuate fluctuations in asset prices and promote economic instability? (2) Does the tax discourage venture capital and retard economic growth? The verdict on the first question is substantially unfavorable and on the second moderately unfavorable to the tax. The effects indicated by the analysis are serious but not by any means "devastating."

### Effects on Economic Stability

Assume that, in the absence of a capital gains tax, there will be a certain demand and supply of a given security or piece of property. These are  $DD$  and  $SS$  of Fig. 12. An amount  $OM$  of the asset will be sold at a price  $OP$ . What effect will a capital gains tax have on this result? If all sellers were selling at a profit subject to the capital gains tax, the supply curve would shift to the position  $S'S'$ . The vertical distance between  $S'S'$  and  $SS$  at any point represents the amount of capital gains tax that would have to be paid if the security or property is sold at the price indicated on  $S'S'$ .

Not all sellers are selling at a profit, however. Some may be selling at a loss and some may be selling at their original purchase price. In case of a loss there may be a tax saving involved to the extent that the loss is deductible. For those whose sales are at original purchase price and thus are not subject to the capital gains tax (and do not receive any tax credit) the supply curve will not shift at all from the position  $SS$ . Since the sellers are made up of all sorts, any shift of the  $SS$  curve will in practice depend on the volume of prospective sales involving tax liability, tax savings, and no tax effect. This depends, of course, on the previous history of each capital asset sold. The distance between  $S'S'$

and *SS* represents not the capital gains tax to be paid by the profit takers but a weighted average of the tax paid by all sellers, including those who pay no tax at all and those who pay a negative tax through tax savings in case of a loss.

The effect of the tax on the demand curve is more difficult to analyze. The prospect of having to pay a tax on a gain will probably dampen the demand somewhat. The prospective tax taken into account in this case will depend on the prospective capital gain. But there is no single prospective capital gain—rather a broad optimism among buyers that prices will rise. Nor is the prospect of a capital gain the sole factor in demand—the prospect of dividend, interest, or rental income is sometimes more

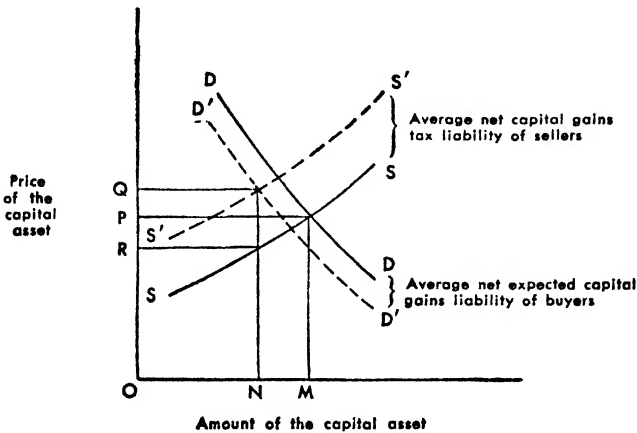


FIG. 12. Shifting of capital gains when profit-taking predominates.

important. Thus the imposition of a capital gains tax will reduce the demand to a limited extent. This is shown by *D'D'* in Fig. 12. The distance between the *DD* and *D'D'* curves is some sort of weighted average (weighted by both amounts and probabilities) and will, of course, depend on the intentions of the buyers.

As a result of the decline in both demand and supply, the amount of securities or property sold must decline—from *OM* to *ON* in Fig. 12. As to whether the price rises or falls, however, will depend on the relative shifts of the two curves. The tax liability of sellers is something real, definite, and calculable by the sellers at each possible price at any time. The expected future tax liability of the buyers is, however, something very vague and indefinite and, in any case, is associated only with a very favorable contingency; namely, profit-taking. It is likely, therefore, that

## TAXATION

the shift in the supply curve is greater than the shift in the demand curve. In that case the price would rise as a result of the tax, from  $OP$  to  $OQ$  in Fig. 12. To this extent the capital gains tax is shifted from sellers to buyers. The rest of the tax is absorbed by the sellers. This is the amount  $RP$  in Fig. 12. The full amount of the tax paid, on the average, is  $RQ$ .

### SIGNIFICANCE OF CAPITAL LOSSES

The fact that capital losses may be offset against gains and income, to a certain limited extent, will have the opposite effect on the supply curve to that depicted in Fig. 12. As pointed out above, the fact that a capital asset is sold at a loss may mean tax savings. This would tend to move the  $SS$  curve to the right and would offset to some extent the shift to the left caused by the profit-takers. In a period of rising asset prices it may be assumed that profit-takers predominate and in a period of falling asset prices that loss-takers predominate. There is no certainty about this, however, since the previous history of prices and individual holdings would be necessary before any conclusion could be reached on this point. The situation depicted in Fig. 12 may be assumed to apply to a period when profit-takers predominate.

The tax-saving effect on the demand curve is probably slight if it exists at all. Since people seldom, if ever, buy with the expectation of a loss, the prospect of tax saving must be very small and its influence on the demand curve may be considered negligible. The situation is depicted in Fig. 13. The supply curve moves to the right as a result of the tax saving involved in loss taking. In other words, the seller is willing to sell a given amount of his capital asset at a lower price than he would otherwise, since he is selling at a loss and he will be able to deduct that loss in computing his tax (to a limited extent). If there is no offset and no prospect of it during a carry-over period this effect will not be felt. Since there are many sellers, some of them taking profits, the resultant shift in  $SS$  is some sort of weighted average. The vertical distance between  $SS$  and  $S'S'$  at any price on  $S'S'$  indicates the average net amount of tax saving resulting from the loss-taking.

The shift of the demand curve  $DD$  to the left on Fig. 13 is assumed to be the same as in Fig. 12. The fact that, generally, losses are being taken does not necessarily increase the expectation of loss and, in fact, may have the opposite effect. In any case, the net expectation is probably still one of profit.

The price is certain to fall as a result of the shift of  $SS$  to the right

and  $DD$  to the left. In Fig. 13 the price has dropped from  $OP$  to  $OQ$ . The extent of the fall in price and the exact amount of capital assets sold at the new price is, however, dependent on the relative magnitudes of the two shifts. In Fig. 13 it is assumed that the  $SS$  curve shifts to the right more than the  $DD$  curve shifts to the left. The amount of the capital asset sold therefore increases from  $OM$  to  $ON$ . Far from there being any tax shifting through a price rise as a result of the imposition of a capital gains tax there is a price fall in a period when loss-taking predominates. The seller receives some compensation by means of the tax credit he gets on account of the loss. This hardly offsets the un-

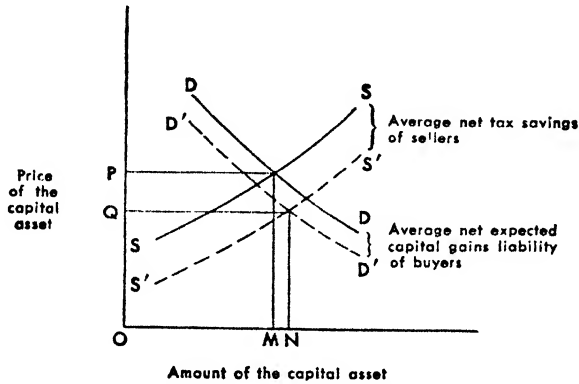


FIG. 13. Shifting of capital gains when loss-taking predominates.

favorable effect which the aggravated price decline must have on general business expectations.

### PROFIT- AND LOSS-TAKING AS VARIABLES

There is a further refinement that should be made in the above analysis. Situations of predominant profit-taking and predominant loss-taking have been considered above. This was assumed to affect the *position* of the supply curve. At a high enough price, profit-taking may be assumed to predominate and at a low enough price loss-taking may be assumed to predominate. This would affect the *shape* of the supply curve. The situation is depicted in Fig. 14. The imposition of a capital gains tax will result in a shift from  $SS$  to the type of curve shown by  $S'S'$ . At the higher prices the  $S'S'$  curve is higher than the  $SS$  curve, indicating that sellers will want a still higher price to take care of the capital gains tax. At the lower prices the  $S'S'$  curve is lower than the  $SS$



**TAXATION**

curve, indicating that sellers will be willing to accept a still lower price because of the tax savings they will have on account of their losses. At the point *B*, profit-takers exactly counterbalance loss-takers. If prices have been rising for some time, there will be many profit-takers and the point *B* will be reached sooner—that is, it will move to the left. If prices have been falling for some time, there will be many loss-takers and the point *B* will move farther to the right. Whether the final effect will be a price rise or fall will depend on the location of the point *B* and the extent

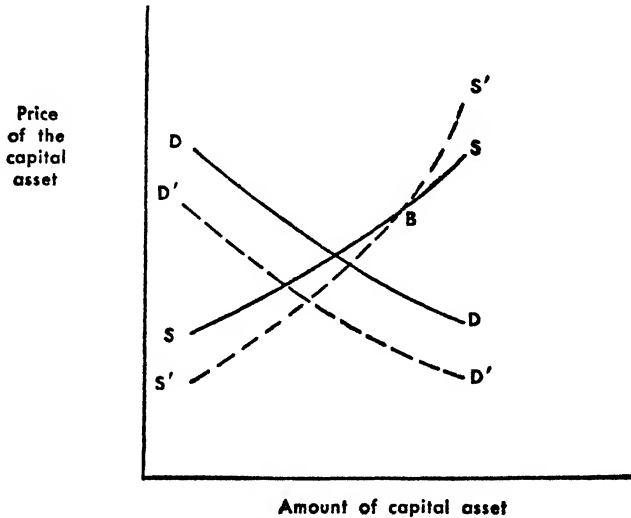


FIG. 14. A case where profit-taking predominates at high prices and loss-taking predominates at low prices.

of the divergence between *SS* and *S'S'* on both sides of the point *B*, in relation to the extent of the shift from *DD* to *D'D'*.

**DISTINCTION BETWEEN SHORT-TERM AND LONG-TERM CAPITAL GAINS**

The present distinction in the American tax structure between long-term and short-term capital gains does not affect the above results qualitatively; it does, however, affect them quantitatively in specific cases. Since short-term gains are taxable as ordinary income while long-term gains have a tax ceiling of 25 per cent (in effect), the over-all impact on the supply curve will depend partly on the number of short-term and long-term profit-takers as well as loss-takers. On the demand side, this distinction adds an additional element of vagueness since the buyer can

hardly know whether he will be a short-term or long-term profit-taker—if he is a profit-taker at all.

Colm and Lehmann have argued that the preferential treatment accorded long-term gains in 1936 and 1937 had two effects which acted in opposite directions: (1) It encouraged sales which would not have been made at the higher short-term tax rates and (2) it encouraged a delay in sales.<sup>4</sup> Any encouragement of sales resulting from the preferential treatment is possible, however, only in so far as the full tax itself discourages the sale; hence the net effect of this aspect of the tax cannot be wider fluctuations than would occur in the absence of the tax as a whole. If short-term holdings predominate, the shift from *SS* to *S'S'* in Fig. 12 is greater than if long-term holdings predominate. Some shift takes place nevertheless and the analysis of Figure 12 applies. Whenever profit-taking predominates, sales will be less at high tax rates than at low rates. The high short-term rates may, therefore, prevent some sales which would occur if the low long-term rates prevailed. This does not mean that there will be a "delay" in the sense of a postponement merely until the short-term holdings mature into long-term holdings. Some short-term holdings will not be put on the market currently because of the high short-term rates but there is no telling when these holdings will be put on the market. At the time they become long-term holdings market conditions may be unfavorable to a sale even at the low long-term rates. In view of the general uncertainty concerning future market conditions, it is not likely that the mere fact of a low rate on long-term holdings in the future will affect the *current* demand and supply of assets in any significant way.

At any particular time, the existence of long-term holdings makes the shift from *SS* to *S'S'* in all cases less than it would be if all sales were taxable at the prevailing short-term rates. This means that the preferential treatment accorded long-term gains *reduces* the tendency of the capital gains tax to accentuate price increases when profit-making predominates. Similarly, it *reduces* the tendency of the capital gains tax to accentuate price declines when loss-making predominates. Thus the preferential provisions have a *stabilizing* effect which to some extent offset the *destabilizing* effect of the capital gains tax as a whole.

<sup>4</sup> Cf. Gerhard Colm and Fritz Lehmann, "Economic Consequences of Recent American Tax Policy," *Social Research*, 1938, Supplement I, pp. 67-68. The type of preferential treatment has changed since then but the principle remains unchanged. At that time there was an "aging" provision whereby a capital gain was considered taxable according to various percentages ranging from 100 per cent down to 30 per cent, depending on the length of time the asset was held.

## NET EFFECTS ON FLUCTUATIONS IN PRICE

The general conclusion to be derived from the tax shifting analysis in this discussion is that the capital gains tax aggravates price rises and price falls.<sup>5</sup> When prices are rising and profit-taking predominates, the tax tends to encourage even higher prices than would otherwise exist. When prices are falling and loss-taking predominates, the tax tends to encourage even lower prices than would otherwise exist.

This leads to an important aspect of the effect of the tax. The fact that capital losses are allowed as offsets to capital gains or income (in certain cases) may appear to be a factor contributing to economic stability. Loss offsets are generally so regarded. As a matter of fact, it is not so at all in this case. Rather, the loss offset provisions of the capital gains tax tend to accentuate downswings. The tax on capital gains itself tends to accentuate upswings. The tax therefore seems to promote economic instability.

## Effects on Economic Growth

It has been claimed that the capital gains tax as it existed in 1936 and 1937 discouraged the making of risky investments.<sup>6</sup> It closed off some outlets for venture capital by reducing the net gain (i.e. gain after payment of the capital gains tax). As a cold matter of fact the tax does of course reduce the net gain but the maximum reduction in the case of long-term gains is now effectively 25 per cent. Moreover the present possibility of tax saving through loss offsets against other gains fully or income (up to \$1000 per year) over a five year period may neutralize to a large extent any discouraging effect of the tax on risky investments. In view of the fact that overinvestment has often been the cause of business crises in the United States,<sup>7</sup> any dampening effect of the capital gains tax on risky investments at the peak of an upswing when profit-taking predominates cannot be condemned *a priori*.

It has also been asserted that new issues were especially hampered by the tax.<sup>8</sup> This is probably true in so far as the new issues are sub-

<sup>5</sup> Professor Groves, however, reaches the conclusion that the tax may not greatly affect asset prices at all. See the discussion in *Capital Gains Taxation*, pp. 19, 60 (New York: Tax Institute, 1946).

<sup>6</sup> Colm and Lehmann, *op. cit.*, pp. 52-53. At that time losses were deductible against gains and \$2000 of net income but there was no carry-over.

<sup>7</sup> See Harold M. Somers, "Performance of the American Economy," Chapters 16 and 32 in *Growth of the American Economy* (H. F. Williamson, ed.), (New York: Prentice-Hall, 1944).

<sup>8</sup> Colm and Lehmann, *loc. cit.*

scribed for out of old capital, thus necessitating the sale of securities or other assets. Since new issues subscribed for out of old capital do not increase the availability of capital for enterprise they are not of great concern. In periods of predominant loss-taking the amount of capital invested in the purchase of assets may even be increased by the tax (Fig. 13).

Another point that has been made is that the tax discouraged short-term speculation since long-term gains were effectively taxed at lower rates than short-term gains.<sup>9</sup> Recent confirmation of this view exists. Under the tax law of 1948 the distinction between short-term and long-term capital gains was reduced indirectly through a material reduction in the tax rates on incomes of married couples. The reductions applied to short-term capital gains as to all other income. It was felt that increased activity in the stock market resulted directly from these changes.<sup>10</sup> Even if the tendency to discourage short-term compared with long-term investments does exist (and our earlier analysis suggests that this may not be very important quantitatively), the social consequences may not be at all undesirable. There may be much to be said for encouraging stability in investments by giving preferential treatment to long-term holdings. Moreover, the banking system is especially able to take care of short-term financing. A firm which is able to sell stock on the open market is usually able to arrange a short-term loan. It is the availability of capital for long-term investments that is of major importance.

What is the significance of these effects for economic growth? If cyclical instability had no effect on long-term trends the impact on economic growth would be small. Even under an unsympathetic interpretation of the above results it would seem that the capital gains tax discourages only slightly the purchase of capital assets and does not greatly discriminate against the riskier investments of a long-term nature. Cyclical instability and, especially, prolonged depressions may be very costly, however, for the growth of the economy. To the extent that the tax tends to promote instability it may retard the long-term growth of capital and thereby hamper progress.

### Conclusions

The above analysis points to the capital gains tax as an element of instability. The analysis of tax shifting indicates that the tax accentuates price rises and price falls. At a time when prices are rising the tax pro-

<sup>9</sup> *Ibid.*

<sup>10</sup> J. K. Lasser, "New Tax Law and Speculation," *Commercial and Financial Chronicle*, June 17, 1948, p. 8.

motes higher prices than would otherwise prevail. At a time when prices are falling the tax promotes lower prices than would otherwise prevail. The preferential treatment accorded long-term sales reduces the severity of these effects to some extent. The net effect, however, is that the tax accentuates upswings and downswings in security and other asset prices. The tax might also have some dampening effect on venture capital but this cannot be evaluated adequately except in the context of the general subject of business fluctuations. It is doubtful, moreover, whether there is any dampening effect at all. The destabilizing effect of the tax through its accentuation of price fluctuations is, however, of considerable importance; and in so far as cyclical fluctuations retard the long-term trend of capital formation, the capital gains tax may be said to have a detrimental effect on economic growth.

The generally unfavorable conclusion does not necessarily mean that the capital gains tax should be repealed.<sup>11</sup> Under our present tax system, whereby so many individuals and so many activities are subject to taxation, considerations of equity may dictate that the process of making a living through capital gains be not allowed to go tax-free. Moreover, if orthodox methods of finance are employed, alternative sources of revenue have to be discovered and evaluated before a decision can be taken on the repeal of this or any other tax.

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<sup>11</sup> For a brief, well-reasoned discussion which concludes with the suggestion that no change be made in the capital gains tax "at least for the next five years," see Fred R. Fairchild and others, *A Tax Program for a Solvent America*, pp. 99-100 (New York: Ronald Press, 1945). This study was prepared by the Committee on Postwar Tax Policy (Harley L. Lutz, Director of Research).

## Taxation of Business Income

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The doctrine that “an income tax cannot be shifted” is held firmly in many quarters. Occasionally a word of protest is raised, but without any serious impairment of the doctrine itself. We have seen that taxes on income from wages and salaries, interest and dividends can be shifted under certain, reasonably realistic conditions. The doctrine of the non-shiftability of an income tax cannot, therefore, apply to such income. What of the taxation of business income?

In the analysis of the taxation of business income it is particularly important to distinguish between the short run (fixed capacity) and the long run (variable capacity), even though much of contemporary tax doctrine would say that no shifting takes place in either case.

### BUSINESS INCOME TAXES IN THE UNITED STATES

Under federal law, business income earned by sole proprietorships or partnerships is subjected to the tax on individual incomes. A separate tax structure prevails with respect to corporations. Ordinary business corporations were subject to normal and surtax rates in 1948. The taxes were set up in two parts, one applying to corporations with normal tax net incomes of \$50,000 or less and the other applying to corporations with normal tax net incomes of more than \$50,000. If we disregard the distinction between normal tax net income and surtax net income and combine the normal and surtax rates, we find that corporations were subject to a tax of 21 per cent on the first \$5,000, 23 per cent on amounts between \$5,000 and \$20,000, 25 per cent on amounts between \$20,000 and \$25,000, and 53 per cent on amounts between \$25,000 and \$50,000. The tax was 38 per cent on the entire normal and surtax net income for any corporation with net income in excess of \$50,000. The peculiar rate on income between \$25,000 and \$50,000 was necessary in order to ease

## TAXATION

the bracket system into the over-all rate for income in excess of \$50,000. Otherwise it would actually be true that in going from an income slightly below \$50,000 to an income above \$50,000, the corporation would be subject to a confiscatory tax on the additional income.

In addition to the federal taxes there are a number of state and local taxes on business income. In some cases a partnership is taxed as an entity quite apart from the taxes on the individual partners. The present chapter deals with the "ordinary" taxes on business income mentioned above. The taxation of excess profits and undistributed profits will be treated separately.

### General Considerations

If one may judge from the opinions expressed by the majority of the businessmen appearing before the British Colwyn Committee, businessmen as a whole are of the view that income taxes on business can be shifted. The Association of British Chambers of Commerce, for instance, stated that the trader "often takes into account, at least indirectly, the amount of income tax he will have to pay and, if the market conditions permit, fixes his prices at such a level as would yield him the minimum net income he desires to obtain or actually needs." Leaving aside for later discussion the complications introduced by the corporate form of business, however, most economic opinion is to the effect that "market conditions" usually do not permit the addition of the tax to the price in the short run.<sup>1</sup> Any shifting that takes place does not come about by a straightforward shifting from seller to buyer but, if it comes about at all, does so through a complex, indirect, and roundabout process.

Before passing to a detailed economic analysis of the problem, it is necessary to discuss several general considerations and also some general arguments which are often used—and incidentally found favor with the majority members of the Colwyn Committee—to prove that shifting of the tax does not take place, i.e. that the tax is absorbed by businessmen.

### ASSUMPTION OF PROFIT MAXIMIZATION

It is assumed in this discussion that (1) price and output were set at the point of maximum profit before the tax was imposed and (2) that the price and output will be changed, if necessary, to achieve the maximum

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<sup>1</sup> See Robert S. Ford, "Some Economic Aspects of the Present Corporate Income Tax," *Proceedings of the National Tax Association*, 1947, pp. 55-59. Professor Ford's references to recent articles on this subject may be referred to with profit.

profit after the tax is imposed.<sup>2</sup> In so far as these assumptions are inconsistent with actual business practice, the following analysis is unrealistic. However, it may still be useful in suggesting how to approach the problem of tax shifting under other, perhaps more realistic, assumptions. For instance, it may reasonably be assumed that inertia, if nothing else, will prevent a change in price for only a small prospective change in profit. The analysis can then be modified to ignore any change in profit less than, say, 10 per cent of the existing amount. Professor Shoup has suggested that firms might have kept their prices down for competitive reasons, but that a substantial increase in the income tax might prompt concerted action to raise prices and profits.<sup>3</sup>

#### SIGNIFICANCE OF "GOODWILL"

The possibility of losing "goodwill" is frequently advanced as an argument to prove that price will be unchanged and the tax absorbed. This would mean that a change in price would result, not in the sales originally assumed, but in some other sales, because of the change in goodwill attributable to the price change. If the change in goodwill is actually attributable to the price change, and if it is capable of being estimated even roughly, then a price-sales schedule (i.e. a demand schedule) can be set up accordingly.

#### PSYCHOLOGICAL EFFECTS OF THE TAX

Changes in the price-sales relationship may take place because of the imposition of the tax itself. People may be more willing to pay a higher price, knowing that the business firms have to pay higher taxes on their income or other base. This means that a new set of price-sales data must be obtained after the tax is imposed. The new data must be used to determine the new price and output. Even though technically the demand conditions have changed, it may still be legitimate to consider any price rise as a case of tax shifting since the change in the demand conditions is attributable to the tax.

#### SIGNIFICANCE OF THE QUANTITY OF MONEY

An argument against shifting which found favor with the Colwyn Committee runs somewhat as follows. The general price level, given a

<sup>2</sup> For a convenient mathematical proof that an income tax is not shifted under these assumptions see Paul A. Samuelson, *Foundations of Economic Analysis*, p. 40 (Cambridge: Harvard University Press, 1917).

<sup>3</sup> See Carl Shoup, "Incidence of the Corporation Income Tax: Capital Structure and Turnover Rates," *National Tax Journal*, Vol. 1, March, 1948, pp. 12-17.



certain volume of production, depends on the quantity of purchasing power—money and deposits—and the velocity with which it circulates. An increase in the income tax could only enable traders in general to put up their prices, if at the same time it caused an expansion of currency or a more rapid circulation of money, making it possible for the higher prices to be paid.

This may be criticized along traditional lines. In terms of the equation of exchange,  $MV = PT$ , where  $M$  is the amount of money and money substitutes,  $V$  the velocity of circulation of the items included in  $M$ ,  $P$  the price level, and  $T$  the volume of trade. An increase in  $P$  is possible through a reduction in  $T$  and without any change in  $M$  or  $V$  or  $MV$ .

Since a rise in price is almost certain to be associated with a decline in output where general demand and supply conditions do not change, the quantity theory of money imposes no barrier to the possibility of tax shifting.

If the decline in  $T$  is nil or insufficient to offset the rise in  $P$ , then it is true that  $M$  or  $V$  or both must rise so that  $MV$  rises. Under the presently prevailing banking and monetary system it is likely that the amount of money and money substitutes will actually respond to a rise in  $PT$ . Hence, the possibility of a rise in  $P$  cannot be neglected. It is not ruled out of account on over-all grounds such as those represented by the equation of exchange.

#### APPLICATION OF GENERAL SUPPLY AND DEMAND THEORY

Instead of relying on the quantity theory of money as crudely stated, we may merely speak of the price level as being determined by total commodity demands and total commodity supplies. Seligman apparently had this in mind when he approved of the Ricardian statement: "Each man's expenses must be diminished to the amount of his tax; and if the seller would wish to relieve himself from the burden of the tax by raising the price of his commodity, the buyer for the same reason would wish to buy cheaper. These contending interests would so exactly counteract each other, that prices would undergo no alteration."<sup>4</sup> As Robertson pointed out, however, this argument rests on the assumption that all working class consumers are income taxpayers, and that money collected by the state is not spent.<sup>5</sup> Even if all are taxpayers it may generally be

<sup>4</sup> E. R. A. Seligman, "Income Taxes and the Price Level," Appendix to the Colwyn Report, p. 123n.

<sup>5</sup> D. H. Robertson, "The Colwyn Committee, the Income Tax and the Price Level," *Economic Journal*, Vol. 37, December, 1927, p. 576..

assumed that the income tax rates applicable to owners of business firms are higher than those of the general population, i.e. the final consumers.

#### SIGNIFICANCE OF DIFFERENTIAL RATES

One of the arguments accepted by the Colwyn Committee as indicating that the tax cannot be shifted is that the amount of the shift cannot be determined because of the various tax rates which exist. As Robertson has caricatured it, "because it [the tax] would not know, so to speak, to what extent to affect them."<sup>6</sup> Needless to say, the fact that we do not know exactly how great the shifting may be is no disproof of the possibility that some shifting will take place. Robertson has made this point very clearly and has argued that, besides, Pigou had measured the effect of differential taxes upon various sources of supply. In defense of the Colwyn Committee it has been said that the argument of the businessmen tended to hinge upon the rate of the income tax in relation to the effect upon price, and that the Committee, therefore, naturally asked, "What rate?" This is not, however, a sufficient basis for believing that the tax cannot be shifted.

#### SIGNIFICANCE OF INTERNATIONAL PRICE LEVEL

Another of the superficial and mechanical arguments, similar to the one based on the quantity theory, and also accepted by the Colwyn Committee, is based on the existence of a general international price level. There is a common price level throughout the world for goods which enter into international trade and it is argued that this price level could not be affected by the fact that the British income tax is higher than income taxes in other parts of the world. In criticism of this Robertson points out that: the British supply is a large part of the world supply; that the argument would be just as valid for local rates; and that businessmen contended that British trade was restricted because the tax made it difficult to compete at world prices.

#### SIGNIFICANCE OF CORPORATE ORGANIZATION

Where the firm in question is incorporated, according to the Colwyn Committee, there is an added reason why it is not likely that the tax will be shifted. The Colwyn Committee claims that this type of business enterprise is not concerned with the tax because: it recoups itself by deducting the tax from its shareholders; the directors are not personally affected to any great extent and are unwilling to experiment with higher

<sup>6</sup> *Ibid.*

prices because of the size of the undertaking; and the differential rates of the income tax affect different shareholders to various extents. This argument, if valid, would be very important because management is separated from ownership in substantial degree.

This type of argument is not very convincing because it implies a disregard for profits on the part of management. It must be assumed that if the tax made a change in profits, management would at least consider offsetting the change. It is curious that the conclusion of the nonshiftability of the tax is reached here by assuming (implicitly) that the principle of profit maximization does not hold whereas in later sections of this chapter the same conclusion is reached (under conditions of fixed plant and equipment) on the assumption of profit maximization.

### Shifting under Fixed Capacity

The economic argument that a tax on business income cannot be shifted can be stated simply: the price and output which yield the maximum profit before the tax will yield the maximum profit after the tax. Suppose that the best profit is \$1000 and this profit is obtained at a price of, say, \$5 and output of 500 units (i.e. any other price and output will yield a smaller profit than \$1000). The imposition of a 20 per cent tax on all income will leave 80 per cent of \$1000, or \$800. This is greater than 80 per cent of any of the other possible profit figures, all of which are less than \$1000.

This is true also in the case of a monopolist. Even if the monopoly is absolute, the monopolist is assumed to be charging the highest desirable price before the tax is imposed. And since the income tax does not affect the cost of production or the demand price (not directly, at any rate), there is no theoretical reason why the supply price should be raised. As Pigou has said, the tax "is assessed on the profits resulting from trade and industry and if, as may be presumed, people are already charging the prices that yield them the best profits, the removal by the State of a portion of the profit will not tempt them to fix prices differently." In actual practice, it is true, the price being charged may not be the highest possible, and the monopolist may be stimulated by the tax to raise prices; but it cannot be claimed that the tax itself made the increased price possible. It appears, therefore, that the monopolist "cannot with impunity shift an income tax: normally the price he charges will not in any way be directly affected by the imposition or increase of such a tax."

Revolting as it may seem to the orthodox analyst, there is a possibility that though the income tax is a tax on profit and not a tax on

unit of output or sales, it might be shown in the demand curve. When the businessman considers the fact that part of the receipts derived from an additional 1000 units, say, of the product, will be paid out in the form of taxes, then he actually has in mind, not the sort of demand curve which economists impute to him, i.e. one which is independent of the tax, but actually he has before him a demand curve which is *net* of the tax—even though this curve may not be so continuous as the one usually imagined. We may object to this on the grounds that the demand curve alone cannot determine net profit; hence it cannot reflect the tax. But where we speak of “the demand curve as seen by the seller,” we must be prepared to accept anything the seller sees. The imposition of the tax might shift the demand curve he sees, and result in changes in price and output. In this way the irrational view which the seller has of the demand curve may be rationalized in terms of economic theory.

NUMERICAL EXAMPLE

The following numerical example will illustrate this point further. It is assumed the first \$2000 is exempt, the next \$2000 is taxable at 10 per cent, the next \$2000 at 20 per cent, the next \$2000 at 30 per cent, and all amounts over \$8000 at 40 per cent. Any other percentage tax set up on a bracket system will yield the same conclusion as long as no bracket is taxed more than 100 per cent.

In Table 16, various prices per unit are given in column (1). At these prices the outputs listed in column (2) are sold. The total receipts from the sales of these amounts at the prices indicated are given in column (4). The cost of producing and selling a unit of the product at the various levels of output is given in column (3). In this example the cost is assumed

Table 16  
SHIFTING OF BUSINESS INCOME TAX WITH FIXED CAPACITY

Price Per Unit	Number of Units Sold	Cost Per Unit	Total Receipts	Total Cost	Total Profit	Total Tax	Total Profit After Tax
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
\$10	900	\$5	\$ 9,000	\$ 4,500	\$4,500	\$300	\$4,200
9	1200	5	10,800	6,000	4,800	360	4,440
8	1400	5	11,200	7,000	4,200	240	3,960
7	1600	5	11,200	8,000	3,200	120	3,080
6	1800	5	10,800	9,000	1,800	..	1,800
5	2000	5	10,000	10,000	..	..	..

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to be uniform throughout. The total cost, items in column (2), multiplied by items in column (3), is given in column (5). The total profit, given in column (6), is obtained by subtracting each item in column (5) from each item in column (4). The figures in column (7) are obtained by applying the tax structure given above to the profit data in column (6). The total profit after tax, column (8), is obtained by subtracting the items in column (7) from those in column (6).

### ABSENCE OF FORWARD OR BACKWARD SHIFTING

It will be seen that the point of maximum profit before the tax is imposed is at a price of \$9 and sales of 1200 units. The same holds true after the tax is imposed. The profit after tax at this price and output is greater than any other. There is no tendency to shift the tax forward by changing the price. Since the output is unchanged there is no reason to believe that there will be any backward shifting.

### ANALYSIS IN TERMS OF THE "MARGINAL" OR THE "REPRESENTATIVE" FIRM

The short-run analysis of business-income tax shifting is sometimes done in terms of the "marginal" firm. Since the marginal firm has no net income, an income tax does not affect it. And since the marginal firm sets the price, price is not affected. The "representative" firm rather than the "marginal" firm is sometimes given the strategic price-determining role. But, as the above analysis shows, even profit-taking firms, including the representative firm, are not induced to raise the price as a result of an income tax.

Nevertheless the marginal approach provides one of the most widely accepted arguments against the possibility of the income tax being shifted—accepted mainly by those who have uncritically accepted classical value theory. The Colwyn Report expresses the basic thesis: "In a free competitive market with ample supplies in relation to demand, price at any time is measured by the cost of production to the marginal producer. That price yields no profit and is not liable to income tax: no element of tax can enter into it." There are two main defects in this as an argument against the possibility of passing on the tax.

The first defect lies in the definition of "marginal producer." As Robertson points out, "I do not think any warrant can be found in Marshall's pages either for the view that the costs of production which are relevant to the determination of normal value are those of the most inefficient or unfortunate producers, or for the view that they do not

comprise a substantial element of profit."<sup>7</sup> Under monopolistic conditions the marginal theory loses even more of its effectiveness as an argument against the likelihood of the shifting of the tax. This is the second defect of the marginal analysis. To the extent that we have differentiated products and, in the extreme case, to the extent that we have virtual monopolies, the gradation super-, sub-, and marginal producers becomes inappropriate. Each producer is to some degree or other independent of every other in that his price cannot be said to be determined solely by some producer who happens to be breaking even. Thus as a result every other producer (including the one who is just breaking even) is producing a product which, at best, is only an imperfect substitute for his.

#### RISK AS A FACTOR INDUCING SHIFTING

There is one set of realistic factors, not considered above, which might require a modification of the conclusion that the business income tax is not shifted in the short run. Increased output even with fixed productive capacity necessarily involves additional risk-taking. Working capital which might otherwise be in the form of cash gradually takes the form of various inventories—raw materials, semi-finished, and finished goods—as expenditures are made on account of purchases and payrolls. At the same time the demand figures are not certainties. Even if goods are produced only to order there are numerous risks involved, such as those of cancellation and non-payment. When goods are not produced to order but for the market, then the demand figures must be considered as some sort of average of estimates—with some possibility of over- as well as under-estimate. The income tax reduces the net return and it is no longer worth while to produce for the more risky orders or sections of the market. Thus some reduction in output and increase in price is likely. This means that there may be some short-run forward shifting of the income tax. Since a change in price would involve a change in sales and output there is also a possibility of some backward shifting through a reduction in the price of goods purchased.

#### TAXATION OF "ACCOUNTING PROFIT" INSTEAD OF "ECONOMIC PROFIT"

It is taken for granted that the business income tax cannot be shifted in the short run because the point of maximum profit before the tax is the same as the point of maximum profit after the tax provided that the tax is less than 100 per cent in total or in any bracket. This conclusion

<sup>7</sup> Robertson, *op. cit.*, pp. 568-69.

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applies only if the tax impinges on true economic profit, namely the profit which is the reward of the factor, business enterprise. However, the taxes are actually imposed on the accounting profit. This may be radically different from the economic concept of profit; it may include implicit shares of other factors such as wages, interest, and rent. To the extent that the businessman pays the income tax on these shares he may be induced to curtail his activities along the lines of the analysis of the taxes on wages and salaries, and on interest and rents, discussed in other chapters. In other words, entrepreneurship is a factor of production and must be paid.<sup>8</sup> The businessman may decide that it does not pay him to work so hard if the government is going to take away a substantial portion of his income in the form of taxes. Thus he will curtail his production. Under such conditions it cannot be said that prevailing taxes on business income cannot be shifted in the short run. A tax which might theoretically be imposed on pure business profits would not be shifted in the short run, but the taxes which are actually imposed on business income do impinge on elements other than pure business profit and therefore can be shifted.

An examination of the arbitrary decisions involved in the determination of the accounting profit reinforces the above conclusions. The accounting methods of evaluating assets is highly questionable from an economic point of view, however necessary and desirable they may be for conservative accounting practice and as a device for preventing extravagant business decisions. The book value of fixed assets net of depreciation allowances does not begin to portray the true economic value of those assets as they change from year to year in response to changing business conditions, earning power, etc. The same may be said of most accounting methods of evaluating inventory. As a result of these accounting devices the accounting profit may be different from the true economic profit. In many instances the accounting profit may actually include elements of other shares of distribution. In so far as taxes on such shares do result in some short-run shifting, it may be said that prevailing income taxes on business profits—as determined by accountants—may be subject to short-run shifting.

### CONFISCATORY BRACKET RATES

Some forward tax shifting might occur under a peculiar tax structure where a bracket rate exceeds 100 per cent. From time to time high-

<sup>8</sup> See Harold M. Groves, "Revision of the Corporation Income Tax," *Proceedings of the National Tax Association*, 1947, pp. 99-100.

income celebrities are quoted as saying that they cannot afford to accept an additional engagement the current year because that would put them "in a higher tax bracket" and leave them with less money than before. This would hold true only if the tax rate for the bracket exceeded 100 per cent. This is not and probably never will be true in law, but there may be some peculiarities of administration which would have the same effect. Raising the income above a certain level might subject it to a more rigid type of audit which would have the effect of raising the tax liability on the earlier brackets of the taxpayer's income. This, if large enough, would be the same as taxing the latest bracket more than 100 per cent. Another possibility occurs in the higher brackets in cases where multiple taxation exists.

Although these possibilities are not very likely, it is interesting to see what sort of tax shifting they lead to. The following table recomputes columns (6), (7) and (8) of Table 16 on the basis of the following (highly objectionable) tax structure: first \$2000 exempt; next \$2000 taxed 80 per cent; amounts over \$4000 taxed 150 per cent.

Table 17

## CONFISCATORY BRACKET RATES

<i>Total Profit</i>	<i>Total Tax</i>	<i>Total Profit After Tax</i>
\$4500	2350	2150
4800	2800	2000
4200	1900	2300
3200	960	2240
1800	..	1800

In this case the point of greatest profit after taxes is at a price of \$8 and output of 1400 units. It apparently pays the seller in this case not only to absorb the full tax himself but even to reduce the price. In other numerical examples or with other tax structures it might occur that the price is raised or that there is no change whatever.

Thus the conclusion that the best point of production before the tax is imposed must also be the best point of production after the tax is imposed holds only if no bracket is taxed at confiscatory rates—that is, at 100 per cent or more. If any bracket is taxed at less than 100 per cent, then there will always be some additional net income after taxes when the individual moves into the higher bracket. He will not lose in dollars and cents by moving into the higher bracket.

In order to be certain that the brackets are not confiscatory, it is



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sometimes necessary to examine carefully the structure of rates. Suppose the rates are not stated in bracket but over-all terms. Then it is possible that the system is confiscatory at certain brackets even though it does not appear to be at first sight. The following example may serve to explain this point.

Suppose that the tax system is such that on income up to \$10,000 the rate is 20 per cent and that on the total of income when the income exceeds \$10,000, the rate is 30 per cent. If the individual makes \$10,000 he pays a total tax of \$2000. If he makes \$10,001 he pays a total tax of \$3000.30. Thus by raising his income \$1 he increases his tax liability by \$1000.30. Implicitly, therefore, there is a confiscatory bracket of tremendous size. In such cases of course the business income tax would be shifted in the short run because an individual would reduce production so as to avoid getting into the higher bracket. Such a bracket structure does not exist in the federal income taxes at the present time. It is quite conceivable, though, that through the variety of tax structures and also the possibility of multiple taxation and variations in exemptions practical cases could be devised—and some have actually been devised for purposes of illustration—where the individual is in practice faced with a confiscatory bracket. Within this limited range the business income tax would be shifted even in the short run.

### Shifting under Variable Capacity

The possibility of shifting a business income tax in the long run where productive capacity and the number of plants are variable has generally been discarded on a very plausible basis. This is the twofold argument: (1) that an income tax does not affect the marginal firms, which have no income, and therefore does not force any firms out of business; and (2) an income tax does not change the optimum size of a firm since the size of plant which gives the maximum profit before tax will also give the maximum profit after income tax.

### COMPLICATIONS INTRODUCED BY THE NATURE OF INVESTMENT DECISIONS

The above statements, although fully consistent with "classical" price theory, ignore two important interrelated aspects of investment decisions: (1) the data on which investment decisions are based are not known quantities but are merely estimates involving a wide range of probabilities and a high degree of risk; and (2) if the net return after

tax falls below a certain level the investor will keep his assets in the form of cash or riskless securities such as government bonds.

In any business investment there is the possibility of loss. If there is a good chance of making a large profit there will be some people who are willing to make an investment of a certain amount. If an income tax is imposed on a given income-probability structure, the net prospective returns are reduced throughout. Some investors will decide not to invest at all and others will reduce the amount of their investment. For these marginal investors, and for the marginal investments of the other investors, the marginal efficiency of capital has dropped below the marginal rate of liquidity preference and there will be a shift into liquid holdings until the two are brought into equality again.<sup>9</sup> This means that fewer plants are opened up than would otherwise be the case and existing plants are allowed to deteriorate to some extent or are not expanded as much as they would otherwise be.

There is no escaping the conclusion that in the long run the possibility of price increase and forward shifting of the income tax exists. This conclusion is based not on vague references to "confidence" but on a direct application of contemporary economic analysis which recognizes the existence of risk and the influence of liquidity-preference.

#### IMPORTANCE OF ALTERNATIVE POSSIBILITIES

The important thing to remember is that the absolute amount of net income is not the sole determining factor in business investment decisions. Alternative possibilities, such as purchase of interest-bearing bonds or even holding idle cash, cannot be ignored. In the case of the small businessman even the possibility of current consumption should be considered. Even the large corporation in which management and ownership are said to be "divorced" has these alternatives although a desire on the part of management to make the company as large as possible may be the predominant influence in price policy.

#### TAXATION OF ALTERNATIVE POSSIBILITIES

One caution must be sounded in connection with these alternatives: they too may be subject to the income tax. If the income from the interest-bearing bonds is subject to tax at the same rates as business

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<sup>9</sup> See Harold M. Somers, "Monetary Policy and the Theory of Interest," *Quarterly Journal of Economics*, Vol. 55, May, 1941, pp. 488-507. Reprinted in *Readings in the Theory of Income Distribution*, pp. 477-98. (Philadelphia: The Blakiston Company, 1946).

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income, then the alternative loses some of its attractiveness by virtue of the income tax. There are, however, two other alternatives: holding cash and spending the money on consumption. The "psychic income" or whatever it is that is derived from devoting funds to these purposes is not (as yet) subject to income taxation.

### MARGINAL RATES OF LIQUIDITY- AND TIME-PREFERENCE

To make this approach to the problem amenable to further analysis, it is necessary to define two terms; the "marginal rate of liquidity preference" and "marginal rate of time preference." The marginal rate of liquidity preference may be considered the minimum net return which is required to induce an individual to invest an additional sum of money rather than hold it idle in the form of cash. The marginal rate of time preference may be considered the minimum net return which is required to induce an individual to invest an additional sum of money rather than spend it for current consumption.

### BUSINESS EXPECTATIONS

A numerical illustration of this sort of approach is difficult because of the many complications involved in the analysis of risk-taking. In particular not enough is known about the businessman's reaction to: (1) the average expected return, i.e. arithmetic mean of all the possible returns weighted by their probabilities; (2) the most probable return, i.e. the single return which has the highest single probability, however large or small that may be; and (3) the dispersion of the various possibilities, i.e. how great the probability is of losing all, how great it is of losing 90 per cent, etc. Different businessmen will of course react differently to each of these. The gamblers may ignore (1) and (2) and go for the long chance, as in a sweepstake. The more conservative businessman will consider all three. He will want a high average expected return, a high "most probable" with a large probability, and will not look kindly on a wide dispersion of the possible, or at least the more probable, returns. Another important factor is the margin of safety required by the businessman after all calculations are completed.<sup>10</sup>

### NUMERICAL EXAMPLE

By way of illustration, the mean expected return is used in the numerical illustration below. A single company contemplating various

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<sup>10</sup> See William Fellner, *Monetary Policies and Full Employment*, Chapter 5 (Berkeley: University of California Press, 1946).

sized plants is considered. The effect of an income tax is then examined.

Table 18 gives the basic data for a discussion of long-run shifting of an income tax in the particular case mentioned above. Column (1) gives various possible amounts of investment representing plants of different size. The task is to determine which amount of investment should be undertaken in the absence of an income tax and which amount with an income tax. Column (2) gives the net income derived from the various amounts of investment stated in column (1). All expenses have been allowed for including interest, either actual or imputed. These are estimated figures and represent some sort of average of the various possible returns to be expected at each level of investment.

*Table 18*  
SHIFTING OF BUSINESS INCOME TAX WITH VARIABLE CAPACITY

<i>Total Investment</i>	<i>Total Net Return Before Tax*</i>	<i>Marginal Investment</i>	<i>Marginal Net Return Before Tax</i>	<i>Net Income Tax at 20 Per Cent</i>	<i>Total Net Return After Tax</i>	<i>Marginal Net Return After Tax</i>	<i>Marginal Rate of Return Before Tax</i>	<i>Marginal Rate of Return After Tax</i>	<i>Marginal Rate of Liquidity-Preference</i>
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
\$ 1000	\$ 80	\$1000	\$ 80	\$ 16	\$ 64	\$64	8%	6.4%	4%
2000	170	1000	90	34	136	72	9%	7.2%	4%
3000	270	1000	100	54	216	80	10%	8.0%	4%
4000	360	1000	90	72	288	72	9%	7.2%	4%
5000	440	1000	80	88	352	64	8%	6.4%	4%
6000	510	1000	70	102	408	56	7%	5.6%	4%
7000	570	1000	60	114	456	48	6%	4.8%	4%
8000	620	1000	50	124	496	40	5%	4.0%	4%
9000	660	1000	40	132	528	32	4%	3.2%	4%
10000	690	1000	30	138	552	24	3%	2.4%	4%

\* At best output. This is not the low cost output except under conditions of long-run constant costs. Under other cost conditions the best output is generally at a cost higher than the low cost points for the plant concerned.

Column (3) gives the increment in the total investment figures listed in (1). In this case the increments are all \$1000. Column (4) gives the increments in the total net return figures of column (2). Column (5) gives the amounts of income tax computed at a flat rate of 20 per cent on the net return figures of column (2). Although a simple proportional

## TAXATION

tax is used here, the analysis does not preclude a more complicated tax structure.

Column (6) gives the net return after the tax has been deducted, i.e. column (2) minus column (5). Column (7) gives the increments in column (6). Column (8) is column (4) computed as a percentage of column (3). Column (9) is column (7) computed as a percentage of column (3). Column (10) gives the marginal rate of liquidity preference, which was explained above. In this case the rate is assumed to be 4 per cent throughout. This means that the businessman would rather hold cash than invest additional amounts at less than a net return of 4 per cent. This is a "take-home" net return after all expenses, taxes, interest, etc., are deducted. It represents a state of mind and is not subject to taxation. It is unaffected by the imposition of a tax on income. In practice this rate might rise in relation to larger investments since the investor will be left with fewer liquid resources as the amount of investment rises. A variable marginal rate of liquidity preference does not affect the type of analysis considered here. It is assumed, however, that the schedule of marginal rates of liquidity preference is not affected by variations in other returns as a result of taxes.

Before the imposition of the tax the businessman is willing to invest up to \$9000 and build a plant of corresponding size. At this level of investment the marginal rate of return just equals the marginal rate of liquidity preference. Up to this point the additional return has exceeded the minimum required to induce him to make the investment. He will not invest \$10,000 because the return on the last thousand is only \$30 or 3 per cent while the minimum that he will consider is \$40 or 4 per cent.

When the tax is imposed the marginal rates of return are reduced. The ninth thousand yields only 3.2 per cent, which is below the required minimum of 4 per cent. The eighth thousand yields 4 per cent and this is as far as the businessman will go. He will build a plant requiring the investment of \$8000.

## GRAPHIC ANALYSIS

The analysis of the problem of the long-run shifting of the income tax is demonstrated diagrammatically in Fig. 15. The marginal rate of liquidity preference is shown by the solid line extending horizontally from the point *R*. This, it will be recalled, is the minimum return at which an additional amount of money will be removed from cash holdings and diverted to investment in business. This rate is here considered to be uniform. It is likely that a higher minimum rate would prevail as

investment increases and cash holdings decline. In that case the curve out of point *R* would be upward-sloping to the right. Neither the analysis nor the qualitative conclusions reached would be affected thereby.

The marginal rate of return before taxes is indicated by the solid curve so labeled. The best amount of investment is *OM* where the marginal rate of return on the investment equals the marginal rate of liquidity preference. When the tax is imposed the curve falls to the broken line in Fig. 15. The liquidity preference curve is unaffected by the tax (we

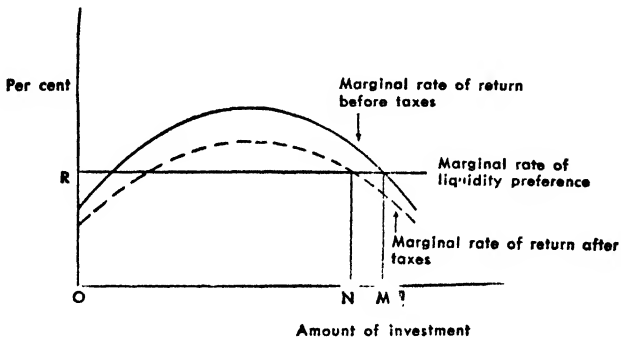


FIG. 15. The graphic analysis of the problem of the long-run shifting of the income tax.

assume). The best investment is now *ON*. Business plans will now call for a smaller plant.

#### SIGNIFICANCE OF DEDUCTIBILITY OF INTEREST EXPENSE

It will be noted that in the above example the marginal net return is compared, *not* with the rate of interest, but with the marginal rate of liquidity preference. Decisions concerned with debt-financed investment based solely on a comparison of interest with marginal efficiency of capital (marginal net return before deduction of interest) will not be affected by the income tax where interest expense is deductible for tax purposes.<sup>11</sup> The imposition of the tax reduces the prospective return but it also reduces the net interest cost to the firm because of the deductibility of interest expense for tax purposes. Some modifications have to be made in this conclusion if it is found that the prevailing interest rate itself changes, along the lines of the analysis of Chapter 11.

<sup>11</sup> See E. Cary Brown, "Business-Income Taxation and Investment Incentives," *Income, Employment and Public Policy: Essays in Honor of Alvin H. Hansen*, p. 314 (New York: W. W. Norton & Co., 1948).

### EFFECTS ON COSTS AND PRICES

The effect which reduced capacity in an industry will have on costs of production will depend on a variety of economic factors. The reduced industrial capacity may mean higher, lower, or constant costs depending on whether long-run decreasing, increasing, or constant costs prevail. Under highly competitive conditions the prevailing price will correspondingly be higher, lower, or unchanged. Under other conditions, the reduced capacity will mean less competition. The effect which reduced competition has on prices is, as a general matter, indeterminate. But in this case, where reduced capacity accompanies the reduction in competition, the influence would be in the direction of higher prices.<sup>12</sup> A sufficient reduction in costs could offset this tendency if a substantial degree of competition remains.

### PROSPECTS OF SHIFTING IN THE LONG RUN

It is frequently assumed that the business income tax will be shifted in the long run because the tax does reduce the incentive to expansion and may even encourage gradual liquidation of investment. Whether a reduction in the size or number of firms results in an increase or decrease in prices will depend on the long-run cost conditions and the conditions of demand. This aspect of the problem has been discussed above.

The conclusion that the business income tax will have the effect of reducing incentives in the long run requires some further study. If economic surpluses remain an element in business profit in the long run then any income tax which is confined to that surplus would not reduce incentives. The surplus is something over and above what is necessary to promote long-run changes in investment. This is probably merely a technical point, however. Under conditions of pure competition economic surpluses cannot persist generally in the long run. The lure of supernormal profits would increase the number of firms so that the supernormal profits disappear through a reduction in price. If the supernormal profits are taxed away, then the number of firms will not increase and the prevailing prices will remain. Thus the taxing away of the supernormal profits prevents a price change which would otherwise take place. In this sense it may be said that tax shifting might occur.

Under conditions of monopolistic competition, if it is assumed that

<sup>12</sup> It should be emphasized that this statement is not based on any assumption that a monopoly price is necessarily higher than a competitive price. We are dealing here with a change in the monopoly price itself as a result of an income tax.

free entry exists, then again increases in the number of firms will take place so that in the long run supernormal profits are wiped out. Once again the presumption is that the increase in the number of firms will reduce the price. The imposition of the tax will prevent the increase in the number of firms by taxing away the attraction to new firms and therefore higher prices will persist. Once again, however, the answer depends on the long-run nature of the cost conditions. It is quite conceivable that the increase in the number of firms might then result in higher costs and higher prices. Under such conditions the tax keeps the price lower than would otherwise have been the case.

Under conditions of monopoly where it is assumed that even in the long run supernormal profits may persist, the taxing away of those profits should have no effect whatever, assuming that the tax is on economic business profits. The best-sized plant for the monopoly before the income tax will still be the best-sized plant after the income tax. Thus only in the case of monopoly can it be said that an income tax which is imposed on supernormal profits alone will not be shifted even in the long run.

If the business income tax impinges on normal profits, then more drastic effects may be expected. The tax on supernormal profits may reduce the attraction to new firms but a tax on normal profits will encourage the dropping out of existing firms. There again the final effects on prices will depend on long-run cost conditions and demand conditions. Even the monopolist will be induced to seek alternative occupations if the tax impinges on normal profits, that is, the opportunity cost. Even if all fields are taxed the monopolist may prefer to go out of business completely and may perhaps decide to become a rentier. A tax system which would prevent such effects would have to be more carefully devised so that the tax by its very nature reduces the alternative possibilities since they are also taxed. In other words the tax would have to reduce the opportunity cost and thereby reduce the normal profit itself.

This would mean that all income-producing alternatives are taxed equally so that any effects of opportunity costs are reduced and all normal profits or normal incomes generally are correspondingly reduced. It is even doubtful whether this would be an effective method of avoiding long-run consequences. The alternative of holding cash and indulging in leisurely activities constantly exists. Unless the government is willing to supplement its income tax with some unfavorable device for preventing leisure, then a tax which impinges on presently prevailing normal profits will unquestionably have the effect of changing the price. Thus it may be concluded that the business income tax which impinges on normal



profits will result in price changes in the long run under any and all conditions. The one exception of long-run constant cost must be made in all cases, of course.

### Conclusions on Shifting

In general we may conclude that in the short run there is little likelihood of business income tax being shifted. In the long run, however, where alternative possibilities exist, there is strong likelihood that the tax will be shifted. There are many likely sets of circumstances under which the shifting, partially or wholly, will take place. Hence we cannot agree with the conclusion reached by the Colwyn Committee (p. 119) that "the broad economic argument is true for practically the whole field and for practically the whole of the time any exceptions being local or temporary and insufficient to invalidate it." Nor can we agree with Seligman who says, "It is the producer who bears the tax, both immediately and ultimately."

### Indirect Effects of the Taxation of Business Income

Whether or not the business income tax directly raises prices, we may be sure that it will have important economic effects. To the extent that complete shifting does not take place, profits-net-of-tax are reduced. In the short run this necessarily means a fall in the percentage rate of profit since the total amount of capital invested is unchanged while the amount of profit is diminished. In the case of corporations this will mean one of (1) reduction in dividends; or (2) reduction in undistributed profits (business savings); or (3) reduction in both. Which of these possibilities will actually become realities cannot be determined *a priori*—the result being to a large extent determined by the relative strength of the management and the shareholders in influencing the board of directors with respect to dividends. The repercussions of each of these possibilities will be considered in this brief discussion of indirect effects.

### INCOME DISTRIBUTION AND CONSUMPTION

The business income tax, especially where it is progressive, generally has the effect of leveling out the distribution of income. This tendency is modified only to the extent that the perennial widow-orphan shareholder forms a substantial part of the shareholding group or the extent that the "stockholding proletariat" is a reality. The tax could reduce consumption if (1) prices generally actually rose as a result of the imposition of the tax; or (2) dividends were restricted, and these dividends would

otherwise have been paid to people who would have spent the money on consumption. In general, we may conclude that the business income tax has relatively little effect on consumption.

#### VENTURE CAPITAL

Leaving aside the possibility of a decrease in consumption with its resulting effects on production, there still are important ways in which the business income tax could affect production and enterprise. To the extent that the tax is not shifted and the dividend rate is diminished, there may be the tendency that the business income tax would dampen enterprise and restrict venture capital. This conclusion concerning venture capital is not so obvious as it may appear in view of the fact that the tax falls equally upon the incomes for all types of enterprise (although the rates are different for incorporated and unincorporated enterprise). It may be true that a general lowering in net return after taxes means that capital will tend to favor less risky enterprises. In view of the fact that the relative position of more or less risky enterprises remains substantially the same after the income tax, there would be the tendency to favor the less risky enterprises only if the return on the more risky (before the tax) was only just sufficient to induce that amount of capital which actually finds its way into those enterprises. Because of many real barriers and discontinuities many enterprises return more than an amount just sufficient to attract capital which is actually invested in them.

There may even be a tendency in the direction of favoring the *more* risky enterprises. For instance, when the normal corporate income tax was raised in the United States a few years back, it was claimed by a widely used investment service that the greatest burden would be on companies with stable earnings which would find it difficult to increase profits before taxes enough to offset the higher tax rate. The following industries were cited as the ones that would suffer most:

Beverages	Food	Shoes
Containers	Medicine	Tobacco
Drugs	Office Equipment	Utilities

Which of these two tendencies is actually predominant cannot be decided *a priori* but it is sufficient to say that the simple conclusion that risky ventures will suffer most cannot be accepted as being of general applicability. It must always be remembered that a risky enterprise that loses money pays no tax; and an enterprise that pays a large tax does so because it has made a lot of money!

**BUSINESS ORGANIZATION: CORPORATION VS. PARTNERSHIP**

An entirely different type of effect on enterprise may result from the fact that the corporation together with its shareholders would ordinarily pay a larger amount of tax than the partnership together with its partners if the corporate profits are distributed.<sup>13</sup> This is because of the "double taxation of dividends" which is discussed in another chapter. The following hypothetical example which appeared in the *New York Times* some years ago will illustrate this point.<sup>14</sup>

A corporation with three principal shareholders, having invested capital of \$125,000 and earnings of \$37,500, before deducting salaries of the shareholders of \$11,250, (4a) capital stock tax, New York State franchise tax, income and excess profits taxes, would pay such taxes amounting to \$7,228.05 as follows:

Capital stock tax	\$ 288.75
State franchise tax	1,557.68
Corporation income tax	4,040.97
Excess profits tax	1,340.65
Total	<u>\$7,228.05</u>

The capital stock tax is stated at the minimum declared amount which will save the corporation from the "declared value excess-profits tax." For the purpose of the franchise tax, which is based on the next preceding year's earnings, a like income is assumed and the excess-profits tax is calculated on the invested capital basis.

**PARTNERSHIP PAYMENT**

Passing momentarily the items of income taxes and surtaxes to which the three principal shareholders would be subject, and assuming this were a partnership, the partnership and the partners would pay the following taxes:

Unincorporated business tax	\$1,000.00
State income tax	1,650.00
Federal income tax	2,316.60
Total	<u>\$4,966.60</u>

In computing the unincorporated business tax (4 per cent) credit is taken for 20 per cent of income, plus an exemption of \$5,000. Personal exemptions for the state and federal income tax returns are taken at \$2,500 and \$2,000, respectively.

But the shareholders of the corporation will make individual returns of their salaries, and assuming that they also distribute their corporate earnings, they will pay income taxes as follows:

<sup>13</sup> See Roy Blough, "Some Aspects of Corporate Taxation," *Bulletin of the National Tax Association*, Vol. 31, June, 1946, pp. 287-89.

<sup>14</sup> Godfrey N. Nelson, *New York Times*, November 3, 1940, Sec. 3, p. 1, col. 5.

## TAXATION OF BUSINESS INCOME

State	\$1,114.05
Federal	1,573.86
Taxes paid by shareholders	2,687.91
Taxes paid by corporation	7,228.05
Total	\$9,915.96

Thus the corporation and the shareholders would pay \$9,915.96 as compared with \$4,966.60, payable by the partnership and the partners. Even if the corporation distributed no earnings as dividends and paid no excess profits tax, the corporation would pay over 20 per cent more than the partnership. It will be observed that salaries amounting to 30 per cent of the corporation's income, before deducting taxes, were allowed; that no declared value excess-profits tax was incurred.

It must be stressed that the above is merely a hypothetical example. It is sufficient, however, to show that income taxes may have important discriminatory effects on business. At any rate, the possibility of such discrimination should certainly be taken into account in modifying any income tax structure even though there may not be any possibility of removing it or even any desire to do so.

The tax law of 1948 increased the advantage of many partnerships and proprietorships. The proprietorship, where the proprietor is married and has two dependents, has an advantage over the corporation up to earnings of just under \$70,000. Partnerships have even greater advantages.<sup>15</sup>

### SIZE OF BUSINESS: LARGE VS. SMALL

The prevailing income tax structure may favor the small as opposed to the large corporation. It has been found that taxes constitute a higher percentage of the income of large corporations than of small ones. This is a result of three peculiarities of the prevailing tax structure: (1) The graduation of rates for corporations with incomes up to \$50,000, whereby the over-all rate is less than the maximum of 38 per cent for all incomes below \$50,000; (2) the 2 per cent tax imposed on consolidated returns; and (3) the inclusion of 15 per cent of intercorporate dividends.<sup>16</sup> The social desirability of this degree of progression is another matter. Nor can it be assumed that the tax penalty apparently imposed on big corporate business offsets in any significant way the advantage of big business.

<sup>15</sup> J. K. Lasser, "New Tax Law and Speculation," *Commercial and Financial Chronicle*, June 17, 1948, p. 8.

<sup>16</sup> Louis Shere, "The Fiscal Significance of the Corporation Income Tax," *Proceedings of the National Tax Association*, 1947, p. 12.

## TAXATION

There are other aspects of the corporation income tax which favor the large corporation.<sup>17</sup> The large firm is more likely to have other income from a variety of ventures against which to offset its losses over a period of years.<sup>18</sup> It also has readier access to the capital markets so that the transfer of substantial funds to the government through the tax payment itself is less likely to preclude any desired investment. Another possibility is that a large, management-controlled firm may actually be concerned less with marginal changes in net income after taxes than with gross earnings, enlargement of market position, or maintenance of a reasonable level of earnings. In the matter of growing as opposed to established firms the tax system seems rather clearly to favor the latter.<sup>19</sup> The firm which has accumulated a large amount of capital can perhaps afford to pay a large part of its income away in the form of taxes. The growing firm finds that the income tax takes away a large amount necessary for capital expansion.

### SAVINGS AND AVAILABILITY OF CREDIT

In considering the effect of savings, we are concerned not merely with the question whether the amount of individual money-saving is diminished, but also we are concerned with the question whether any diminution in money-saving which does take place actually results in the restriction of credit and a reduction in capital formation. With respect to money savings there can scarcely be any doubt that the business income tax has an "adverse" effect, since the tax is paid out of profits which would ordinarily be available for investment in large part. This does not mean that capital formation need be restricted greatly through lack of funds derived from business profits. In England we may accept as a fact the Colwyn Committee's findings that the income tax severely affects the trading concern of ordinary size which has to rely on its own savings for expansion and that, more generally, "with regard to savings . . . industry has suffered materially from the effect of the high income tax and

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<sup>17</sup> See R. A. Musgrave, "Should an Absolute Corporation Tax Be Retained?" *N.T.A. Proceedings*, 1947, pp. 115-16.

<sup>18</sup> See E. D. Domar and R. A. Musgrave, "Proportional Income Taxation and Risk-Taking." *Quarterly Journal of Economics*, Vol. 58, May, 1944, pp. 388-422.

<sup>19</sup> See J. Keith Butters and John Lintner, *Effect of Federal Taxes on Growing Enterprises* (Harvard Graduate School of Business Administration, 1945); David McCord Wright, "Income Redistribution Reconsidered," *Income, Employment and Public Policy: Essays in Honor of Alvin H. Hansen*, pp. 159-176 (New York: W. W. Norton & Co., 1948); and J. Keith Butters, "Would the Complete Integration of the Corporate and Personal Income Taxes Injure Small Business?" *N.T.A. Proceedings*, 1947, pp. 189-93.

super tax." Where we have an easily accessible capital market, with ample supplies of credit, such as has existed in the United States in recent years, however, it is not certain that any actually profitable capital formation of large established companies would fail to take place for lack of capital merely because net profits after taxes have diminished.

### BUSINESS FLUCTUATIONS AND ECONOMIC PROGRESS

Since income tax revenues fluctuate directly with fluctuations in business, they tend to dampen the variations in rate of return. One of the advantages of the income tax is that its burden automatically decreases with the income of the taxpayer. In other words, it is not like a fixed charge which might aggravate a depression.

The extent of any possible effect on economic progress depends mainly on (1) whether or not the tax tends to discriminate against more enterprising types of business and (2) whether it actually tends to decrease the amount of capital formation, i.e. the accumulation of wealth. If the answer to these questions is in the affirmative, we would conclude that the business income tax has an adverse effect on economic progress. The above analysis has shown that such detrimental effects cannot be taken for granted. Moreover, if a more even distribution of income is considered an element in economic progress the business income tax has some evidence in its favor.

### SUMMARY OF DISCRIMINATORY ASPECTS

The business income tax structure has important effects of a discriminatory nature. It is not "neutral."<sup>20</sup> It affects business practices and business decisions in an apparently non-rational way. Some of the elements of discrimination of the corporation tax are:<sup>21</sup> (1) Against distributed profits and for other types of income, since dividends are taxed first as corporate income and again as personal income; (2) against equity financing and for debt financing, since interest payments are deductible expenses for the corporation while dividend payments are not; (3) against declaration of dividends and for reinvestment of earnings, to avoid the double taxation mentioned in (1); (4) against unincorporated businesses that reinvest their earnings and for incorporated businesses that reinvest their earnings; (5) against incorporated businesses that distribute

<sup>20</sup> See Harold M. Groves, "Neutrality in Taxation," *National Tax Journal*, Vol. 1, No. 1 (March, 1948), pp. 18-24.

<sup>21</sup> See Harold M. Groves, "Revision of the Corporation Income Tax," *National Tax Association Proceedings*, 1947, pp. 98-99.

## TAXATION

their earnings and for unincorporated businesses that distribute their earnings; (6) against corporations that cannot readily avoid taxes through the payment of high executive salaries and for corporations whose major shareholders are also major executives who can pay themselves salaries which are deductible expenses for the corporation instead of dividends, which are not. Another aspect of this discrimination lies in the fact that a given increase in the rates affects different corporations differently depending on the proportion of taxable income earmarked for preferred dividends (since common stockholders have to take what is left after the preferred are paid), proportion of operating profit going to earnings or rentals (since these payments are tax-free), and rate of turnover of capital (since the sales required to maintain profit rates are affected thereby). The amount of increase in sales required to restore profits after taxes will depend on these factors. Some firms will therefore be in a better position to shift the tax (assuming that price was not previously at the optimum level) than others.<sup>22</sup>

### Conclusions on Indirect Effects

The above analysis may seem to warrant the following general conclusions as being broadly valid: the business income tax has little effect on consumption; has a detrimental effect on production and enterprise; reduces money saving but may have little effect on the availability of credit and on capital formation; tends to reduce inequalities in the distribution of income; tends to dampen fluctuations in business; and may have no significant effect on economic progress. Yet it is impossible to escape from the fact that the prevailing corporation tax has undesirable economic consequences because of its discriminatory nature. It affects the nature of business organization, the size of business and the process of decision-formation in an apparently pointless and irrational manner.

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<sup>22</sup> See Carl Shoup, "Incidence of the Corporation Income Tax: Capital Structure and Turnover Rates," *National Tax Journal*, Vol. 1, No. 1, March, 1948, pp. 12-17.

## Sales and Excise Taxation

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The analysis of the effects of commodity taxation, such as sales and excise taxes, runs along rather different lines from that of income taxes. Here the immediate impact of the tax is directly on sales receipts or on costs; the two elements of business decisions which have an undisputed influence on price and output. Sales and excise taxes may be treated in the same way unless there is a possibility of the production of goods which are not sold in the period under consideration. Under some excises the tax would have to be paid when the good is produced but there is no chance of shifting the tax by raising the price immediately since the goods are not being sold. In other words, excise and sales may be considered together in the absence of inventory accumulation or liquidation. Barring the possibility of such inventory changes, either excise or sales taxes may be considered as a deduction from the sales receipts per unit or an addition to the cost per unit. The amount of the deduction or addition will depend on the way in which the tax is computed. As a matter of analytical convenience some taxes are considered as deductions from sales receipts and others as additions to costs.

Federal taxation in this field is described briefly below. Sales, use, and excise taxes at the state and local level are discussed in Chapters 20 and 21.

### TYPES OF SALES AND USE TAXES

The meaning of the term "sales tax" has not been standardized.<sup>1</sup> Interpreted literally, the term covers three types of taxes: selective sales tax, retail sales tax, and general sales tax. A selective sales tax applies to

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<sup>1</sup> See A. M. Hillhouse and Muriel Magelssen, *Where Cities Get Their Money*, pp. 55-57 (Chicago: Municipal Finance Officers Association, 1945). Cf. Denzel C. Cline, "Sales Tax Exemptions," Chapter 10 in *Tax Exemptions* (New York: Tax Policy League, 1939).



specified commodities, such as gasoline, tobacco, and liquor. A retail sales tax applies to all goods (but not services) sold at retail. A general sales tax may apply to various levels of distribution, such as retailers, wholesalers, and manufacturers.

Two other taxes are sometimes included in the term "sales tax," broadly conceived: gross receipts tax and gross income tax. The gross receipts tax covers the sale of services as well as goods. Professional services of doctors, lawyers, accountants, etc., are included. A gross income tax covers income from all sources, whether from the sale of goods or services, whether from business or property.

In order to prevent evasion of the sales tax through purchases outside the taxing jurisdiction, state and local governments have imposed "compensatory use" taxes. These require payment of a tax on goods which are purchased outside the area if such goods are subject to the sales tax within the area.

### TYPES OF EXCISE TAXES

Dr. Johnson, the English lexicographer, defined the excise as a "hateful tax levied upon commodities . . ." Modern dictionaries define it as "an inland tax levied on commodities of home production and consumption." But the outcry that is often heard when a new excise tax, especially on necessities, such as sugar, is put into effect inclines one to believe that Dr. Johnson's definition is the more descriptive of the two. Despite this, however, many countries have found it necessary to make increasing use of this type of tax because of fiscal need. These taxes are levied upon a wide variety of commodities including gasoline, tobacco, soft drinks, candy, ammunition, automobiles, motorcycles, liquor, sugar, textile fabrics, kerosene oil, matches, artificial silk, telephone calls, railway tickets, amusements, and other commodities as well as "quasi-commodities."

A wide variety of excise taxes exists in the United States.<sup>2</sup> Among the items covered by the manufacturers' excise taxes (without reference to certain exceptions) there are: automobiles and parts and accessories; business and store machines; cameras and photographic equipment; electric, gas, and oil appliances; firearms and supplies; gasoline, lubricating oils, matches; motorcycles; musical instruments, including phonographs and radios; refrigerators; sporting goods and equipment. Retail excise taxes of 10 per cent and 20 per cent on certain luxury items are also in

<sup>2</sup> See John F. Duc, "Federal Excise Taxation," *Bulletin of the National Tax Association*, December, 1947, pp. 67-69.

force. These cover cosmetics and toilet preparations, furs and fur articles, jewelry and similar items, and luggage. A wide variety of liquor taxes exists. Among the items covered are distilled spirits, wines, and beer. The tobacco tax includes tobacco and snuff, cigars, cigarettes, and cigarette paper and tubes. Admissions, dues, and initiation fees are taxed at 20 per cent with minor exceptions. Numerous stamp taxes are in force. Among these are taxes on bond issues, bond transfers, tax issues, stock transfers, deeds, passenger taxes (outside United States, Canada, Mexico, Cuba, or Puerto Rico), playing cards, foreign insurance policies, and silver bullion. A few of the many miscellaneous taxes may be mentioned. These include bowling alleys, coin-operated amusements, electric energy, safe deposit boxes, communication facilities, transportation services, sugar, oleomargarine, opium and marihuana, cotton futures, and monetary circulation other than on national banks. Even certain occupations are subjected to special excise taxes. These included manufacturers, wholesalers, and retailers in most cases and in a few instances professional persons are included. Among the items covered are filled cheese, firearms, liquor, narcotics, marihuana, oleomargarine, and adulterated or processed or renovated butter.

### Shifting with Fixed Capacity

When the plant capacity is taken as a fixed amount, the dealer is confronted with the problem of making the best of a plant capacity constructed to accommodate the volume of trade which existed before the tax was imposed. He may find it desirable to reduce his margin of profit per unit sold in order to maintain sales volume. In this way he may be able to make some contribution to the overhead costs connected with the plant. These considerations tend to reduce any tendency that might exist to shift the tax to the consumer. On the other hand, the dealer may find it convenient to accumulate inventories with a view to their later liquidation when adjustments in the plant or in the tax take place. In so far as such considerations govern, there would be an increased tendency for some of the tax to be shifted to the consumer in the short run. A large part of the tax will undoubtedly rest on the dealer under most conditions.

### PURE AND PERFECT COMPETITION

Where we have a situation in which no producer has any effect on the price, each can sell all that he can produce at the market price, there is perfect mobility and no differentiation of product, price tends to equal

## TAXATION

cost (including normal profit). Normal profit is a profit sufficiently high to induce all the firms in the industry to remain but not high enough to induce new firms to enter the industry. If the price is either above or below cost, there will be an ingress or egress of firms, as the case may be, tending to eliminate supernormal or subnormal profits and restoring the equality between prices and costs. These may be considered long-run developments. The immediate effect of the tax is a shift in the supply curve and a rise in price, as depicted in Fig. 16. The supply curve shifts from  $SS$  to  $S'S'$  to allow for the tax. The price rises from  $OP$  to  $OQ$ . It is

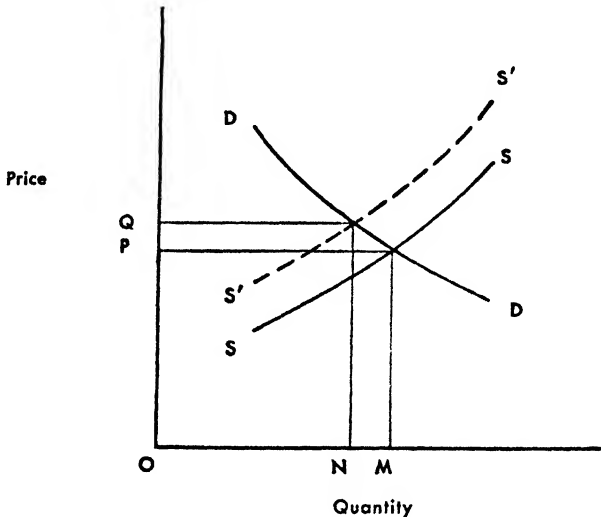


FIG. 16. Effect of the tax under conditions of pure and perfect competition in the short run.

assumed that the full amount of the tax is allowed for in the new supply curve.

This does not mean, however, that the rise in price is equal to the tax. As the price rises there will ordinarily be a reduction in the amount demanded and thus a reduction in the amount produced. The upward slope of the supply curve indicates that suppliers will supply a smaller amount at a lower price. Hence the rise in price is less than the amount of the tax. In all cases, when equilibrium is finally achieved, normal profits are earned. The amount produced and consumed is less and the price is higher than before the tax was imposed. Whether the price rise is greater than, less than, or equal to the tax depends on the nature of the supply and demand curves. Whether the total amount spent on the taxed

article is greater than, equal to, or less than before the tax was imposed depends upon whether the elasticity of demand is less than, equal to, or greater than unity, respectively. This process of attaining equilibrium may have involved the dropping out of some firms who could not afford the reduction in net price below  $P$  as indicated in Fig. 16. The amount supplied is reduced by  $NM$  whether through the reduction in output of existing firms or the dropping out of marginal firms.

### MONOPOLY

Where we have only one producer of any product, without freedom of entry into the industry, it is generally (but not universally) true that the profit made is greater than normal. The price charged is that indicated on the demand curve for the product, at the output which maximizes the profit. The rise in cost occasioned by the tax will make it desirable for the monopolist to reconsider the output with a view to continuing to maximize this profit. Since the marginal cost curve is raised by the tax and the marginal revenue curve is (assumed to be) downward sloping to the right, the intersection of the marginal revenue and marginal cost curves will be to the left of where it was previously. This means that the optimum output will be smaller than formerly and (since the average revenue, or price, curve is assumed to be downward sloping to the right) the price will be higher.

Whether this rise in price is greater than, less than, or equal to the tax depends on the relative slopes of the demand and cost curves and cannot be determined *a priori*.<sup>3</sup> Total profits invariably must, however, be reduced, because otherwise it would have been profitable for the monopolist to have acted previously as if a tax existed, whether or not it did. Output and consumption are also smaller than before. The change in the total amount spent on the purchase of this article will again depend upon the elasticity of demand.

### MONOPOLISTIC COMPETITION

The next case is that of "monopolistic competition," a term that is variously interpreted and defined. We use it here to mean a large number of buyers and sellers, freedom of entry into the industry and differenti-

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<sup>3</sup> John F. Due "The Incidence of Retail Sales Taxes," *Bulletin of the National Tax Association*, Vol. 25, May, 1940, p. 227, however, claims that the price increase "would be much less than the full amount of the tax except under very unusual cost and/or demand conditions" [italics mine]. This is in contradiction to the conclusion reached above.

ated products. Each producer, although affected by the actions of producers of close substitutes, is governed solely by his own cost conditions and the demand for his product and does not take account of the repercussions of his competitors' actions on his own demand and cost conditions. The result of an imposition of a sales tax is similar to that in the case of pure competition in that the whole change in cost (which is not necessarily the same as the amount of the tax, because of the variation of cost-sans-tax with variations in output) tends to be passed on to the consumer. The freedom of entry tends to keep profits at normal. This is just a *tendency*, however, because the imperfections in the market may be such as to have allowed profits to be above normal before the imposition of the tax. Then the analysis of the monopoly case applies.

In short, we have the same type of results as in the monopoly case, but these results tend to be removed as the imperfections of the market are overcome. Prices are higher and consumption and output of the product are less than before the tax was imposed; and the total outlay again depends on the elasticity of demand.

#### OLIGOPOLY

The most common situation is that where the number of sellers is sufficiently small that each takes account of the actions and reactions of the others, where products may be differentiated, market imperfections of different sorts exist, and expectations vary. Again, terminology is not universal but we may apply the term "oligopoly" to this situation. Here the analysis becomes more complicated as there are more variables, to say nothing of imponderables. We must also take account of the peculiarities of retail pricing practice. Each competitor makes use of a "mark-up" by which he tries to cover: (1) all estimated costs, both direct and overhead; and (2) as much profit as he considers it "profitable" to include. Sometimes the mark-up is insufficient to cover all this; and sometimes, as in the case of "loss-leader" and of "dead" stock the mark-up may be negative. In considering the various decisions he has to make he must take account of possible reactions of his competitors, as well as the time taken for the reaction to be felt.

When the sales tax is imposed, it cannot be assumed that the mark-up is immediately raised by the amount of the tax or something approximating it. Aside from the "rigidifying" influences, to be considered later, conditions of demand may be such as to preclude the advisability of attempting to pass on all the tax. If the demand is highly elastic, for instance, a rise in price by the amount of the tax may reduce the total

outlay to such an extent that total profit is reduced more than if no effort were made to pass on the tax. It is not necessary for the seller to *know* what the demand curve for his product is; it is sufficient for him to believe, on balance of probabilities, that it is such that his profit would be reduced by a rise in price equal to the amount of the tax. That there is *some* increase in price we may generally be certain.

Where the sales tax is a general one and each seller *expects* all others to do the same as he, it may be that the initial rise in price is actually equal to, or nearly equal to, the tax. This will be true particularly where the demand is relatively inelastic. A general sales tax which affects consumption as a whole would have these characteristics. If the price rise is great there would be a fall in sales volume and a resulting rise in overhead cost per unit. The rise in overhead cost per unit may prompt further price rises—even beyond the amount of the tax—where sellers are misled by the accounting cost. Unless the demand is very inelastic, however, it will be profitable to stop this process soon. Price will be higher and profits will be lower than before the tax was imposed. If, before the tax was imposed, the sellers had maximized their profit, then total profits would invariably be lower after the tax. Otherwise it would have been profitable for them to act as if a tax existed before even though none did. It is possible that the stimulus of the imposition of the tax results in a rise in both price and profit. In any case, with the price rise, there will be a reduction in number of units consumed.

#### PRICE-CUTTERS

The fact that each seller assumes that all others will raise prices as a result of the tax does not mean that all will actually do so. It is possible that one or more of the sellers will see in the fact of the tax an opportunity to gain an advantage over his competitors by failing to raise the price. In that case the demand curve for his product will shift to the right as soon as the customers of the other firms (which have raised prices as a result of the tax) become aware of his failure to raise prices. More will be paid for the same amount as before or he will sell more at the old price and, despite the fact that he is nominally “absorbing” the tax, his profits may be maintained or even increased.

This is a short-lived situation, however, because his competitors will do the same as he as soon as he seriously affects their sales. If all or the major portion of the sellers decide to “cut” prices by failing to raise them as a result of the tax, then all the firms may be expected to reduce profits or increase losses. It may be expected that some firms will fail or

## TAXATION

(less likely) enter a different line of business. It is possible, however, that the price-cutter is followed by his competitors in the process of price-cutting, and then by a general reversion to the traditional mark-up before any firms lose enough money to find it necessary to go into receivership.

This entire process of price-cutting could, of course, have taken place without the tax, but the latter provides a very convenient and *strategic* occasion for the exercise of this process. As in so many other cases, the sales tax may validly be considered the cause of the resulting changes in the sense that it prompted these changes, which might have taken place anyway. Be that as it may, where price-cutting exists, less of the tax is shifted to the consumer for the time being at any rate and more of it is borne by the industry.

### *Numerical Example I*

Assume that a 10 per cent sales tax is imposed. Prior to the imposition of the tax there will have been a certain demand for the various commodities. This demand will express itself as a willingness on the part of the public to purchase various amounts of each commodity at various prices. These "prices" are the amounts paid by the public whether or not they are actually called "prices" by the sellers. There may be a basic price, a tax, a service charge and any number of other items entering into the amount paid by the customer. In the following analysis it is assumed that the relationship between the quantities which the customers are willing to buy and the total amounts which they are willing to pay (including any tax) does not change because of the tax.

If before the tax was imposed the customers were willing to buy 1000 units at \$1 each or 900 units at \$1.10 each, it is assumed that these figures remain unchanged after the tax is imposed. Suppose the price is actually \$1 and customers are buying 1000 units. A tax of 10¢ per unit is imposed and the price is raised to \$1.10. We then assume that the customers will buy only 900 units.

### PSYCHOLOGICAL EFFECTS OF THE TAX

There is a strong possibility that this assumption does not hold. The imposition of a sales tax applying to all or many commodities may change the demand. People may be willing to pay \$1.10 and still purchase 1000 units if they know that the 10¢ represents a tax, especially if the 10¢ is added separately and does not appear on price tags or in advertising. This is a matter which deserves statistical investigation.

*Numerical Example II*

The basic data for an analysis of the shifting and incidence of a sales tax are given in Table 19. The conditions are those of monopolistic competition or monopoly, where the individual firm can increase its sales only by a reduction in price. The first three columns provide the basic cost and market data. Column (1) shows the prices at which the amounts shown in column (2) will be purchased. Column (3) shows how much it would cost per unit to produce and sell the number of units shown in

*Table 19*  
SHIFTING OF SALES TAX WITH FIXED CAPACITY

<i>Price (Including Any Tax) (Average Revenue)</i>	<i>Quantity Purchased</i>	<i>Cost Per Unit (Average Cost)</i>	<i>Total Sales Receipts</i>	<i>Total Cost</i>	<i>Total Profit</i>	<i>10 Per Cent Sales Tax</i>	<i>Sales Receipts After Sales Tax</i>	<i>Total Profit After Sales Tax</i>
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
\$1.90	100	\$2.00	\$190	\$ 200	\$- 10	\$19	\$171	\$- 29
1.80	200	1.80	360	360	0	36	324	- 36
1.70	300	1.60	510	480	30	51	459	- 21
1.60	400	1.40	640	560	80	64	576	16
1.50	500	1.33	750	665	85	75	675	10
1.40	600	1.30	840	780	60	84	756	- 24
1.30	700	1.50	910	1050	-140	91	819	-231

column (2). The total sales receipts in column (4) are obtained by multiplying the items in column (1) by the items in column (2). The total cost figures in column (5) are obtained by multiplying the items in column (3) by the items in column (2). The total profit in column (6) is obtained by subtracting the items in column (5) from those in column (4). The tax figures in column (7) are obtained by taking 10 per cent of the sales figures in column (4). The net receipts figures in column (8) are obtained by subtracting the items in column (7) from those in column (4). The net profit figures in column (9) are obtained by subtracting the items in column (5) from those in column (8).

In this particular numerical example it will be seen that the point of maximum profit is at a price of \$1.50 before the tax is imposed and at a



price of \$1.60 (including tax) after the tax is imposed. The seller made a total profit of \$85 before the tax and makes a total profit of \$16 after the tax. If he had not raised the price his total profit would have been only \$10. By raising his price 10¢ (from \$1.50 to \$1.60), his sales drop from 500 units to 400. Total sales receipts fall from \$750 to \$640. Since these receipts are subject to a 10 per cent tax, the true fall is from \$675 to \$576 after allowance for taxes. This means that the net receipts fall an amount of \$99. Fortunately, total costs fall from \$665 to \$560, or \$105. Thus the reduction in costs exceeds the reduction in net receipts by \$6. This explains the rise in profit from \$10 to \$16 for the situation where the tax exists.

It should be emphasized that this is only one example of the many that might have been selected. If the changes in price must be in discrete amounts, such as 5¢ or 10¢, it is quite possible that no change in price would occur as a result of the tax.

### Shifting with Variable Capacity

In considering the possibility of shifting under conditions of variable capacity it is necessary to examine the effect which a sales tax may have on the determination of the size of plants. The tax will make some plants quite unprofitable—the marginal ones which were barely worthwhile before. Firms which previously were barely able to continue in production may drop out. It is likely, therefore, that the over-all supply will be reduced. Whether prices will rise as a result of the reduction in long-run supply will depend partly on the competitive conditions which prevail and the nature of long-run costs, i.e. increasing or decreasing or constant. This matter was discussed in the last chapter.

The possibility of readjusting plant capacity to a reduced volume of sales makes less unprofitable, hence more likely, a higher price and thus a shifting of the tax. The extent of the adjustment and the length of the period required depend on such factors as length of contracts and the mobility of capital and labor generally. Such adjustments may, of course, never take place owing to continuous actual or expected changes in the rates or scope of the tax, to say nothing of other factors. There is no reason to expect, moreover, that any of the underlying factors affecting pure shifting, such as oligopoly elements, marketing practices, etc., are weakened by the tax in the long run. Ultimate changes in costs through means other than mere adjustment of plant occasioned directly by the tax are discussed in an analysis of indirect economic effects of the tax.

## Special Problems of Shifting

### MARKETING PRACTICES

There are several marketing factors which affect the likelihood of the tax being passed on (through the taxed lines of the goods at any rate) and which may prevail in the cases of monopoly, monopolistic competition, and oligopoly. One of these factors is the existence of customary prices, which very frequently cannot be altered without serious loss of revenue. If the customary price is maintained despite the tax (and if the tax is not shifted through other lines of goods in which the price is not so much a matter of custom) then loss and possibly an exodus of firms will result in the case of pure and monopolistic competition, while profits will be reduced in the case of monopoly and oligopoly. It is conceivable that in the latter two cases the reduction in profit will go to the point where there, too, some firms will go into receivership. The same sort of situation arises where we have grouping into price lines, such as \$2.95, \$3.95, etc. It may be inconvenient or otherwise undesirable to change the grouping or "jump" the commodities by a whole price group.

Where we have resale price maintenance, whether of the strict contractual variety, on the one hand, or the more subtle "suggested price" variety, on the other, the likelihood and immediacy of the increase in price are enhanced. The manufacturer will most likely take account of the tax in the price he sets, since all the dealers must act together. On the other hand, it is not likely that the manufacturer in setting the new price will take account of the rise in overhead cost per unit resulting from the fall in sales volume resulting from the price rise. This is entirely aside from the question whether the demand situation is such as to make such an additional price rise (let alone the original price rise) desirable. The stronger the dealer group, the more likely that account will be taken of changes in cost other than tax. Where we have a legal or semilegal control of price on some sort of "cost-plus" basis, it is more likely that the increase in price will take account of all changes in cost. As has been frequently stressed above, an extreme elasticity of demand may, of course, prevent or make short-lived an increase in price.

### SELECTIVE SALES TAXES

The analysis is modified somewhat in the case where we have a selective sales tax. Here it is necessary to counter the generally held impression that these taxes are passed on to the consumer in their

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entirety.<sup>4</sup> Where we have widespread exemptions, as of necessities like foodstuffs, it is necessary to take account of shifts both of demand and of price increases from the taxed to the untaxed fields. Any attempts to raise prices of the taxed goods will tend to shift demand to untaxed substitutes, if any. This will tend to raise prices in the latter. A dealer selling both taxed and untaxed articles (whether in the same or different stores) will attempt to shift part of the tax through the untaxed articles, particularly where these have the more inelastic demand of the two. Dealers handling only the taxed items will, however, suffer difficulties in shifting if reasonably close substitutes exist in untaxed items.

### INTERREGIONAL SHIFTING

The same sort of considerations apply where some municipalities or states have a sales tax and others do not. Chain stores, particularly, having establishments in both taxed and untaxed regions will tend to shift the tax from the taxed to the untaxed regions; or from taxed regions where the demand is more elastic to taxed regions where demand is less elastic. This tendency is promoted by the fact that consumers will tend to purchase in untaxed regions, thus reducing the elasticity of demand there by shifting their demand curve to the right and thus increasing the elasticity of demand by shifting it to the left in the taxed regions. Likewise shifts will take place between markets where customary and administrative prices exist, to places where they do not. The existence of use taxes and similar expedients, however, diminishes these tendencies on the part of the consumer. The significance of these considerations depends on the relative importance of price and non-price factors in determining the amount demanded.

### SEPARATE CHARGE PROVISION

Separate charging probably tends to facilitate shifting as it lessens consumer resistance to the payment of the tax. The consumer knows that the dealer is required to pass on the tax. The demand curve may be shifted to the right thereby. In the case of pure competition, the exodus of firms and a rise in price equal to the change in cost (through a change in output as well as through the tax) still takes place in so far as the demand curve does not shift enough to absorb the separate charge without affecting the firm. Likewise in the case of monopoly the quoted price

<sup>4</sup> Cf. National Industrial Conference Board, *Sales Taxes: General, Selective, and Retail* (New York: National Industrial Conference Board, 1932), p. 56: "There appears to be a general impression that selective sales taxes are borne by the consumer."

(i.e. price-ex-tax) is adjusted to take account of the fact that the most profitable price-cum-tax includes a fixed item, the tax. If, as is generally the case, the most profitable price-cum-tax is greater than the old price by an amount less than the tax, then the quoted price (i.e. the price-ex-tax) must be reduced. A combination of the above conditions applies in the case of monopolistic competition. In the case of oligopoly, however, the shifting of the tax is greatly facilitated, since all dealers have more reason than ever to believe that the new price-cum-tax will be greater than the old price by the amount of the tax. The quoted price (price-ex-tax) may then remain unchanged.

Separate charging encourages the shifting of the tax even where customary and grouped prices exist since the customary price quoted remains unchanged. Resale price maintenance and legal price controls also stand in the way of shifting less than they did ever before. On the other hand, if the amount paid by the consumer is raised and the sales drop off, the overhead cost per unit will rise. A rise in price may then be considered necessary by the sellers. But since the tax is "passed on" and paid separately, such a rise in base price may be hard to defend.

The above analysis holds only where the demand curve remains unchanged or shifts only slightly as a result of the separate charging provision. It is assumed that "consumer resistance" expresses itself in factors other than the demand curve, e.g. merely objecting to the payment of the tax. It is extremely likely, however, that separate charging actually shifts the demand curve substantially to the right, the consumer regarding the tax at least in part as something extraneous to the article purchased. In that case the price-cum-tax is higher with separate charging than without. This increases the incidence on the consumer and diminishes it on the dealer. If the shift is exactly sufficient to take account of the tax, then none of the incidence is on the dealer.

#### ADDITIONAL FORWARD SHIFTING

Hitherto we have analyzed the forward shifting from the dealer to the consumer (or, in the case of a general sales or turnover tax, from one dealer to another, and ultimately to the consumer). In order to gain a fuller idea of the incidence of the sales tax we must study further the forward shifting in the direction of sale—as well as the backward shifting in the direction of purchase.

When all or part of the sales tax is shifted to the consumer we cannot assume that it rests there. The consumer also sells a commodity—his labor-power—through which he can attempt to shift the tax. This factor

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is important especially in the low income groups or in highly organized union workers.<sup>5</sup> Where unions attempt to keep wages on a par with the cost of living, it means that any change in cost of living caused by the sales tax will be shifted forward to the manufacturer—and so on again to the dealer, etc. For this purpose the household must be considered as a unit and any tax that reaches the housewife or the child must be considered to be shifted totally or partially through the breadwinner in the family. No forward shifting can take place, however, in the case where the sales tax is shifted to a recipient of annuities, pensions, and relief, and to a person living off his savings, since these people do not sell anything. This statement holds unless, of course, we wish to consider political pressure for higher pensions and relief as part of the shifting process.

### BACKWARD SHIFTING

Backward shifting—shifting in the direction of purchase—must also be considered. Where a general sales tax affects the consumer's budget unevenly there will be a tendency to shift the tax from some of his purchases to another. As an example, where separate charging and customary prices exist in one line of consumption, the consumer may find it necessary to pay most of the tax; but he may find it possible to shift some of the tax in directions where customary prices do not exist. Likewise, where the sales tax is selective there will be a tendency on the part of the consumer to shift some of the tax from the taxed to the untaxed lines. The same sort of process takes place in the backward shifting from one dealer to another.

### DYNAMIC FACTORS

The possibility of shifting the sales tax will be greatly affected by the course of the business cycle and, in general, by fluctuations in prices and expectations. During periods of prosperity price advances to take account of the tax can be made more readily than during times of depression and price reaction. In the latter case it is most likely that the dealer will absorb the sales tax, thus reducing his profits or increasing his losses. French experience, for instance, confirms the view that the general sales tax is shifted to consumers in times of prosperity.<sup>6</sup> In the United States, moreover, a survey of about 30,000 retailers, made in the summer of 1933 in three states in which sales taxes existed, showed that the dealers

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<sup>5</sup> Carl F. Wehrwein, "Taxes and the Consumer," *American Economic Review*, Vol. 28, March, 1938, pp. 92-99, especially p. 99.

<sup>6</sup> National Industrial Conference Board, *Sales Taxes*, p. 35.

absorbed the tax, at least after waiting the first few months.<sup>7</sup> This may be true generally of periods of sharply rising and falling prices. During the German inflation, for instance, the sales tax was completely overshadowed by the tremendous price rise.<sup>8</sup>

### Shifting and Incidence of Excise Taxation

The analysis of the shifting and incidence of excise taxes, as well as the conclusions obtained, is essentially the same as in the case of sales taxes with one or two modifications in particular instances. Types of excises may be broken up into two parts for this purpose. Those on amusements, e.g. theater entertainment, are essentially a retail sales tax with separate charging prescribed. Those on cigarettes are more like a manufacturer's sales tax without separate charging at the retail end.

Again the theory underlying the imposition of the tax is almost universally that its burden is borne by the consumer. Actually we cannot determine the incidence of the tax until we take account of the elasticity of demand, the possibility of employing substitutes, the ease with which the consumer may be induced to use a slightly inferior article, the height to the tax, the ratio of product to cost, and the existence of monopoly.<sup>9</sup>

The question of the existence of monopoly or competition is the most interesting and perhaps the most important of these conditions. Under purely competitive conditions the result obtained in the long run depends on whether the commodities are produced under conditions of constant, increasing, or diminishing costs as in the case of sales taxes. In the case of out-and-out monopolies, again the same type of analysis holds.<sup>10</sup> As shown in the case of the sales tax, however, the answer depends to a great degree on the extent to which the monopolist has fully exploited his position before the imposition of the tax. Some backward shifting may also take place in the case of excise taxation. For instance, a tax on theater<sup>11</sup> admissions may be shifted partly to the movie producers in the form of lower rentals for the films used.

The monopoly analysis applies most particularly in the case of taxes

<sup>7</sup> Carl S. Shoup, *The Sales Tax in the American States*, pp. 104-5 (New York: Columbia University Press, 1934).

<sup>8</sup> E. L. Hargreaves, "Some Fiscal Experiments on the Continent," Lloyds Bank Limited, *Monthly Review*, June, 1932.

<sup>9</sup> See E. R. A. Seligman, *The Shifting and Incidence of Taxation*, p. 372 (New York: Columbia University Press, 1921).

<sup>10</sup> H. G. Brown, *The Economics of Taxation*, pp. 59-61, 73-78, 86-94, 134 (New York: Henry Holt and Co., 1924).

<sup>11</sup> See George E. Lent, "The Admissions Tax," *National Tax Journal*, Vol. 1, March, 1948, pp. 40-42.

on communication and transportation where monopolies predominate. At this point Bastable argues that if the rates had previously been placed at the point of maximum monopoly profit the tax would not be shifted.<sup>12</sup> This leaves out of account the fact that either the cost or revenue curve may be considered to be affected by the tax. This makes the most profitable price and output generally different from those which existed before the imposition of the tax. There are some peculiar instances which upset any general statements, e.g. the case cited by Seligman where a tax imposed on telephone messages in 1898 was the occasion though not the cause of a fall in price to avoid the tax.<sup>13</sup>

Where a certain amount of monopoly exists on both sides, a "theory of bargaining" applies. As Shirras says, "Speaking generally, we may say that producers shift as far as possible the tax on to consumers by reducing supply, and consumers shift the tax on to producers by reducing their demand. The success of either party depends on their relative strength to carry this with the least loss."<sup>14</sup> Finally, we must again take account of dynamic factors. As Professor Comstock has pointed out, while an excise is easily passed on by business during a period of rising prices, this is difficult during a period of falling prices, "in which case business in a period of oncoming depression suffers an additional handicap."<sup>15</sup> As in the case of the sales tax, moreover, a separate charging provision may materially affect the likelihood of shifting. Even if there is no legal provision for "passing on the tax" this process may acquire court sanction.<sup>16</sup>

### **Conclusions on Shifting and Incidence of Sales and Excise Taxes**

This analysis leads us to the general conclusion that there is some tendency for sales and excise taxes to be shifted to the consumer, but that this tendency varies in strength, depending upon a number of circumstances which may be specified.<sup>17</sup> The tendency is greater the more

<sup>12</sup> C. F. Bastable, *Public Finance*, p. 577 (New York: The Macmillan Co., 1903).

<sup>13</sup> Seligman, *op. cit.*, p. 380.

<sup>14</sup> G. F. Shirras, *The Science of Public Finance*, p. 190 (London: Macmillan and Co., Ltd., 1925). [Used by permission of The Macmillan Company.]

<sup>15</sup> A. Comstock, "Excises in Modern Times," *Annals of the American Academy of Political and Social Science*, January, 1936, p. 113.

<sup>16</sup> See, for instance, Marvel Stockwell, "Motor-Vehicle Fuels Taxes in California," *Bulletin of the National Tax Association*, Vol. 32, January, 1947, p. 103.

<sup>17</sup> For a rigorous demonstration that output varies inversely with sales and excise taxes under the usual assumptions, see Paul A. Samuelson, *Foundations of Economic Analysis*, pp. 14-16, 39-41 (Cambridge: Harvard University Press, 1947).

nearly perfect the competition, the less elastic the demand for the commodity or commodities as a whole, the fewer the number of price-cutters, the less the strength of customary factors and price groups, the stronger the resale price maintenance and legal and semi-legal control, the fewer the number of exemptions, the greater the number of regions affected, the more strictly the separate charge provision is employed, the greater the concurrent general rise (or the smaller the general fall) in prices, and the longer the period considered. There are several minor qualifications to these general conclusions, particularly where the fact of the sales or excise tax prompts a price rise which would have been profitable anyway.

We have found that there may be forward shifting from manufacturer to dealer to consumer; and, where the consumer is a worker, there may be forward shifting to the manufacturer again. We may also have backward shifting from consumer to dealer to manufacturer to worker (consumer). Does this mean that the sales or excise tax is "diffused," everyone pays part of it, and a detailed technical analysis is superfluous? Emphatically not. The double circle described above is by no means vicious. The possibility of complete and endless shifting in both directions does exist, it is true. But it is important to consider the institutional factors surrounding any particular sales tax to see where the circle is broken or, at least, attenuated, and where little pockets or bulges appear.

The existence of trade unions adjusting wages to cost of living, customary or administrative control of prices, nonlaboring income receivers, cyclical fluctuations, and many other factors discussed above, all determine the degree to which, and the points where parts of the tax move slowly or even rest permanently. The "vicious circlists" are unnecessarily defeatist in their attitude. Not only does part of the tax actually rest at various points, but even if it does not, the very fact that the tax passes through a point and efforts of various degrees of intensity are made to shift it has, in itself, important economic consequences. The fact that shifting theory cannot say exactly how much of a tax will rest at any point, and for how long, does not make such theory useless. It would be very desirable to have quantitative estimates but they are not indispensable.

### **Economic Effects of the Sales Tax**

The preceding sections of this chapter have dealt with the narrow question of specifying under what conditions the sales tax would tend to be shifted to the consumer and under what conditions it would tend to be absorbed by the dealer. We now pass to the broader question of the effect



which this shifting, or lack of shifting, as the case may be, has upon the economic system as a whole. The effects may be expressed in terms of consumption and economic welfare, production and enterprise, employment and national income, saving and capital formation, distribution of income, business fluctuations, and economic progress.

Our purpose is to provide a framework within which any particular sales tax can be evaluated as to its direct and indirect economic effects. We do not expect to draw any conclusions which are universally true. On the basis of the criteria set up earlier it is possible to decide whether any particular tax imposed under known and specified conditions is such that there tends to be shifting, and, if so, roughly to what extent and in what period of time. This information may then be used as a basis for a consideration of the broader effects.

#### CONSUMPTION AND WELFARE

Where the price to the consumer rises as a result of the tax, several possibilities are open to him: he may reduce his consumption of the taxed commodities; he may maintain the consumption of the taxed commodities but reduce the consumption of others; he may reduce and redistribute the consumption of all commodities, in money value, possibly maintaining the physical volume of consumption (in some sense) by passing to inferior substitutes; he may maintain his real consumption by drawing on savings or borrowing money; or some combination of these. Since the sales tax, in so far as it is shifted, is regressive and affects the mass of the population,<sup>18</sup> it is reasonable to believe that the money value of consumption is not actually maintained, particularly where there is no exemption of staples. There would likely be a diminution in real consumption. The long-run effects of this might be a tendency to a deterioration and even reduction in the size of the population if the tax cuts into the minimum of subsistence.<sup>19</sup> The effects of spending the tax money are not considered here.

<sup>18</sup> A few of the studies which lead to this conclusion may be cited. The Conference Board has concluded that the tax, in so far as it is shifted, bears with "greater weight on persons with small incomes and large families than it does on those with large incomes and small families." *National Industrial Conference Board*, "Sales Taxes: General, Selective, Retail, 1932," pp. 45, 69. Similar statements are also made in N.I.C.B., "General Sales or Turnover Taxation," pp. 154, 159; Buehler, "General Sales Taxation" (1932), pp. 125, 126, 127, 251; and Hargreaves, "Some Fiscal Experiments on the Continent," *Lloyds Bank Limited*, *Monthly Review* (June, 1932), pp. 252, 255; Groves, *op. cit.*, p. 288; Public Policy Pamphlet, No. 1, "Balancing the Budget: Federal Fiscal Policy During Depression" (Jan. 16, 1933), p. 20.

<sup>19</sup> See A. G. Buehler, *General Sales Taxation* (1932), pp. 250-51.

Some of the effects of the tax on economic welfare are suggested in the last paragraph. There are more complicated aspects which are not considered. We cannot here discuss the welfare problem resulting from the consideration that the sales tax "ignores the fact that the marginal utility of the rich man's dollars is lower than the marginal utility of the poor man's dollars."<sup>20</sup> This brings up a difficult economic question which cannot be considered adequately here. Nor can we consider the political question arising from the fact that the sales tax is sometimes collected silently. Some believe that "if citizens who pay taxes only indirectly through higher prices were called upon to pay a direct tax, even though small, they would in time learn to associate higher cost of government with heavier tax burden and would make this conviction felt at the polls when a question of approving additional expenditures was before the community."<sup>21</sup> Separate charging, where used, has not been completely successful in overcoming this defect.<sup>22</sup>

### PRODUCTION AND ENTERPRISE

Even where the tax is nominally shifted to the consumer, the dealer suffers through the fall in volume of sales, with its almost necessary concomitants, fall in profits (or even the appearance of a loss), in production, and in employment.<sup>23</sup> If, as discussed above, the consumer-worker can shift the tax again—to the employer—the effect is that of any increase in cost. Where the price does not rise and the tax is absorbed by the dealer, the rate of profit is reduced, with the resulting damper on initiative and risk-taking. Where the shifting is incomplete or is not general, business is affected in an uncertain and arbitrary manner. Firms operating on a small margin of profit per unit sold are much more seriously affected than firms operating on a large margin of profit per sale. As both incompetent and competent firms pay the tax, there is a natural weeding out tendency (directed against the "marginal sellers") as a result of the

<sup>20</sup> *Ibid.*, p. 250. See A. P. Lerner, *Economics of Control*, Chapter 3.

<sup>21</sup> National Industrial Conference Board, *Sales Taxes: General, Selective, Retail* (1932), p. 69.

<sup>22</sup> C. Shoup, "The Sales Tax," *Annals of the American Academy* (January, 1936), p. 107.

<sup>23</sup> Contrast: "I have been happy to see states and communities rely more and more upon sales taxes. These taxes are geared to the production of goods and services and give a direct measure in the purchase price of the cost of government. Even in a depression they are not a discouragement to production, which means employment." W. L. Hearne (U. S. Steel Corp.), "Ad Valorem Taxes and the Steel Industry," *Proceedings of the National Tax Association*, 1947, p. 280.

## TAXATION

tax.<sup>24</sup> Moreover, in the case of the general sales or turnover tax, there is an undoubted incentive toward integration and direct marketing because of pyramiding to reduce the number of times the tax is paid. This affects the competitive set-up and promotes monopolies. On the other hand, where there are a few selective sales taxes the resultant shifts in demand are injurious to business, on the whole.

Even before the sales tax actually goes into effect it has important effects on business, as consumers tend to make excessive purchases in order to avoid the tax. This was amply demonstrated in England before a new purchase tax went into effect in 1940.<sup>25</sup> The existence of differences in the degree of integration in different industries accentuates this effect in the case where we have a general turnover tax, since the greater the degree of integration the fewer the number of times the tax has to be paid.

### EMPLOYMENT AND NATIONAL INCOME

Traditional economic theory tells us that the diminished employment resulting from the decline in construction and capital formation would reduce wages and that the diminished demand for capital would lower the rate of interest until the profit rate and the incentive to invest were revived. In this way investment, production, and employment generally would be restored to their former level. In that case producers' and dealers' profit margins fall, price reductions take place, and the monetary burden of the tax is borne by the receivers of income; and the sales tax becomes a tax on incomes.<sup>26</sup> The above conclusion is modified by the possibility that the fall in wages and interest might reduce the supply of labor and capital so that output and the real amount of goods available

<sup>24</sup> A member of the Department of National Revenue, Canada, has claimed as one reason why the manufacturer's sales tax was developed rather than other types of taxes is that both competent and incompetent firms have to pay the tax, while, in the case of income taxes, only the competent pay. See National Industrial Conference Board, *Sales Taxes: General, Selective, Retail* (1932), pp. 8-10.

<sup>25</sup> The following newspaper item illustrates the point:

Today was a busy one for London shopkeepers and except for the wrecked buildings seen everywhere one never would have guessed that this city had been under almost constant bombardment for six solid weeks. It looked more like the peak of the Christmas buying season.

There were several reasons for this. One is that the purchase tax, by which Chancellor of the Exchequer Sir Kingsley Wood expects to raise £110,000,000 in a year, goes on nearly everything Monday except babies' clothes, foodstuffs, tobacco, liquor and other articles already heavily taxed (*New York Times*, October 20, 1940, p. 41).

A fuller description of the tax appears in the *New York Times*, October 21, 1940, p. 4.

<sup>26</sup> See H. G. Brown, "The Incidence of a General Output or a General Sales Tax," *Journal of Political Economy*, Vol. 47, April 1939, pp. 254-262; "A Correction," *June*, 1939, pp. 418-20.

for consumption do not return to their former level. Thus consumers and income-receivers share the burden of the tax. These two groups are virtually identical for most purposes but this fact does not lessen the importance of the distinction for the present purpose. In the case of any particular sales tax some individuals may find it more difficult to shift the tax burden as consumers (e.g. in their purchases of goods) than as income-receivers (e.g. as purchasers of bonds). In the case of a state sales tax the fall in interest and wages would be checked by the flow of capital and labor from the state. The consumers of the sales tax state would lose while those of the other would gain.

Such ideas do not apply to the world as we know it. The day of flexible wage rates and interest rates is over. Trade unions prevent an automatic adjustment of money wages to the number of unemployed;<sup>27</sup> and even if the money wage could be adjusted it is doubtful whether the real wage would fall and employment rise, except possibly through an independent change in the rate of interest.<sup>28</sup>

The rate of interest is determined by the demand and supply of loanable funds as a whole (or by the demand and supply of money as a whole), hence we must look beyond merely the diminished demand for capital to see whether the rate of interest will fall. Although the demand for money for transaction purposes and for financing investment will be diminished, the resulting fall in the rate of interest will not be sufficient to restore the incentive to invest, capital formation and employment to their original level. Thus the traditional conclusions regarding the effects of sales taxes based on an outmoded theory of pure competition and the belief that "all savings are invested and all investment comes from savings" must be modified. The sales tax has a tendency to reduce employment and national income; and there is no automatic corrective to this. Those who lose employment bear the "burden" of the tax together with the consumers and without any particular gain to anyone. However, some fall in wages and interest costs may take place and if it does the untaxed fields will benefit as well as the taxed.

#### SAVINGS AND CAPITAL FORMATION

In those cases where consumption is maintained only through the process of individual dissaving or of borrowing, we would find a decline

<sup>27</sup> For the implications of this see J. M. Keynes, *The General Theory of Employment, Interest and Money*, Chapter 19 (New York: Harcourt, Brace and Co., 1936).

<sup>28</sup> For the complicated nature of this relationship, see William Fellner, *Monetary Policies and Full Employment*, Chapter 5 (Berkeley: University of California Press, 1946).

in individual savings in the community. Where profits are reduced through the absorption of the tax or through the fall in the volume of sales, there would also be a tendency for individual and corporate savings to be reduced. In general the non-worker groups supply a substantial portion of the savings of the economy. These reductions in individual savings do not, however, necessarily mean that the formation of capital is reduced. Under prevailing monetary and banking conditions capital formation need not wait upon the *voluntary* saving of individuals and corporations: *forced* savings through credit expansion will be quite as effective. The question is, however, whether the demand for capital is affected, granted that the supply of capital (through forced saving) is potentially as great as ever. Here we must refer to the conclusions noted above, that the rate of profit is reduced, and consumption is curtailed. Thus the derived demand for investment goods and thus the incentive to make the investment are reduced with the resultant decline in capital formation, i.e. social saving.

#### DISTRIBUTION OF INCOME

The above analysis leads to the conclusion that national income as a whole tends to be reduced as a result of a sales tax (leaving out of account the expenditure of the tax money). We now turn to the question how the distribution of that income is affected. Even though the tax is regressive when it is shifted, we cannot conclude from this alone that a redistribution of income takes place in favor of the higher-income groups. Profits also tend to be affected, regardless of whether or not the tax is shifted, hence both the higher and the lower income groups have their income reduced. In the long run, however, there is a greater possibility of appropriate adjustments on the part of businessmen. The tendency to a greater inequality in distribution of income may then manifest itself. All in all, however, we cannot say that the sales tax generally upsets the prevailing distribution of income seriously one way or another. The income distributed is, however, smaller—for both the higher and the lower income groups.

#### BUSINESS FLUCTUATIONS

The shifting of the sales tax is facilitated in times of prosperity and is made more difficult in times of depression. This was pointed out in the discussion of tax shifting. The result is that profits are not seriously affected in times of prosperity but losses are increased in times of depression. Hence we may conclude that the downturn is accentuated and

the depression is made more severe as a result of the sales tax but that the upturn and prosperity phases are not substantially affected and certainly not accentuated. We may therefore conclude that this aspect of the effects of the sales tax tends to accentuate depressions in business activity. It is also reasonable to suppose that the necessity of including the sales tax in the price prolongs the depression in that it makes it more difficult to begin the upward phase of the cycle. The fact that the sales tax must be paid in both good times and bad is, ironically enough, one of the main advantages claimed for the tax, since this results in stability of yield.<sup>29</sup>

### ECONOMIC PROGRESS

The sales tax tends to reduce initiative because the profit rate is reduced, thus discouraging risk-taking, and also because in initiating a line of business activity there is uncertainty as to whether or not it will be possible to pass on the tax. Although these factors in themselves may not have the effect of preventing new enterprises and industries, they do tend to have a deterrent effect. This would aggravate the effects of any stagnationist tendencies that may exist in the economy. Added to this the fact that the physical wealth of the community tends to be diminished because of the deterrent influence of capital formation, we can say that the effects of the sales tax are such that we cannot recommend the tax to posterity with equanimity.

### Effects of Excise Taxes

What has been said about economic effects of sales taxes applies in general to excises. These taxes are usually imposed upon luxuries but affect the working groups and reduce their consumption. Professor Comstock has stated that "a laboring man may find that he cannot smoke as often as he used because the price of his cigarettes is approximately double what it would be without the tax."<sup>30</sup> Lord Stamp has claimed that the poor man does not get as much for his money as does the rich man, relatively speaking, and that the imposition of the excise tax aggravates the discrepancy.<sup>31</sup>

<sup>29</sup> On this point see National Industrial Conference Board, *Sales Taxes: General, Selective, Retail* (1932), pp. 8-10, 12.

<sup>30</sup> A. Comstock, "Excises in Modern Times," *Annals of the American Academy* (January, 1936), p. 113. Cf. R. and G. Blakey, "Cigarette and Other Tobacco Taxes," *Taxes*, Vol. 20, September, 1942, pp. 537-49.

<sup>31</sup> Sir J. Stamp, *The Fundamental Principles of Taxation* (1920), p. 68.

## NON-PAYMENT OF THE TAX

In considering the actual welfare effect of excise taxes we should look not only at those who pay the tax but perhaps even more at those who do not pay it. On this point Brown makes a significant comment. He says, "those who are, by a tax, kept from purchasing what they need or desire and are so induced to purchase instead other goods which less satisfactorily meet their requirements, may properly be regarded as losing something . . . What they lose the government does not gain. Here, so far as the community as a whole is concerned, there is a net loss of utilities."<sup>32</sup> Along the same lines Seligman says, "In some cases, those who do not pay the tax because their consumption is cut off may suffer more than those who continue to purchase the commodity. In other cases the loss in the consumer's surplus may be very easily compensated."<sup>33</sup> Such interpersonal comparisons of utility are dangerous to make. Even the ingenuity of the "new" welfare economics does not provide a general way to handle the problem.<sup>34</sup> There is, nevertheless, a loss of individual utility in that excises distort consumer choice as compared with the same amount of revenue obtained through income taxes.<sup>35</sup>

## OVER-ALL EFFECTS

Turning to over-all economic effects, it is reasonable to conclude that the decline of consumption has an adverse effect on production, enterprise, and employment. Its effect on savings is negligible; it has an unimportant effect on distribution of income; it accentuates depressions and tends to retard economic progress and reduces economic welfare.

## OFFSETTING FACTORS

There are a few offsetting factors to be noted. In some cases, as in that of the tax on liquor, one of the purposes is, ostensibly, a moral one. Moreover, the question of yield cannot be neglected, especially in wartime when the Treasury is faced with an enormous fiscal problem. Bastable has stated that it is "one of the earliest observations in finance that taxation on the expenditure of the working classes will yield much

<sup>32</sup> H. G. Brown, *The Economics of Taxation* (1924), p. 94.

<sup>33</sup> E. R. A. Seligman, *The Shifting and Incidence of Taxation*, p. 373 (New York: Columbia University Press, 1921).

<sup>34</sup> See Melvin W. Reder, *Studies in the Theory of Welfare Economics* (New York: Columbia University Press, 1947).

<sup>35</sup> See H. Hotelling, "The General Welfare in Relation to the Problems of Taxation and of Railway Rates," *Econometrica*, Vol. 6, July, 1938, pp. 242-69.

better results than that which is placed on the apparently more profitable outlay of the comparatively few rich persons."<sup>36</sup> In some cases, moreover, the revenues may be definitely earmarked for an important purpose such as road construction or education.

#### PAINLESSNESS

One further important consideration must be taken into account in evaluating the excise tax. In the case of the tax on amusements, separate charging usually prevails so that the consumer is conscious that he is paying the tax. For several commodities there usually is an indication in the form of a stamp that a tax has been paid. In many cases, however, the excise tax may be considered "painless" in that the buyer is not acutely conscious of paying it. This gives us at one and the same time a possible explanation of the widespread use of excises and also an indication of their main political defect. As Professor Brown says, "Perhaps a principal reason for the widespread and long continued use of commodity taxes is the fact that the general public who, as consumers, are ordinarily supposed by economists to pay such taxes in higher prices of goods purchased, are not acutely conscious of paying."<sup>37</sup>

#### CONCLUSIONS ON EFFECTS OF EXCISES

The above discussion of excise taxes suggests that their use is widespread and the revenue derived from them is of great importance in governmental budgets; that the incidence of the taxes is partly, at least, on the consumer; that from the administrative point of view there is something to be said in their favor; and that from the point of view of the consumer who pays (and even the consumer who does not pay) the taxes and from the point of view of the welfare of society at large, there is much to be said against them.

#### Conclusions on Sales and Excise Taxes

No general conclusions can be given to fit every possible sales and excise tax under all circumstances. We can say what incidence and effects can be expected from such a specified sales or excise tax under stated conditions. Moreover, we are here concerned only with tendencies which usually manifest themselves in an important manner only when accom-

<sup>36</sup> C. F. Bastable, *Public Finance*, 1927, pp. 506-7. [Used by permission of the Macmillan Company.]

<sup>37</sup> H. G. Brown, *The Economics of Taxation*, p. 53 (New York: Henry Holt and Co., 1924).



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panied by other factors working in the same direction. Non-tax factors can work in the opposite direction and obscure the results. Under most conditions there is some tendency for sales and excise taxes to be shifted to the consumers. This will generally reduce consumption, production, capital formation, and both labor and non-labor income. There is not much effect on the distribution of income but some tendency to accentuate business fluctuations and a slight tendency to retard economic progress do exist. It must be emphasized and repeated, however, that any such summary statement of conclusions can be considered only as a starting-point or "first approximation" for an actual case—and as such should be helpful rather than misleading.

Other Taxes: Property, Payroll, Excess  
Profits, Undistributed Profits, Estate,  
Poll, Processing, Import, and  
Capital Stock Taxes

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The preceding chapters deal with only a few of the many taxes which are in force today. To give an equal amount of attention to all other taxes would involve us in too large an undertaking. The present chapter discusses some of the major aspects of the most important taxes which have not yet been considered.

*PROPERTY TAXES*

The property tax has the distinctive feature of being the least equitably administered of all taxes. The property involved is "assessed" at a certain amount which is usually supposed to represent the true value in some sense. The tax rate is set at a given number of dollars per thousand dollars of assessed value. For instance, the assessed value of a piece of property may be \$6000 and the rate \$30 per \$1000, making the total tax liability \$180.

The difficulty arises in deciding on the proper amount to set as the assessment. Here arbitrary and personal factors, to say nothing of political considerations, have played a deplorable part in many communities. Since communities vary in the proportion of full value which they actually assess, problems of "equalizing" the assessments of different jurisdictions arise. Large enterprises, such as railroads and steel companies, which straddle numerous localities encounter practical difficulties on this account.<sup>1</sup>

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<sup>1</sup> An interesting discussion of this problem appears in the *Proceedings of the National Tax Association*, 1947. See W. K. Bush, "The Impact of State and Local Taxation on

Property taxes extend beyond merely taxes on land or on real estate and household furnishings. They also include such items as merchandise inventories, equipment, securities, and bank deposits. Here also, more perhaps than in any other case, it is necessary to take account of evasion and inequitable administration of the tax through arbitrary assessment.<sup>2</sup> It is also necessary to distinguish between the case where all kinds of property are subjected to the same rate and the case where property is classified into various components and subjected to different rates. The latter is called the "classified property tax."<sup>3</sup> Another complicating factor in property taxation is that the tax is ordinarily paid out of income even though it is assessed on the capital value.

The problems of property taxation in Great Britain and the British Commonwealth are generally similar but there are some important differences.<sup>4</sup> In England and Wales the tax is imposed on the *occupiers* of real estate, whether owners or tenants. It is applied at a uniform rate to the "hypothetical annual net rent." Unused vacant land and unoccupied houses are exempt since they have no annual value. In Scotland, there is a tax on owners as owners as well as on occupiers as occupiers. The property tax in the self-governing dominions varies a great deal from one country to another but has characteristics of both American emphasis on capital value and the British emphasis on annual. The outstanding characteristic, however, is greater local autonomy generally in those dominions than in the United States.

The administrative aspects of the property tax are dealt with in detail in a large number of textbooks which are readily available to the interested reader. We confine ourselves here to an analysis of the economic effects of this type of tax. State and local problems associated with the property tax are considered in Part V (Chapters 20, 21, and 22).

### Shifting of a Tax on Real Estate

We may first consider the narrow question of a tax on real estate. Depending on local conditions, some of this tax is undoubtedly shifted

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Railroads," pp. 255-69, especially pp. 262-65; C. C. Long, "The Impact of State and Local Taxes on Business As They Affect Railroads," pp. 270-76, especially pp. 272-73; and W. L. Hearne, "Ad Valorem Taxation and the Steel Industry," pp. 277-80.

<sup>2</sup> See the paper by Joseph S. Martel on the personal property tax (no title given), *Proceedings of the National Tax Association*, 1947, pp. 283-86.

<sup>3</sup> For a brief review of the classified property tax see Simeon E. Ieland, "Some Observations Concerning the Classified Property Tax," in *Viewpoints on Public Finance* (Harold M. Groves, ed.), pp. 79-86 (New York: Henry Holt & Co., 1947).

<sup>4</sup> See Philip H. Cornick, "Alternative Methods of Taxing Real Property," *N.T.A. Proceedings*, 1946, pp. 144-54.

and is reflected in rent. The process of shifting, however, cannot be considered complete. The usual analysis in terms of elasticity of demand would apply. Even if it is complete there are nevertheless some disadvantages to real estate owners. Real estate men constantly speak of the "burden" of the property tax on them. At a meeting of the National Association of Real Estate Boards some years ago, there were heard a series of pleas for protection of real estate against any "undue burden of taxation."<sup>5</sup> and at the Annual Conference of the American Municipal Association, Professor John F. Sly said, "Real estate in large cities is not able to bear the huge cost of paying for all modern governmental services."<sup>6</sup> The same cries of protest are repeated year in and year out.

### TAX ON ECONOMIC RENT

The shifting and incidence of rental taxes has usually been discussed in terms quite different from those used in considering the shifting and incidence of income taxes. The reason for this may be traced to the theory of distribution which distinguishes "profit" from "rent." Rent theory, however, loses no time in distinguishing between "economic rent" and "contractual rent." The latter is much like any other kind of gross business income. After the deduction of expenses we derive a net business income. There is no need to set up a separate analysis for tax theory purposes.

There seems to be general agreement that a tax on the *pure* economic rent of land cannot be shifted. Seligman epitomized economic thought on the subject when he said: "If land is taxed according to its pure rent, virtually all writers since Ricardo agree that the tax will fall wholly on the landowner, and that it cannot be shifted to any other class. Since land on the margin pays no rent, so the argument runs, and the cost of the produce adjusts itself to that on the no-rent land, a tax on rent cannot affect the price of agricultural produce, and therefore cannot be shifted. The point is so universally accepted as to require no further discussion."<sup>7</sup> Be that as it may, it is obviously difficult to isolate the *pure* element in the rent of land so that the traditional analysis does not help us much in deciding whether any particular tax on land is or is not shifted. Moreover, even if a tax which ultimately reaches the economic rent on land cannot be shifted, the lengthy process involved before it does reach economic rent may be more important in its economic effect than the fact

<sup>5</sup> *New York Times*, November 15, 1940, p. 41.

<sup>6</sup> *New York Times*, November 14, 1940, p. 18.

<sup>7</sup> E. R. A. Seligman, *The Shifting and Incidence of Taxation*, pp. 257-58 (New York: Columbia University Press, 1921).

that when the tax reaches the economic rent it can go no further. The reader is referred to Chapter 8 above where the concept of "economic rent" is discussed more fully.

#### SHIFTING OF A PROPERTY TAX ON SECURITIES

A property tax imposed solely on securities or a loan would have the effect of inducing people to keep resources in other forms than securities, thus tending to lower the price of securities and to force up the rate of interest. Under such circumstances we might say that the tax is shifted in the form of higher interest rates. But the more general the property tax and the smaller the discrepancies among the taxes imposed on various classes of property, the smaller will be the tendency to shift from one asset to the other. The same sort of analysis applies in the case of a tax on bank deposits.

#### CAPITALIZATION OF PROPERTY TAXES

It is often assumed that property taxes are "capitalized." This means that the property value is reduced by the capital amount representing the value of all future tax payments. An example may illustrate this theory. Suppose a piece of property has a value of \$100,000. A new tax of \$100 per annum is imposed on this property. Assume the going rate of interest to be 5 per cent. The present value of an infinite number of future tax payments of \$100 discounted at 5 per cent is \$2000. The property is therefore worth \$98,000 instead of \$100,000.

This procedure opens up questions of the definition of "value" and "going rate of interest," as well as the period of time over which the tax rate is expected to remain unchanged. These are minor problems, however, compared with the main question: Why must it be assumed that the seller of the property bears the burden of the tax? Such an assumption certainly does not hold in the ordinary competitive buying and selling of real estate. There is no reason to treat real estate unlike any other commodity in this respect. The fact that the total amount of land on the earth is substantially unchangeable is not pertinent because of qualitative differences and alterations—and besides the non-manufacturability of land would presumably give the edge to the seller rather than the buyer! It will generally be true that the tax will be borne partly by the seller and partly by the buyer, the exact amount being determined in accordance with the considerations mentioned in Chapter 8 and illustrated in subsequent chapters.

## Effects of the Property Tax

### CONSUMPTION

The economic effects of the property tax depend on the generality of the tax, the relative rates of the tax, and the relative degree of enforcement. A universal and uniform general property tax will tend to have some effect in the direction of diminishing consumption. This would be true particularly if the tax is shifted from property owners, who may be considered the relatively wealthy class, to non-property owners. The latter, who rent rooms or houses, may be assumed to spend a larger proportion of their income on consumption than the former. In the case of many home-owners and of the ordinary farmer, the effect would be the same. A tax on cash of all forms might partly result in finding some substitutes for cash, e.g. jewels, and also have some tendency to increase all spending, including consumption if satisfactory substitutes for cash are not readily available.

### PRODUCTION AND BUSINESS ENTERPRISE

A general and uniform property tax might have the effect of reducing all rates of return. If this were so, it is unlikely that any effect would be felt on enterprise except in so far as property is left idle to reduce assessments and avoid the tax. Since the tax admittedly is enforced in an extremely arbitrary fashion, in many cases discriminatory effects undoubtedly would be felt in practice. In our earlier discussion of a tax on economic rent we saw that taxes on differential gains, since they do not affect the margin, do not affect the use of land. By and large this is true, and it is the basis of the single tax doctrine of Henry George. But George's theory was based on the assumption that the supply of land was fixed, and that therefore a tax on land could not reduce supply. This is hard to apply in a realistic situation. In the opening up of the West, for instance, it seems likely that a tax on the rent of the land granted to railways would have retarded the development of the West and eventually would have led to diminished products and higher prices for produce than now exist.

### SAVINGS AND CAPITAL FORMATION

Even a general and uniform property tax which happens to be regressive tends to reduce the volume of savings since, in part at least, it hits the wealthier part of the population. A property tax which affects

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securities in a discriminatory manner would also reduce that part of individual savings which is available for investment and raise the interest rate. A property tax which affects cash in a discriminatory manner would have the opposite effect, however, and would increase that part of savings available for investment. In general, owing to the availability of capital from the commercial banks, these considerations are not too important one way or the other for short-term loans. There may be a significant exception, however, in the case of agriculture and small business. The existence of governmental agencies, and some relaxation of the attitudes of private banks which make credit available to the farmers and small businessmen do, however, diminish the importance of this exception.

### DISTRIBUTION OF INCOME

Whether the property tax tends to increase or diminish the differences in the distribution of wealth and income is a highly debatable question. One cannot glibly answer this question merely on the basis of a glance at the rates, for we must consider whether in practice local assessors favor large property owners, intentionally or otherwise. Moreover at least part of the tax is shifted. It seems likely that the effect on the distribution of income depends on prevailing business conditions because these would determine the degree of shifting. When there is a shortage of rental property in relation to the demand, a large proportion, if not all, of the tax would be shifted. If there is a surplus, a small proportion, if any, would be shifted. On the reasonable assumption that the property-owners as a group are at a distinguishably higher income level than the tenants as a group, the property tax would tend to accentuate inequality in the distribution of income in good times and reduce it in bad.

### Conclusions on Incidence and Effects of Property Taxes

The shifting of the property tax may best be considered in the same terms as any other tax and not as subject to special considerations such as capitalization, taxation of economic rent, or other peculiarities. Because of the slowness of adjustment in the supply of land and buildings, the changes in demand conditions would be the main determinants of the degree of shifting in the short run. The possibility of shifting taxes on tangible and intangible personal property would be determined through the usual type of economic analysis. The ultimate effects of the tax would vary with the degree of shifting. There may be substantial reduction in the demand for consumer goods, some retardation of eco-

conomic development especially because of discriminatory practices, but no generally determinable effects on the distribution of income.

The entire problem of property taxation is now in a state of flux because of the tendency of many local governments to diversify their revenue sources. This is discussed more fully in Chapter 21. The practical problems involved for urban property taxes have been listed by Professor Sly: "The services are used by many persons besides those on whom the property taxes fall. Small towns do not have a large enough property base to pay entirely for major public services, such as schools, roads, and welfare, and to keep them abreast of Statewide standards. The property tax is often hopelessly lost in a morass of preferred treatment, unequal assessments, and uneven collections."<sup>8</sup> Various movements are afoot to improve the situation, however, and a former president of the National Association of Real Estate Boards, previously cited, said a few years ago: "But real estate is about to enjoy a relative advantage in the field of taxation. There are emerging several influences which, it is believed, will cause these increases in taxation to settle more heavily proportionately on forms of wealth other than real estate."<sup>9</sup>

Proposed modification of the real property tax in the United States has taken the following forms:<sup>10</sup> (1) Taxation of real property on an income basis instead of capital value; (2) classification of real property either by removing some property from the ad valorem tax or by imposing special ad valorem taxes on certain classes of real property; (3) extension of special assessments in place of the present property tax; and (4) placing as much as possible of the property tax on a "cost of service rendered" basis. Some of these suggestions seem to have real merit and are worthy of serious consideration.

### PAYROLL TAXES

Payroll taxes are in a sort of intermediate position between personal and business taxes. The old-age benefit taxes, for instance, are paid partly by the employer and partly by the employee. Both parts are based on the payroll. Some cities have also adopted payroll taxes paid by the recipient of the income. Such taxes, which use the entire payroll figure as a base, should be distinguished from the withholding under the federal income tax. The latter is merely a device for temporarily collecting

<sup>8</sup> John F. Sly, *New York Times*, November 14, 1940, p. 18.

<sup>9</sup> *New York Times*, November 15, 1940, p. 41.

<sup>10</sup> See Paul E. Malone, "The Movement for Property Tax Modification," *N.T.A. Proceedings*, 1946, pp. 166-70.



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all or a major portion of the tax which would have to be paid ultimately in any case. By payroll taxes we refer to those taxes which are literally based on the gross payroll or on any portion of the payroll, such as individual salaries up to \$3,000 per year. In addition to the old-age benefit taxes and the municipal income taxes mentioned above the unemployment insurance taxes may also be included. The rates of the latter are sometimes variable depending on experience regarding stability of employment, but the rate when determined is applied to the payroll figure.

### SOCIAL SECURITY OLD-AGE BENEFIT AND UNEMPLOYMENT INSURANCE TAXES

Under the Federal Social Security tax for old age and survivor insurance, employers and employees each pay a tax, 1 per cent, on the first \$3000 of wages to each employee for employment during a calendar year. The tax covers employers of one or more persons in non-exempt employment. The tax on employees is withheld by the employer. The rate was 1 per cent from 1937 to 1946 inclusive. It was to have increased to 2½ per cent in 1947 and 1948 and was to have been 3 per cent in 1949 and thereafter. The tax has, however, remained unchanged at 1 per cent on employer and 1 per cent on employees. In the years 1936-39 the basis was total wages rather than the first \$3000 of wages. Large classes of workers are not covered by the old-age taxes and benefits.

The unemployment insurance tax in the United States is paid entirely by employers except in Alabama, California, New Jersey, and Rhode Island, where there is also an employee contribution. The federal tax of 3 per cent on the first \$3000 of annual wages applies only to those employers who have in their employ eight or more persons on one or more days in each of 20 weeks during the calendar year. As in the case of old-age benefit taxes, large classes of employment are exempt. The employer may take credit against the tax up to 90 per cent of the tax for contributions to an accredited state unemployment fund. All state funds are accredited and a few cover firms with one or more employees. Under merit-rating and similar provisions in many states tax reductions or rebates are given employers who have a record of stability of employment.

The important exemptions in the case of old-age taxes (hence benefits) are: services performed outside the United States, agricultural labor, domestic service, casual labor not in the course of the employer's trade or business, service performed in the employ of charitable, religious, and educational institutions, and public service. Under the unemployment insurance provisions, exemptions also exist for services performed

in the employ of a son, daughter, or spouse, services of a child under 21 in the employ of his parent, and services of insurance agents working wholly on a commission basis.

### Shifting of the Employee's Tax

Where the payroll tax is a deduction from employee income, the analysis for forward and backward shifting is basically the same as that discussed in the case of income taxes with low exemptions.<sup>11</sup> The reader is referred to Chapter 10. Here, however, there may be a greater tendency for forward shifting to the employer because the tax might impinge on the minimum of subsistence. Only those aspects of Chapter 10 which require emphasis because of the peculiarities of payroll taxes are discussed here. In England, according to Silverman, all banks used to pay the income tax of their employees. Whether the shifting goes any farther is a little doubtful. Silverman finds that "so far at any rate, there is nothing to warrant the belief that bank charges are any higher than they would be if the employees did not have their income tax paid for them."<sup>12</sup>

Where the subsistence level is actually affected by the payroll tax there may be a long-run tendency for a rise in wages to take place and thus offset the tax if the population is decreased as a result of the tax through decreased immigration or a smaller birth rate. This possibility is minimized by several considerations pointed out by the Colwyn Committee. There may be other economies than those achieved through a lower birth rate; or there may be a higher birth rate because of the lower wages; or the wages following the deduction of the tax may still be above the subsistence level.<sup>13</sup> In any case the process of shifting in this way is not a very happy one. Seligman points out that the imposition of a tax on wages "injures the workman both temporarily and permanently. It reduces his standard of living, and in weakening him, it renders less easy any attempt to lift himself out of his impoverished condition. If a tax on wages is shifted to profits at all, it is only after a long and fierce struggle." This comment is more appropriate to payroll taxes than to general income taxes. The payroll taxes are based only on the first \$3000

<sup>11</sup> Cf. J. K. Hall, "Incidence of Federal Social Security Pay Roll Taxes," *Quarterly Journal of Economics*, November, 1938, pp. 38-63; and Herbert D. Simpson, "The Incidence of Pay Roll Taxes," in Harold M. Groves, *Viewpoints in Public Finance*, pp. 134-136 (New York: Henry Holt & Co., 1947).

<sup>12</sup> H. A. Silverman, "*Taxation: Its Incidence and Effects*," p. 149 (London: Macmillan and Company, Ltd., 1931).

<sup>13</sup> Colwyn Committee Report, *op. cit.*

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of income without exemptions or deductions whereas income taxes have some exemptions and deductions.

### Shifting of the Employer's Tax

The part of the payroll tax which is paid by the employer may be considered in the same type of analytical framework as an excise tax on production. The greater the payroll the greater the total tax. Since payrolls do not vary in exact proportion to production, a separate treatment is necessary. The main point to bear in mind is that the payroll tax may induce a substitution of equipment for labor in those processes where such substitution is possible. Theoretically, assuming complete divisibility of equipment and perfect competition, such substitution is certain to take place. In practice, it can still be said that the payroll tax encourages substitution which it may not be possible to put into effect in all cases.

In so far as the demand for labor is reduced by the employers' part of the payroll tax, it may be expected that generally some tendency for a fall in wages would exist. For all practical purposes the employers must pay a higher total wage (including the tax), they cannot afford to hire as many workers as before, and actual wages fall. Again, there may be many interferences with this process in practice. However, in so far as the process works, some of the employer's portion of the tax is shifted backward to employees. In so far as the tax increases variable costs, the usual analysis of forward shifting through a rise in the price of the product would apply.

### Effects of Payroll Taxes

The effects of payroll taxes follow substantially the same pattern as personal income taxes (for the employee part) and excise taxes (for the employer part). Unemployment insurance taxes paid by employers are in the latter category. The merit-rating provisions may have far-reaching effects in the direction of stabilizing employment but there is always still a net cost involved in the tax. The net cost is roughly variable with the number of persons hired. By and large the same type of effects may be expected as in the case of the employer part of the old-age benefit tax.

### SIGNIFICANCE OF SOCIAL SECURITY RESERVES

There is one aspect of payroll taxes which warrants some attention. The economic effects of payroll taxes have been the subject of a great deal of controversy in this country during the last few years as a result

of the provisions of the Social Security Act whereby a large reserve was to be built up. The progressive increase in payments and thus the ultimate size of the reserve was later reduced. It is interesting to consider the economic effects which may be felt during the time that the reserve is being built up, i.e. during the time that the tax receipts are greater than the benefit payments.<sup>14</sup> A net reduction of purchasing power and a general deflationary (or anti-inflationary) effect will be felt. The fact that the reserves are lent to the federal government is not of great importance in itself. With the credit standing of the federal government being what it is, the economic effects of these borrowing practices are not of great consequence.

### CONSUMPTION AND WELFARE

Since the general standard of living in the United States is above subsistence and trade union reaction to the payroll tax (in terms of pressure for higher wages) has been negligible, it is likely that little forward shifting of the employee tax has taken place from wage earner to employer. Since savings at the employee level are not substantial we may conclude that the effect of the tax has been felt most directly in the field of consumption. In so far as the employer part of the tax is shifted forward, a price rise in consumption goods (and others) would take place. Generally, the effect would be a reduction in standard of living and a decline in economic welfare. It must be emphasized that this conclusion has nothing to do with the benefits derived under the program; the government could conceivably give such benefits without imposing the taxes. Presumably all the money paid into the reserves will be spent on consumption when the benefits are paid.

### PRODUCTION AND ENTERPRISE

The curtailment of consumption demand means a curtailment in the production of consumer goods. Aside from this, production is detrimentally affected by increased costs resulting from (1) the employers' share of the Social Security payment and (2) any shifting of the employees' share which is made in the direction of the employer. Part or all of this may, of course, find its way into higher prices, but unless demand for the total amount of goods is completely inelastic (a possibility which we can dismiss at once), the rise in price must result in some slight curtail-

<sup>14</sup> See S. E. Harris, *The Economics of Social Security* (New York: McGraw-Hill Book Co., 1941).

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ment of production and employment and the dampening of business enterprise.

### SAVINGS AND CAPITAL FORMATION

Since the Social Security Act affects wages and salaries and thus the mass of the people, we may agree with Colm and Lehmann that the taxes do not affect savings substantially, including private savings and insurance.<sup>15</sup> We may also agree with them that the taxes represent a compulsory saving if the receipts are used to cover a deficit which would have been incurred anyway or to make debt repayments which are re-invested.<sup>16</sup> The latter has to do with the borrowing procedures which, as pointed out above, are separate from the tax itself. The effect on individual voluntary and compulsory savings, however, does not give us a clue to the actual effect on capital formation. For this we must turn to the previous two sections on consumption and production. There it was shown that the production of goods would decline. This would reduce the demand for capital goods. It may be concluded that capital formation and social savings are reduced as a result of the payroll taxes (as distinguished from the benefits).

### DISTRIBUTION OF INCOME

Since the wage earner's share of the Social Security premium directly consists of a reduction in the spendable income of the lower income groups while the employer's share first enters into costs and then only indirectly, if at all, comes out of the higher income groups, we may conclude that the Social Security tax (as distinguished from the benefits) tends to accentuate the inequality in the distribution of income. This conclusion is subject to any qualification introduced by a greater shifting power by the wage earners than by business. Since it does not seem likely that wage earners in general have a greater shifting power than employers, the conclusion that payroll taxes increase inequalities in the distribution of income would hold.

### ECONOMIC FLUCTUATIONS AND ECONOMIC PROGRESS

During periods of depression, when purchasing power is low, the Social Security tax (as distinguished from the benefits) tends to aggra-

<sup>15</sup> Gerhard Colm and Fritz Lehmann, "Economic Consequences of Recent American Tax Policy," *Social Research*, 1938, Supplement I, p. 38.

<sup>16</sup> *Ibid.*, p. 40.

vate the unfavorable condition of business by making purchasing power less than it otherwise would be. During periods of prosperity, the tax would also tend to diminish purchasing power, hence it may be considered to have a dampening effect. Thus payroll taxes on employees tend to accentuate the depression and lower the level of business activity achieved in prosperity. The employer part of the tax probably acts in the same direction but with very little effect in the prosperity period.

The effects on economic progress are similar to those of the sales tax. Any reduction in capital formation that takes place reduces the amount of social wealth and thus the production potentialities. This, together with the increase in the inequality in distribution of income, tends to result in a fall in the standard of living.

### **Conclusions on Effects of Payroll Taxes**

From almost any social point of view it seems that Social Security taxes (not benefits) are undesirable: they tend to reduce consumption, production, employment, and capital formation; they tend to aggravate the inequality in the distribution of wealth, accentuate depressions, and lower the general standard of living. This does not mean, of course, that the Social Security Act as a whole is undesirable: the security provided is presumably worth the price paid. These considerations do make it extremely desirable to try to achieve the benefits of the Social Security Act without the harmful effects of the accompanying taxes. In order to make a decision on this point, it is necessary to see what function, if any, the Social Security taxes perform.

As shown above, the Social Security taxes cause a reduction in the total demand for goods and services; at the same time they provide the federal government with funds through the sale of bonds to the reserve accounts. These funds aid in financing the deficit occasioned by the high level of expenditures relative to revenues. Now if it could be argued that the transfer of funds represented by the Social Security tax makes possible expenditures by the federal government which would not otherwise have taken place, the restrictive effects of the taxes would have to be compared with the expansive effects of the federal expenditures. But it cannot seriously be argued that the existence of Social Security reserve funds currently makes possible a greater level of federal expenditures than would otherwise be the case. Within the legal debt limit (and, it should be noted, the bonds issued against the Social Security tax funds form part of the national debt), credit is freely available to the federal government—and at a low rate of interest. Hence, under deflationary conditions,

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the accumulation of a Social Security reserve serves no useful economic purpose and has a detrimental economic effect.

At some time in the future the government will have to get the money somewhere to redeem bonds to make the benefit payments. If there were no Social Security taxes, the government would likewise have to get the money somewhere to make the benefit payments. This means that, as far as the payment of benefits is concerned, the existence of Social Security taxes does not ease the burden on the Treasury, except for borrowing which would now have to be done on the open market if the Social Security reserves did not exist. In so far as deficit expenditures are occasioned by the depressed state of business it is even conceivable that an elimination of Social Security taxes would make possible a *reduction* in federal expenditures of the "New Deal" sort by at least an equal amount. At a time of inflation, the dampening effect of the reserves is all to the good. The net intake of funds reduces the pressure on prices.

### *EXCESS PROFITS TAXES*

The taxation of excess profits has been of such great importance in several periods of American history that it seems desirable to deal with the subject separately. It must be remembered at all times that the term "excess" is a technical term and that the amount of excess profit is derived from certain accounting devices. Where and to what extent the excess profit is in some true economic sense "excess" is a matter to be given careful study. The results will determine to a large extent such questions as shifting, incidence, and economic effects.

### THE ACT OF 1940

On October 1st, 1940, the Senate and House passed the "Second Revenue Act of 1940." This Act, signed by the President on October 8, contained the "Excess Profits Tax Act of 1940" as well as certain amendments of the income tax, increasing the normal income tax rates of corporations. The excess profits tax applies to the "adjusted excess profits for net income" for each taxable year beginning January 1, 1940. In calculating the excess profits tax it is necessary to take account of the amendments of the normal income tax found in the (first) Revenue Act of 1940 signed on June 25, 1940. In order to appreciate fully the ramifications of a tax of this sort it is necessary to make a detailed examination of its main provisions. This is merely by way of illustration since many changes took place in the tax before it was finally repealed.

The tax provided for two methods of calculating the credit deductible from the *normal* tax net income. Any corporation which was eligible for either method could choose the method it wished to adopt each year, the method used in the return filed being evidence of the choice for the taxable year. For each of the methods the rates were as follows:

**1. Income Method.** The deductible credit was 95 per cent of the average earnings for the base period, 1936-39 inclusive, plus 8 per cent of the net capital addition or minus 6 per cent of the net capital reduction for the taxable year;

**2. Invested Capital Method.** The deductible credit was 8 per cent of the *sum* of (a) invested capital and (b) 50 per cent of the borrowed capital for the taxable year.

An exemption of \$5000 was provided for all corporations (i.e. domestic corporations unless otherwise stated); the excess profits tax rates to be applied against the income net of exemption and deductible credit were:

<i>Adjusted Excess Profits Net Income</i>	<i>Bracket Amounts</i>	<i>Tax Rate Per Cent</i>
First \$20,000.....	\$ 20,000	25
\$20,000 to \$50,000.....	30,000	30
\$50,000 to \$100,000.....	50,000	35
\$100,000 to \$250,000.....	150,000	40
\$250,000 to \$500,000.....	250,000	45
Over \$500,000.....		50

### *Illustrations*

Before going further into the various implications we may illustrate the application of these methods of calculating the deductible credit as well as determining the amount of the tax by the following examples:<sup>17</sup>

**1. Example Based on Income.** A corporation having a normal tax net income of \$500,000, various adjustments in reduction of income (specifically permitted by the act) of \$25,000, and average adjusted earnings for the base period of \$250,000, would pay an excess profits tax of \$36,500, and a total normal tax and excess profits tax of \$156,500, computed as follows:

<sup>17</sup> *New York Times*, October 30, 1940, p. 35, and November 6, 1940, pp. 34-35 (Godfrey N. Nelson). See also Carl Shoup, "The Concept of Excess Profits under the Revenue Acts of 1940-42," in Harold M. Groves, *Viewpoints on Public Finance*, pp. 181-90 (New York: Henry Holt & Co., 1947); and Carl Shoup, "The Taxation of Excess Profits," *Political Science Quarterly*, Vol. 55, December, 1940, pp. 535-55; Vol. 56, March, 1941, pp. 84-106; and Vol. 56, June, 1941, pp. 226-49.



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Normal tax net income		<b>\$500,000</b>
Deduct:		
Normal tax (24%)	<b>\$120,000</b>	
Excess profits tax adjustments	<b>25,000</b>	<b>145,000</b>
	<hr/>	<hr/>
Normal tax net income less adjustments		<b>\$355,000</b>
Credit for average adjusted earnings of \$250,000, allowed at 95%	<b>237,500</b>	
Exemption	<b>5,000</b>	<b>242,500</b>
	<hr/>	<hr/>
Adjusted excess profits tax net income		<b>\$112,500</b>
Excess profits tax:		
25% of \$20,000	<b>\$ 5,000</b>	
30% of 30,000	<b>9,000</b>	
35% of 50,000	<b>17,500</b>	
40% of 12,500	<b>5,000</b>	
	<hr/>	<hr/>
Total excess profits tax		<b>\$ 36,500</b>
Normal tax		<b>120,000</b>
	<hr/>	<hr/>
Total normal and excess profits tax		<b>\$156,500</b>

**2. Example Based on Invested Capital.** A corporation having a normal tax net income of \$500,000; various adjustments in reduction of income (specifically permitted by the act) of \$40,000, invested capital for the taxable year of \$2,000,000, and borrowed capital of \$1,000,000, would pay an excess profit tax of \$45,500 and a total normal tax and excess profits tax of \$165,500, computed as follows:

Normal tax net income		<b>\$500,000</b>
Deduct:		
Normal tax (24%)	<b>\$ 120,000</b>	
Excess profits tax adjustment	<b>40,000</b>	<b>160,000</b>
	<hr/>	<hr/>
Normal tax net income less adjustments		<b>\$340,000</b>
Invested capital	<b>\$2,000,000</b>	
One-half of borrowed capital	<b>500,000</b>	
	<hr/>	<hr/>
Credit at 8% on	<b>2,500,000</b>	<b>\$200,000</b>
Exemption		<b>5,000</b>
	<hr/>	<hr/>
Adjusted excess profits tax net income		<b>\$135,000</b>
	<hr/>	<hr/>
Excess profits tax:		
25% of \$20,000	<b>5,000</b>	
30% of 30,000	<b>9,000</b>	
35% of 50,000	<b>17,500</b>	
40% of 35,000	<b>14,000</b>	
	<hr/>	<hr/>
Total excess profits tax		<b>45,500</b>
Normal tax		<b>120,000</b>
	<hr/>	<hr/>
Total normal and excess profits tax		<b>\$165,500</b>

Five points should be observed here before we go further: (1) A credit of 8 per cent was permitted on invested capital for the taxable year; (2) practically full credit (95 per cent) was given for pre-period average earnings, i.e. for the base period 1936-39; (3) the maximum profits tax rate was 50 per cent; (4) the corporation could freely choose between the two methods of calculating deductible credit; (5) the tax rates were graduated according to the *absolute* amount of excess earnings rather than an excess rate of return on invested capital.

#### *Further Provisions*

There are a few other provisions of the Act of 1940 which it is interesting to consider. These we may list briefly: (1) It permitted consolidated returns by affiliated companies under certain conditions; (2) gross income attributable to a year other than the taxable year could be apportioned over other years in such a way that the taxable income does not exceed the amount which would have resulted if allocation of income had been made to previous years (this applied especially to claims, awards, judgments, and patents); (3) corporations earning over \$25,000 could not carry over unused portions of excess profits credits from one year to the next. Special amortization provisions applied to new investment in plant and equipment by corporations contributing to national defense; (4) all industries including non-defense industries came under the Act with certain specific exemptions. Exemptions included personal service corporations, personal holding companies, certain mining companies, and certain foreign corporations.

#### *Equity and Borrowed Capital*

The distinction which the law made between equity and borrowed capital is a technical point of considerable importance in any discussion of economic effects. The distinction is not so easy to make as might appear at first sight. For instance there are cases on record where a "debenture-preferred stock" was held to be a "certificate of indebtedness." In such cases, under the 1940 Act, only 50 per cent of the amount involved would be treated as invested capital. Interest paid on debentures remained a deductible expense.

The decision as to whether any particular type of security should be considered to represent equity or borrowed capital rested mainly on whether or not the holder of the security was permitted by its terms to exercise the general rights of a creditor or whether the security represented actual ownership in the corporation. Other considerations were

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taken into account in making the decision. These other considerations were listed by the United States Board of Tax Appeals in a decision handed down on October 21, 1940: (1) The name by which the certificates are known (this was considered to indicate only the intent and not considered persuasive one way or another); (2) the intent of the maker (in the particular case involved, the debenture preferred stock specified that the interest was limited but "not exceeding the lawful rate"); (3) the maturity date (the certificates in question had definite maturity dates); (4) the service of payment (the interest was payable without director's declaration and was not specified as payable from earnings of the company); (5) the priority over general creditors; (6) the right to enforce payment of principal and interest; and (7) the voting power. In this particular case the Board decided that the certificate was an evidence of indebtedness rather than of certificate of stock. Various decisions of the several United States Circuit Courts of Appeals have upheld these criteria, sometimes reversing the Board itself.<sup>18</sup>

### COMPARISON WITH 1918

There are two significant points where the tax in 1940 differed from that in 1918: (1) The World War I Act allowed for special relief with respect to both income and capital for a corporation which could show that its invested capital was not normal as compared with that of other corporations in the same or like industry (Sections 327 and 328, Revenue Acts of 1918 and 1921). In the 1940 Act no such relief provisions existed at first, the nearest provisions being those for apportionment of income noted above. Later relief provisions were included, particularly Section 722 of the Internal Revenue Code. (2) The excess profits tax rates under the 1940 law were graduated according to the *absolute* amount of excess earnings whereas under the old law they were graduated according to the *rates of return* on invested capital (the 1918 tax) imposed at the rate of 30 per cent on income up to 20 per cent of invested capital less credits and 65 per cent of an income in excess of 20 per cent of invested capital less any balance of credits. These were the rates applicable to the year 1918 only.

### REPEAL OF THE EXCESS PROFITS TAX

The excess profits tax was repealed in 1945, effective for all years beginning after December 31, 1945. Prior to repeal some important

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<sup>18</sup> *New York Times*, November 10, 1940, p. F1 (Godfrey N. Nelson).

changes had been made in the law as passed in 1940. Among these were: the establishment, ultimately, of a flat 95 per cent tax on adjusted excess profits net income, subject to a 10 per cent postwar credit (of the 95 per cent) which could be used immediately in certain cases and subject further to an over-all limit of 80 per cent on the aggregate of normal tax, surtax, and excess profits tax in relation to the surtax net income; the raising of the exemption from \$5000 to \$10,000; the establishment of a graduated invested capital credit which, at the time of the repeal of the tax, stood at 8 per cent on the first \$5,000,000, 6 per cent on capital in the \$5,000,000 to \$10,000,000 bracket; and 5 per cent on capital over \$10,000,000. The introduction of thorough-going relief provisions (Sections 721 and 722 of the Internal Revenue Code) and the two-year carry-back of unused credits meant that the tax would remain a matter of current importance to many corporations for several years after repeal. The relief provisions, in particular, presented some knotty economic problems which promised to plague the tax administrators for years.<sup>19</sup>

### Shifting of Excess Profits Taxes

The shifting of the excess profits tax may be analyzed in the same general way as the business income tax. There are, however, two important peculiarities to be taken into account: (1) Whether the profits taxed were expected by management or shareholders and (2) whether the tax is really imposed upon some excess above some common-sense concept of ordinary or just rate of return (for war years).

The first question is concerned with whether or not the excess profits are "windfalls" which, as defined by Pigou, are "accretions to the real value of people's property that are not foreseen by them and are not in any degree due to efforts made, intelligence exercised, risks borne, or capital invested by them." It cannot be said that high war profits in general were not expected, but these expectations were tempered greatly by the excess profits tax itself. Profits which exceeded, say in the vicinity of 15 per cent on invested capital might be considered windfalls.

The second question is integrally related to the first. No effort was made in the 1940 Act to graduate taxes according to the rates of return on invested capital beyond the 8 per cent deductible credit. Hence in many cases we could be certain that the rate of return was less than what management or the investing public might consider the ordinary

<sup>19</sup> See the section on "Excess Profits Tax Refunds" in Wirth F. Ferger, "The Role of Economics in Federal Tax Administration," *National Tax Journal*, June, 1948, pp. 102-7.

rate of return for the times. Hence we can be certain that for some industries there would be a strong incentive to attempt to shift the tax.

With these points in mind the usual shifting analysis for income taxes applies. During World War I a real attempt was made to tax only the true surplus element in war profits. The correct calculation of the tax is, however, extremely difficult. As Haig says, "Some crocks of cream appear to be richer than they are."<sup>20</sup> Hence it may be expected that some tendency toward shifting existed. The actual shifting in World War II was modified not only by the conditions discussed under business income tax but also by the limitations placed on price increases by the Office of Price Administration.

### Effects of the Excess Profits Tax

The economic effects of the excess profits tax differ significantly from those of the business income tax. The main reason for this is that the former tends to apply more to the windfall and excess element in profits. There are also some points arising specifically from the provisions of the tax when it was in effect.

The effect of the tax on consumption will be considered briefly but the main concern of this section is to analyze the provisions of the tax with a view to determining the effects it might have on production and enterprise.

### CONSUMPTION

The excess profits tax has frequently been claimed to have some detrimental effects on consumption. A former Secretary of the Treasury said of the tax which was in force during World War I: "In many instances it acts as a consumption tax, is added to the cost of production upon which profits are figured in determining prices, and has been . . . a material factor in the increased cost of living." Statements of this sort evidently assume that the tax is shifted to the consumer. As was pointed out above, there is little likelihood of shifting if the tax is carefully devised so as to impinge on the windfall or true "excess" element of business profits. The high rate of the excess profits tax in World War II tended to encourage corporate expenditures but this is not "consumption" in the ordinary sense. By and large, it is reasonable to conclude that the excess profits taxes we have known have had negligible effects on consumption.

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<sup>20</sup> Robert M. Haig, "British Experience with Excess Profits Taxation," *American Economic Review, Supplement*, Vol. 10, March, 1920, p. 12.

## PRODUCTION AND ENTERPRISE

In considering the effects that the excess profits tax may be expected to have on production and enterprise, it is necessary to examine not only the way in which the rate of return on capital is affected, but also the psychological reaction of business as a whole to the changes involved. It is interesting to go back to 1940 to see what the impact of the tax was on the business world. That business was not hostile to the principle of the Act is manifest. The Guaranty Trust Company, for instance, said: "Business as a whole clearly accepts the principle underlying the law—that the defense program shall not be used as an opportunity for private enrichment."<sup>21</sup> Godfrey N. Nelson, writing in the financial section of the *New York Times*, said:

While the excess profits tax is essentially a war measure, because of its great productivity of revenue it is quite natural that this form of taxation should be resorted to in a period when the Federal Government is required to make extraordinary expenditures in an armament program for the defense of the nation.<sup>22</sup>

Nevertheless there were many aspects of the Act to which objections were raised by competent financial writers who may be assumed to represent the views of business. These objections will be examined and evaluated and the probable effects of the economic provisions of the Act, both good and bad, will be indicated. The Act of 1940 will be used as a basis for discussion.

There were several features of the Act which seemed likely to minimize any possible unfavorable effect on enterprise. (1) As the Guaranty Trust pointed out, "It offers a corporation the choice between two methods of calculating excess profits without imposing a heavy arbitrary penalty on those electing one in preference to the other."<sup>23</sup> (2) Moreover, "It permits consolidated returns by affiliated companies under certain conditions, thereby conforming to economic realities and avoiding numerous dangers of unfair discrimination."<sup>24</sup> (3) In addition the rates were relatively low (in 1940) considering the nature of the tax. As the *Wall Street Journal* pointed out, "The tax rate in the bill reaches 62 per cent, including both normal and excess profits, only in the top bracket. In practice allowing for exemptions, it is difficult to see how any corporation

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<sup>21</sup> *New York Times*, October 28, 1940, p. 29.

<sup>22</sup> *New York Times*, October 30, 1940, p. 35.

<sup>23</sup> *New York Times*, October 28, 1940, p. 29.

<sup>24</sup> *Ibid.*

could pay more than 50 per cent on income, unless its profits reached astronomical levels."<sup>25</sup>

On the other hand, there were several provisions which were considered arbitrary in the sense that they tended to cause discrimination among various industries and businesses. The basic fault was considered to be the fact that the tax was not graduated according to relative rates of return on invested capital. The resulting criticisms, both valid and invalid, will now be considered. (1) As the Guaranty Trust pointed out:

The tax rates under the new law are graduated not according to the rates of return on invested capital but according to the absolute amounts of excess earnings, a feature that had no parallel in the tax structure of the World-War period. In this respect, the present law seems clearly inferior to the earlier one. A progressive tax on corporate earnings, whether excess or not, with rates graduated on the basis of absolute amounts instead of rates of return on investment is difficult to justify on either economic or equitable grounds.<sup>26</sup>

(2) "Another discriminatory feature of the act is that corporations with earnings of more than \$25,000 are denied the privilege of carrying over the unused portions of their excess profits credits from one year to the next."<sup>27</sup> (3) The treatment of only 50 per cent of borrowed capital as invested capital (on which an 8 per cent deductible credit was allowed) tended to favor the companies whose capitalization consisted mainly of shares to the disadvantage of those whose capitalization consisted mainly of bonds. (4) Because of the 8 per cent exemption it was possible that the Act would tend to put a premium on over-capitalization. (5) In addition it was claimed by the *Wall Street Journal* that "there is in effect a ceiling placed on earning power after a certain level has been reached."<sup>28</sup> This, however, is not strictly accurate since the highest rate in the Act was 50 per cent. (6) Another criticism which was made ran in the following terms: "The advisability of imposing upon non-defense industries taxes so severe as to kill incentive to promote and expand business may be questioned, because this would prove as detrimental to the government as it would to industry."<sup>29</sup>

Three closely interrelated "criticisms" will be discussed in greater detail: (7) the excess profits tax lowered profits and dividends drastically

<sup>25</sup> *Wall Street Journal*, November 6, 1940, p. 1.

<sup>26</sup> *New York Times*, October 28, 1940, pp. 27 and 29.

<sup>27</sup> *Ibid.*

<sup>28</sup> *Wall Street Journal*, November 6, 1940, p. 15.

<sup>29</sup> *New York Times*, November 13, 1940, p. 35.

below the prewar level; (8) it discriminated between industries, and (9) it consequently reduced the level of employment.

### DRASTIC EFFECT ON PROFITS AND DIVIDENDS

It was expected that the excess profits tax would result in lower profits and dividends than before the war. A writer in the *Wall Street Journal* said of corporation profit figures issued in the latter part of 1940: "The reports bear out the expectations that the new levies would cut materially into the profits of business."<sup>30</sup> The *Survey of Current Business* confirmed these figures.<sup>31</sup> That the business world was not greatly disturbed by these prospects may, however, be judged by the following statement:

But it does not follow that earnings over the long run will necessarily suffer because taxes may go higher. Earnings of individual companies may, but over the long pull earning power, though it tends to get out of line at times, usually catches up with business activity. At least it has in the past. When the profits of a large number of corporations in the aggregate are measured against business activity, a fair relationship between business activity and business profits is maintained, though periodically there may be some divergence in trend.

For instance, the period between 1927 and 1937 was one of increasing taxes, yet the ratio of profits of a group of large corporations to business activity in both years was nearly identical. Profits fell more sharply during the early thirties than did business activity but they also recovered more sharply than did business from 1933 to 1937. Profits likewise fell more sharply during late 1937 and 1938 but again they recovered in 1939 to regain past relationships.

The main threats to profits growth are the war and the defense program which have brought on the system of excess profits taxation. Yet even in Great Britain where excess profits taxation is much more severe than in the U.S. owners of stocks are not altogether discouraged. Stock prices there have been steady recently.<sup>32</sup>

The excess profits tax when first imposed in 1940 evidently may be assumed to have had no drastic effect on profit expectations.

### UNEQUAL EFFECT ON INDUSTRIES AND FIRMS

The fact that the general impact of the tax was not too unfavorable does not mean, however, that we may safely leave the question. It is important for us to know how the tax affected specific industries. Soon after the Act was passed, the existence of discrimination was made clearly evident to the investor by a number of advertisements which appeared

<sup>30</sup> *Wall Street Journal*, November 6, 1940, pp. 1 and 4.

<sup>31</sup> *Survey of Current Business*, December 1940, pp. 7-8.

<sup>32</sup> *Wall Street Journal*, November 6, 1940, p. 15.



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in the financial sections of the newspapers. Excerpts from two of these are given below.<sup>33</sup>

### 25 STOCKS FOR INCOME

—NO MATTER WHO IS ELECTED

—Outstanding dividend payers which *will not suffer* from the new Excess Profits Tax.

Hundreds of listed stocks will earn less in 1940 than in 1939 after payment of new increased taxes.

But some dividend payers will feel little effect in spite of growing earnings.

STANDARD STATISTICS CO., INC.

### “TAX STATUS OF 400 STOCKS”

(Check your Stocks against this Study)

So much interest has been shown in this important tax study, which appeared in last week's *Financial World*, we are sending a reprint to every new subscriber. It gives maximum earnings per share that can be shown by 400 prominent common stocks before they are subject to excess profits taxes. Comparison is made with the latest 12 months' actual results.

THE FINANCIAL WORLD

A writer in the *Wall Street Journal* said:

A group of corporate reports for the nine months to September 30, selected at random, shows a very wide variation in the effect of the Second Revenue Act of 1940 upon profits. Percentage of earnings set aside for income and excess profits taxes varies from 21.3 per cent, or less than the normal tax to as much as 43.6 per cent.

Among the companies showing the lowest ratio of federal income taxes to profits are those engaged in the steel industry. This was as anticipated because the heavy investment necessary to this industry permits a substantial credit against excess profits. U.S. Steel, for instance, reported federal taxes on income for the nine months as 21.3 per cent of profits before deducting these taxes. Wheeling Steel's figure was 23.5 per cent.<sup>34</sup>

In general, according to a survey of the Standard Statistics Company, the industries which were least vulnerable were: “those which are granted special exemptions, which are currently earning less than 8 per cent on invested capital, or which will earn less in 1940 than the average of 1936-39.”<sup>35</sup>

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<sup>33</sup> *New York Times*, October 27, 1940, p. F3.

<sup>34</sup> *Wall Street Journal*, November 6, 1940, pp. 1 and 4.

<sup>35</sup> “Excess Profits Taxes,” a special section of *Standard Outlook for the Security Markets*. Standard Statistics Co., Inc., New York City, November 4, 1940.

Air Transport	Petroleum
Auto Tires	Railroad Equipment
Banks	Railroads
Insurance	Steel
Motion Pictures	Utilities
Office Equipment	

A partial explanation of this was given by a writer in the *New York Times* who also added retail trade to the favored group. "Many companies with low nets will use invested capital as a base and studies appear to indicate that these companies on the average will give up less in federal tax than some companies whose tax will be based on earnings for the 1936-39 years. Thus, most of the companies in retail trade will exercise the invested capital option and their 1940 earnings indicate that this year at least the tax will not bear heavily on them."<sup>36</sup>

The industries which were expected to be the heaviest taxpayers were those "which earn a high rate on invested capital and which have high current earnings in relation to the average of recent years. Yet many will show highest profits after all taxes:"<sup>37</sup>

Aircraft Mfg.	Machinery
Auto Parts	Metal Fabricating
Automobiles	Non-ferrous Metals
Building	Paper
Chemicals	Retail Trade
Electric Products	

It is also interesting to examine several specific firms to see how the excess profits tax was expected to affect their earnings. The following are a few examples of severely taxed firms.<sup>38</sup>

Chemical companies, judging by reports thus far to hand, appear to have been hard hit by the new tax. Hercules Powder reserved to cover the tax 43.6 per cent of its income before taxes for the nine months to September, Monsanto Chemical's tax appropriation was 39.7 per cent and du Pont's, 30.9 per cent. However, because of the important part that dividends from General Motors plays in the last named company's earnings, its tax rate can hardly be considered as typical of the industry.

An example of a utility Company may also be given:<sup>39</sup>

Reflecting the sharp increase in taxes resulting from the new excess profits tax and higher Federal income taxes, the income statement of the Columbia Gas and

<sup>36</sup> *New York Times*, November 10, 1940, p. F7.

<sup>37</sup> From the Standard Statistics Company publication previously cited.

<sup>38</sup> *Wall Street Journal*, November 6, 1940, p. 1.

<sup>39</sup> *New York Times*, November 15, 1940, p. 35.

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Electric Corporation, released yesterday, shows that the corporation had a consolidated net deficit of \$840,064 in the third quarter of this year, contrasted to a net income of \$668,513 in the September quarter of 1939. On the other hand, gross revenues of the Columbia system for the quarter rose to \$21,411,912 from \$19,827,297 in the third quarter of last year.

Numerous changes in the excess profits tax were made subsequent to 1940. The differential effects on different industries persisted. Although the relief provisions (Section 722 of the Internal Revenue Code) were designed to reduce discriminatory effects, there was little mitigation of the difficulties in practice. The very high rate of taxation which prevailed before the tax was repealed aggravated the discriminatory effects.

### Conclusions

The material presented above indicates that the excess profits tax variously affects not only different industries but also specific firms in the same industry. Regardless of the desirability or necessity of these differential effects a change in the flow of capital to various industries would be expected. The tax made some industries more and some less attractive. The tax must also have encouraged some expenditures which would not otherwise have occurred: at very high rates it is the government which pays most of the marginal expense items. Nevertheless one cannot fully apply to the tax of World War II the criticism which a former Secretary of the Treasury applied to the corresponding tax during World War I, "It encourages wasteful expenditure, puts a premium on overcapitalization and a penalty on brains, energy, and enterprise, discourages new ventures and confirms old ventures in their monopolies."<sup>40</sup> Only if the profits taken away in the form of taxes are expected and are needed to induce people to invest is it possible to conclude of the excess profits taxes that "their tendency will presumably be to lessen the inducement to expansion on the part of some of the large companies, with a possible sacrifice of speed, efficiency, and simplicity of administration of the preparedness effort."<sup>41</sup>

The above apparently unfavorable conclusions do not mean, however, that the tax is undesirable as a wartime measure. The last-quoted writer admits that "As a practical matter, these discriminatory provisions of the new tax may have no serious effects on aggregate output or on the

<sup>40</sup> R. M. Haig, "British Experience with Excess Profits Taxation," *American Economic Review Supplement* (1920), p. 12. See also Harold M. Groves, *Postwar Taxation and Economic Progress*, pp. 74-83 (New York: McGraw-Hill Book Co., 1946).

<sup>41</sup> *New York Times*, October 28, 1940, p. 29.

success of the defense program."<sup>42</sup> David Friday had even said of the tax which existed during World War I, "The excess profits tax . . . should be continued not merely because it is *just* and furnishes a much needed correction of the working of our price system. It is the tax that least impedes enterprise and business activity . . ." <sup>43</sup>

The necessity of maintaining the firm's competitive position in the industry also suggests that an excess profits tax might not have drastic effects. This was expressed by a newspaper writer:

Despite the heavy tax burden and the likelihood that it will be increased, industrial companies will make every effort to increase sales and boost gross earnings in order to maintain their standing in competition, cost accountants declared last week. Reports that some companies might slow down their efforts in order to avoid reaching the highest surplus profits brackets which would draw a tax of 50 per cent were scouted.

Accountants pointed out that no company, regardless of what tax rate its earnings will invite, can afford to allow competition to gain on it. Just as some English companies, which have nothing to advertise, continue to keep their names before the public in newspapers and magazines, so must organizations here maintain the highest sales pace possible so that, when the defense program is ended and taxes are reduced, they will not be at a disadvantage, it was said.<sup>44</sup>

These conclusions may be summarized briefly. Although earnings were curtailed and serious discriminating effects were felt from industry to industry and firm to firm there was good reason to believe that managers would be more concerned with the maintenance of their long-run competitive position in the industry than with any short-term effects of the excess profits tax. Hence production, employment, and sales would be more influenced by general economic trends than by the tax itself. The actual experience of World War II seemed to confirm these expectations. To say that the wartime excess profits taxes have not had seriously unfavorable effects does not, however, recommend the tax for peacetime use. In particular, the tax is of doubtful utility in curbing monopoly since it falls alike on "good" and "bad" and may, in fact, penalize the new, growing firm more than the large, well-established firm.<sup>45</sup>

<sup>42</sup> *Ibid.*

<sup>43</sup> David Friday, "Excess Profits Tax," *American Economic Review, Supplement* (1920), p. 22.

<sup>44</sup> *New York Times*, November 10, 1940, p. F7.

<sup>45</sup> See Alfred G. Buehler, "Should the Tax System Be Used to Check Monopoly?" Chapter 8 in *How Should Corporations be Taxed?* (New York: Tax Institute, 1947)

## TAXATION OF UNDISTRIBUTED PROFITS

One of the clearest examples of taxation used to achieve certain economic ends rather than merely raise revenue is the taxation of undistributed profits. A decision on the nature and extent to which such imposts are justified requires a thoroughgoing examination of their principles and consequences. The undistributed profits tax being imposed on part of net income earned may be expected to have the same incidence as any business income tax. The economic effects, however, are quite different and stem from the regulatory aspects of the tax.

### PREVAILING TAXES ON UNDISTRIBUTED PROFITS

There are two taxes which apply to undistributed profits. One of these is designed to discourage personal holding companies which are set up in order to avoid individual income taxes. The other is designed to discourage improper accumulation of surpluses by corporations for the same purpose. The aim of these taxes is to force the companies to distribute their income and thereby make it subject to individual income taxes. The tax on personal holding companies is 76 per cent on the first \$2000 of so-called "undistributed Subchapter A net income." Above this amount the tax is 85 per cent. With respect to the improper accumulation of surpluses the tax is 27½ per cent on the first \$100,000 of so-called "undistributed Section 102 net income." Above this amount the tax is 38½ per cent.

The undistributed profits tax of 1936 to 1939 was a much more thoroughgoing measure. It had several clearly defined regulatory purposes, all of which were interrelated: (1) To remove the possibility of a wealthy stockholder avoiding personal income taxes by allowing profits earned to be accumulated in the corporation; (2) to increase disbursements of income earned, thus strengthening purchasing power of the consumers and at the same time increasing tax revenues to the government; (3) to promote a better use of capital funds by preventing an often unwise "plowing back" of profits; (4) to increase the effectiveness of the regulation of corporate investments by increasing investments financed through the public capital market.<sup>46</sup>

### SPECIAL PROBLEMS OF SECTION 102

The prevailing tax on the "unreasonable accumulation of surplus" poses some special problems. A large amount of administrative discretion

<sup>46</sup> Colm and Lehmann, *op. cit.*, pp. 53-54.

is permitted in deciding whether to invoke the penalty rates. The intentions of the company officers are among the factors taken into account and the burden of proof is placed on the management to show that the accumulation of surplus is not unreasonable. The courts have held several operating business companies subject to the tax: National Grocery Company, Trico Products Corporation and Chicago Stockyards Company.<sup>47</sup> The tax seems to have had some effect in the direction of stimulating the distribution of dividends, but its main effect has been to strike terror into the hearts of management. A large amount of executive and legal effort is exerted to have the corporation minutes contain full explanations and justifications of retained earnings. Curiously enough, persons in the very high individual income tax brackets can afford to risk the imposition of Section 102 because the rates involve a relatively inexpensive penalty for them.

### Shifting of the Undistributed Profits Tax

In the discussion of business income taxes it was shown that shifting in the form of higher prices is generally unlikely in the short run. The same conclusion holds for undistributed profits taxes. If anything, the conclusion is reinforced since a firm can be readily relieved of the burden of the tax by avoiding it through the declaration of dividends. This alternative does not exist in the case of income taxes and it makes it less likely than ever that attempts will be made to shift the tax through changes in prices charged or costs paid. As for the long run, there is likewise reason to believe that any shifting that might take place would be in smaller degree than in the case of the income tax. This is especially true where alternatives to self-financing of new investment exist.

### Effects of the Taxation of Undistributed Profits

The potential effects of a thoroughgoing tax on undistributed profits may best be judged by reference to the drastic tax of 1936. A study by Professor Lent has shown that the undistributed profits tax increased dividend payments by more than 30 per cent.<sup>48</sup> According to Colm and Lehmann, the tax of 1936 had the effect of increasing distribution of dividends and consequently increasing consumption late in 1936.<sup>49</sup> How-

<sup>47</sup> See Arthur H. Kent, "The Legal Machinery of the Present Corporate Income Tax," *N.T.A. Proceedings*, 1947, pp. 74-76. See also the discussion between Mr. Kent, William A. Sutherland, Ellsworth C. Alvord and others, pp. 172-74, 199-202.

<sup>48</sup> George E. Lent, *The Impact of the Undistributed Profits Tax, 1936-37*, p. 33 (New York: Columbia University Press, 1948).

<sup>49</sup> Colm and Lehmann, *op. cit.*, p. 65.

ever, since the holders of corporate stocks are mainly in the higher income groups, the dividends were likewise paid to the wealthier classes and it is difficult to imagine that a tax of this sort would consistently have any substantial effect on consumption.

Any stimulation of consumption that did take place would have a favorable effect on production. On the other hand, the regulatory nature of the tax and the way in which it tended to influence the flow of capital funds (to be discussed below) might have had an unfavorable effect on business enterprise purely because of the anti-regulatory psychology of American business. Whether the tax is paid on undistributed profits or avoided through dividend declaration the effect is unfavorable to the above-average income and wealth groups who would be primarily involved. The tax therefore has an equalizing effect on the distribution of wealth and income.

#### BUSINESS AND INDIVIDUAL SAVINGS

The tax of 1936 seems to have been associated with a decrease in corporate savings. Corporations retained 30 per cent less of their profits in 1936 than in 1935:<sup>50</sup> the proportion of profits saved fell from 32.8 per cent in 1935 to 22.6 per cent in 1936. The possible results attributable to the tax are even greater than this if we leave out of account dividends on preferred stocks and if we assume that the percentage of retention would have increased from 1935 to 1936 with increased earnings. This may have been expected to be the case from both American and foreign experience.<sup>51</sup> The effect on total savings would depend on the extent to which the dividends are saved by the individuals who receive them. According to Colm and Lehmann, one-quarter of the reduction in corporate savings is offset by an increase in individual savings.<sup>52</sup> The net effect is a reduction in "savings" in this sense.

#### CAPITAL FORMATION

The effect which the reduction in savings may have on the total supply of capital for business purposes and on capital formation (i.e. social saving) requires further study. Colm and Lehmann claim that the undistributed profits tax of 1936 had the effect of restricting and curtailing the supply of capital for business purposes. Profits which would otherwise have been saved were absorbed either by tax payments or by

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<sup>50</sup> *Ibid.*, p. 34.

<sup>51</sup> *Ibid.*, p. 35.

<sup>52</sup> *Ibid.*, p. 37.

consumption or were invested in non-business fields such as tax-exempt bonds. This affected particularly the large corporation which is greatly dependent on the capital market for funds and did not have so serious an unfavorable effect on the small corporation of wealthy investors.<sup>53</sup> Most hard hit were: middle-sized and expanding corporations; corporations with sharply fluctuating returns (e.g. capital goods); companies with large amounts of bonds outstanding.<sup>54</sup> These are not proved results but rather probable consequences based on an economic analysis by Colm and Lehmann.

The authors again seem to have failed to take full account of the nature of the money and capital markets. They seem to forget that it is the profitableness of investment which is an important determining factor in the formation of capital. If business is sufficiently profitable the necessary supply of loanable funds is forthcoming (possibly at a somewhat increased rate of interest) a decrease in private savings notwithstanding. Colm and Lehmann imply that the decrease in business savings necessarily diminished the available supply of capital funds and thus restricted actual investment in physical capital. With funds available from other sources such as banks and investment houses, the actual effect may have been very small or negligible. A potentially profitable investment in physical capital need not wait on business savings; if it is really profitable the funds may usually be obtained from the banks or other sources. In fact, in so far as the tax tended to increase consumption at a time of moderate consumer demand it may be assumed that the profitability of business investment was increased somewhat by the tax. It must be admitted, however, that a new and expanding company may not have ready access to the money and capital markets. It might suffer severely through an undistributed profits tax.

#### BUSINESS FLUCTUATIONS

The undistributed profits tax could affect business fluctuations in a number of ways. Two of these may be considered in detail: (1) Removing the "cushion" of reserves for the next depression<sup>55</sup> and (2) causing "overconsumption."<sup>56</sup> Since both these points have been seriously argued by competent writers it is necessary to examine them closely.

With respect to the "cushion" argument, it must be pointed out

<sup>53</sup> *Ibid.*, p. 54.

<sup>54</sup> *Ibid.*, p. 55.

<sup>55</sup> *Ibid.*, pp. 69-70.

<sup>56</sup> *Ibid.*, pp. 65-66.



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that the existence of an earned surplus does not necessarily mean the possession of a corresponding amount of cash. The existence of business savings does not necessarily mean that a readily available liquid fund exists for use in time of depression. Where business savings are represented by physical assets, any attempt to use them as a cushion of cash resources through liquidation of the assets may actually have the effect of accentuating the slump. Nevertheless there is some truth in the claim that the working capital and the earned surplus are affected by the tax in such a way as to reduce the cushion against a depression in so far as the business savings are actually represented by cash. But the existence of a liquid reserve does not ensure the maintenance of employment even though it reduces the likelihood of financial embarrassment for the firm; if business is unprofitable the employees will probably be laid off whether business savings exist or no. Only in isolated instances would a shortage of working capital cause the laying off of workers whom it would otherwise be profitable to keep.

As for the over-consumption argument in which Colm and Lehmann put much stock, the claim is that late in 1936 industry was near full capacity and the undistributed profits tax stimulated consumption in an undesirable way. The reasons given are (1) that part of the stimulus came from the distribution of capital which resulted from the fact that tax regulations in general do not permit exclusion of "fictitious profits" represented by appreciation of inventories; (2) that the distribution of dividends must take place before the end of the calendar year, i.e. before the actual net income can be ascertained accurately; and (3) that encouragement is given to the distribution of bonuses at the end of the year.

Here both the premises and the argument may be questioned in some degree. Owing to the rapid turnover of inventories in many lines, profits represented by them are not necessarily just "fictitious" paper profits. Moreover, even though the firm may distribute part of its capital, the economy as a whole cannot consume capital except in so far as the social capital is allowed to run down—which no one pretends to have been the general case in 1936. Finally, and most important of all, industry was not so near full employment in 1936 that an increase in consumption could have had anything but a favorable effect on business.

## ECONOMIC PROGRESS

The above analysis indicates that the effects of the undistributed profits tax of 1936 are similar in many respects to those of income taxes in general: they tend to have an equalizing effect on the distribution of

income and, if anything, have a favorable effect on the formation of capital in ordinary times through the stimulus of consumption. There is, however, one important qualification. The undistributed profits tax was so widely associated with the cry of government intervention in business and gave rise to so much uncertainty that it is conceivable that business did restrict investment and thus the accumulation of social wealth, rational considerations to the contrary notwithstanding. These psychological problems, however, though within the scope, are beyond the competence of the present study.

### Conclusions

Subject to these psychological considerations it is impossible to consider the undistributed profits tax of 1936 as the great bogey which it was played up to be. On the other hand, considering the trouble involved and the unfavorable psychological potentialities, there is little to be said for the tax from the economic point of view. Any advantages it had were of a purely fiscal and administrative nature. It would certainly seem possible to achieve the regulatory purposes noted above through other means such as subjecting business savings to some control similar to that exercised by the Securities and Exchange Commission or taxing certain individuals for business savings of the corporations over which they exercise preponderant control. The curtailment of tax avoidance through corporate savings is achieved at present by Section 102 of the Internal Revenue Code and by the punitive taxation of personal holding companies. There does not seem to be any need for any more drastic measures. Professor Shere has pointed out that 20 per cent of net dividends paid by corporations are received by tax-exempt institutions or low-income individuals who pay no tax.<sup>57</sup> Thus an undistributed profits tax which forces dividend declarations may not increase income tax receipts as much as might be expected.

### INHERITANCE, ESTATE, AND GIFT TAXES

Inheritance and estate taxes have the peculiarity that they are not paid by the person who earns the income or accumulates the wealth out of which the tax is paid. Gift taxes, although paid by the living, are nevertheless peculiar in that they are paid in order to avoid heavier taxes after death. These facts require a different approach to the question of incidence and effects from that employed in the discussion of other taxes.

<sup>57</sup> Louis Shere, "The Fiscal Significance of the Corporation Income Tax," *Proceedings of the National Tax Association*, 1947, p. 13.

## TAX RATES

There are numerous complicated provisions in connection with federal taxes on estates and gifts. There is a so-called "basic" estate tax and also an "additional" estate tax. The "additional" tax is the excess of a "tentative" tax over the "basic" tax computed before allowance for gift taxes or state inheritance taxes. Exemptions are \$100,000 for the basic tax and \$60,000 for the tentative tax. The basic tax ranges from 1 per cent on a net estate of \$50,000 to 20 per cent on the bracket over \$10,000,000. The tentative tax ranges from 3 per cent on the first \$5000 of net estate after all deductions and exemptions (including an exemption of \$60,000) up to 77 per cent for the brackets over \$10 million. A credit of 80 per cent of the federal basic tax could be deducted for state death taxes paid. Gift taxes in force provide for an exemption of \$30,000 and a specific yearly exclusion for gifts to any one donee of \$3000. The tax on net gifts after all exemptions and deductions ranges from  $2\frac{1}{4}$  per cent on the first \$5000 to  $57\frac{3}{4}$  per cent on amounts exceeding \$10 million. The Revenue Act of 1948 did not literally change the exemptions and tax rates given above but provided for the "splitting" of property owned by married persons. For all practical purposes this had the same effect as if exemptions and exclusions applicable to married persons under the estate and gift taxes had been doubled and the rates on any net taxable amounts had been cut in half.

## Shifting

There is an interesting difference of opinion on the shiftability of inheritance and estate taxes. Two well-known authorities may be cited as a basis for discussion. Seligman says, "A tax on inheritance or bequests cannot be shifted, for evidently there is *no* one to whom it could be transferred. The ulterior effects of which some writers speak, such as the influence of inheritance taxes on the accumulation of capital, do not really illustrate the process of shifting. *They are, moreover, of such doubtful validity that they may be neglected.*"<sup>58</sup> Brown claims that the amount of capital might decrease because of lessened motive for accumulation and that, "so far as such a tax did operate to decrease the volume of saving and raise interest rates, its *burden* would be upon laborers or landowners or both and not upon owners or inheritors of capital."<sup>59</sup>

In the narrowest sense any effect on the accumulation of capital does

<sup>58</sup> E. R. A. Seligman, *Shifting and Incidence of Taxation*, p. 371. [Italics added.]

<sup>59</sup> H. G. Brown, *Economics of Taxation*, p. 209. [Italics added.]

not illustrate the process of shifting. Whether an analysis of effects of that sort is of "doubtful validity," however, will be considered below. The fact that interest rates may rise does not remove the *burden* from the inheritors of capital in any substantial degree. The inheritors give up a capital sum; they may regain some of their loss through higher interest rates, but any such effect would benefit the inheritors to only a small extent relative to the capital loss. All interest receivers share part of the gain resulting from the capital loss borne by the inheritors alone. When it is considered that the extent of any rise in interest rates would depend on prevailing credit conditions and would generally be small, it seems reasonable to conclude that any shifting of the tax by the inheritors through higher interest rates would be negligible.

### Economic Effects

The economic effects of inheritance and similar taxes are peculiar in that in most cases, at any rate, the inheritance is in the nature of a wind-fall, hence we cannot attribute to the tax any insidious effect on economic motives of the recipient. Nevertheless, effects may result from two considerations: (1) The tax reduced the amount received by the legatees and (2) the anticipation of the necessity of paying the tax may have influenced the legator. An ingenious device for reducing some of the arbitrary effects of inheritance and estate taxes has been proposed by Dr. William Vickrey. Under this plan the tax would be cumulative and would be graduated according to the difference in age between donor and recipient.<sup>60</sup> Another interesting suggestion is that of Eugenio Rignano who proposed that that part of an estate that had in turn been inherited by the legator would be taxed more heavily than that part which had been built up by the legator himself.<sup>61</sup> Finally, there is the plausible suggestion of Professor W. J. Shultz that there be a "vanishing" exemption. Under this plan a large estate would have a smaller absolute exemption than a small estate.<sup>62</sup>

### SAVING

It is reasonable to assume that some of the money inherited will be used for consumption purposes and some will be saved. The supply of

<sup>60</sup> William Vickrey, *Agenda for Progressive Taxation*, Chapters 8 and 9 (New York: Ronald Press, 1947).

<sup>61</sup> See Eugenio Rignano, *The Social Significance of the Inheritance Tax*, p. 115. (New York: Alfred A. Knopf, 1924.)

<sup>62</sup> See William J. Shultz, "Death Tax Exemptions," Chapter 9 in *Tax Exemptions* (New York: Tax Policy League, 1939).

## TAXATION

“capital” is therefore diminished by the tax in so far as it absorbs savings that might have been invested. The Colwyn Committee found considerable disagreement but expressed the opinion that agricultural landowners and private businesses experienced inconvenience and hardships, and that in some cases considerable damage was done. Public companies, moreover, were affected so far as the supply of capital from the public was decreased.<sup>63</sup> The Colwyn Committee also says of both inheritance and income taxes that “both forms of taxation alike prevent a certain amount of new capital from coming into being, the ultimate effect depending very largely on the direction of government expenditure.”<sup>64</sup> Colm and Lehmann, in fact, have estimated the reduction in savings resulting from the 1936 Revenue Act rates on personal estate and gift taxes.<sup>65</sup>

\$130-170 million—compared with 1932 rates				
300-330	“	—	“	1928
350-390	“	—	“	no tax

## CAPITAL FORMATION

Again these statements and figures should not mislead us into believing that the deterrent to capital formation is of the same magnitude as the reduction in “savings.” As has been pointed out many times above, the availability of credit from the banking system and other sources must not be neglected. The possible effect which the anticipation of the tax may have on the accumulation of capital should also be taken into account. It is conceivable that a person would be so spiteful as to reduce the amount of wealth he will pass on to others (either while he is alive, i.e. through gifts, or after his death) but it is also conceivable that consideration for his heirs will make him more eager than ever to increase the size of his estate.

## Conclusions

The above brief analysis leads us to agree with Adams that “carefully formulated and efficiently administered income and inheritance taxes do equalize the distribution of wealth and do not, in any appreciable degree, set in motion any subtle, subterranean, or remote economic forces of an

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<sup>63</sup> Report and Appendices of the Committee on National Debt and Taxation (*Colwyn Report*), (Great Britain), p. 172.

<sup>64</sup> *Ibid.*, p. 198.

<sup>65</sup> Colm and Lehmann, *op. cit.*, p. 33.

objectionable kind."<sup>66</sup> The minority members of the Colwyn Committee would undoubtedly agree with this statement for they doubted that direct taxation had any deleterious effects.<sup>67</sup> Beyond the narrow effect on the endowments of educational and research foundations it is, in fact, difficult to see what substantially harmful economic consequences can be attributed to estate and gift taxes at their present levels.

### POLL TAX

A word may be said about the poll or capitation tax even though its use in this country is of greater political than economic significance. The tax is imposed in most of the states but almost invariably at the local level. In some cases it is possible to pay the tax in labor service. Often the funds are earmarked for roads or education.

### Shifting

With respect to the shifting of this tax, it is interesting to note Seligman's extreme statement, "A poll or capitation tax is clearly not susceptible of being shifted, except to the extent that it falls on the laborer. Even then, it must trench upon the margin between the cost of subsistence and his actual standard of life before the conditions under which the shifting may take place will be present. The possibility of shifting, moreover . . . is not by any means the same thing as the actual shifting itself."<sup>68</sup> This view reduces the likelihood of shifting excessively. The possibility of shifting is not confined to those cases where the minimum of subsistence is affected. Both forward and backward shifting may take place even where the minimum of subsistence is not involved. The extent of shifting is dependent upon the degree of economic power (of the trade union sort) as well as the degree of need. In the United States the tax where used would seem to be directed mainly against those with small economic power and great need. Hence the impingement on subsistence is the controlling factor. The net result is probably a little forward shifting and somewhat more backward shifting. The forward shifting through higher wages would result from impingement on subsistence and would take place even though economic power is small. The backward shifting through lower prices paid would result from reduced buying power.

<sup>66</sup> T. S. Adams, "Effect of Income and Inheritance Taxes on the Distribution of Wealth," *American Economic Review, Supplement*, 1915, p. 243.

<sup>67</sup> Report and Appendices of the Committee on National Debt and Taxation (*Colwyn Report*), (Great Britain), p. 389.

<sup>68</sup> E. R. A. Seligman, *Shifting and Incidence of Taxation*, p. 371.

### Effects

The effects of the poll tax depend on the rates imposed and also on the economic status of the persons taxed. The tax will generally have the effect of curtailing necessities but a high tax rate would also have some effect on the volume of individual savings. According to Pigou, the poll tax is ideal from the standpoint of least aggregate sacrifice<sup>69</sup>—a statement which can be accepted as valid only if the poll tax is a graduated one.

A poll tax of considerable magnitude has important effects upon the tax system as a whole. Nevertheless there is an important economic point to be made where the poll is a large revenue producer. Since poll taxes in the United States are relatively low, this matter is of academic interest only. Pigou has explained: "If the main body of the revenue—*of given amount*—is being raised by a poll-tax, an income tax conforming to a given formula will yield more revenue than it would do if the given amount of revenue were being raised through a number of commodity taxes. For the poll-tax, while causing the marginal utility of money to persons mulcted under it to rise in the same way that commodity taxes yielding equal revenue would do, differs from these taxes in that it threatens no additional levy on these persons, if, to compensate themselves, they do more work, and so obtain and spend more income. Consequently, where the rest of the tax system consists of a poll-tax, there will be more income available for assessment under income tax, and so a bigger yield from any given scheme of income tax, than there would be if the rest of the system consisted of commodity taxes. On similar lines it can be shown that, if the rest of the tax system consists of a poll-tax any (ordinary) commodity tax will yield more revenue than it would do if the rest of the system consisted of an income tax."<sup>70</sup>

### Conclusions

The point made above may readily be misunderstood. It is not an argument for the poll tax *per se*. It is rather an argument for the advantage of having a poll tax rather than a commodity tax, when the productivity of an income tax is under consideration; or it is an argument for a poll tax instead of an income tax when the productivity of a commodity tax is under consideration. This does not mean that a poll tax by itself

<sup>69</sup> A. C. Pigou, *A Study in Public Finance*, p. 168 (London: Macmillan and Co., Ltd., 1928).

<sup>70</sup> *Ibid.*, pp. 70–71. [Used by permission of the publisher.]

is a more desirable means of raising revenue than a progressive income tax by itself. The fact remains that a poll tax is not based on ability to pay so fully as is a progressive income tax.

### PROCESSING TAXES

Although the Agricultural Adjustment Act, under which processing taxes were levied, was declared unconstitutional in 1936, it is useful to discuss the incidence and effects of these taxes in some detail for they represent one of the most interesting experiments in taxation in the twentieth century. In the court decision on the taxes the minority of the Supreme Court accused the majority of rejecting this legislation simply because they believed it bad legislation and not because it was actually unconstitutional. It is not unlikely that when the need arises and government lawyers succeed in framing the tax in a less objectionable manner, similar experiments may be tried in the future.

At the time that the Act was declared unconstitutional, a serious question existed concerning taxes that had been paid under protest. Many processors had presumably been reimbursed through price increases in the products they sold. The Unjust Enrichment Tax was passed to divert to the Treasury 80 per cent of any windfall gain derived in this way. The task was then begun of refunding processing taxes to the extent that they had not been shifted. The theory of shifting and incidence thus became a matter of practical policy.<sup>71</sup> This precedent is potentially of the greatest importance. It seems worth while, therefore, to discuss the incidence and effects of processing taxes in much greater detail than the present status of the processing taxes themselves would warrant.

Processing taxes strongly resemble excises. They may be defined as "levies on the first domestic processing of basic agricultural commodities."<sup>72</sup> Their extent may be judged from the fact that they were in effect on wheat, cotton, corn, hogs, tobacco, sugar, and peanuts, and that import compensation taxes and compensating taxes on other competing commodities were imposed.<sup>73</sup> These taxes were instituted primarily to raise revenue to carry out a recognized, necessary, economic adjustment between agriculture and non-agricultural industry. They were devices

<sup>71</sup> See the section on "Processing Tax Refunds" in Wirth F. Ferger, "The Role of Economics in Federal Tax Administration," *National Tax Journal*, June, 1948, pp. 98-102.

<sup>72</sup> M. S. Kendrick, "The Processing Taxes and Some Problems Raised by Them," *Journal of Farm Economics*, May, 1935, p. 307.

<sup>73</sup> *Ibid.*, pp. 307, 310, 311.



for redistributing income and were the "financial heart"<sup>74</sup> of the Agricultural Adjustment Act program whereby producers were paid for curtailing production. We shall examine the significance of these taxes in the light of their incidence and effects on the middlemen (miller, packer, retailer, etc.), the consumer, and the primary producer.

### Shifting and Incidence

In a discussion of the incidence of these taxes it is possible to supplement our *a priori* analysis with the results of practical studies. The operation of the tax was under the close observation of competent students many of whom attempted statistical studies of the results. It is possible to quote observers who made a first-hand study of the taxes at the time that they were in force.

### INCIDENCE ON CONSUMER

The theory of the Act, of course, was that the processing taxes were shifted forward.<sup>75</sup> In this regard an interesting point came up at a conference of the National Tax Association. One of the participants asked, "All of the taxes paid by corporations in the United States amount to \$4,400,000,000 and this processing tax is going to amount to \$4,700,000,000. Well, gentlemen, if that is a deductible item in your income taxes, where are you going to get any income taxes?" To this, the reply was made in part, "It seems entirely possible that these taxes, being a business expense, being added to the cost of doing business, being national, become a part of the consumer's charge, and really will be an indirect sales tax, another one of the taxes which are paid in the bill of the American consumer."<sup>76</sup> One investigator presented figures showing that the cotton tax was added to the selling price of cloth.<sup>77</sup> But another researcher made an analysis of the consumers' demand curve for pork and the farmer's supply curve for hogs and concluded that the consumers were not paying the tax.<sup>78</sup> This apparent conflict may mean either that the incidence was different for different commodities or that one of the

<sup>74</sup> M. S. Kendrick, *op. cit.*, p. 307.

<sup>75</sup> *Ibid.*, p. 310.

<sup>76</sup> Harold M. Groves, in the discussion of processing taxes in *National Tax Association Proceedings*, 1935, p. 192.

<sup>77</sup> L. Myers, "Processing Taxes and Problems Raised by Them: Discussion" *Journal of Farm Economics*, Vol. 17, May 1935, p. 319.

<sup>78</sup> C. Shepherd, "Incidence of the Processing Tax on Hogs," *Journal of Farm Economics*, Vol. 17, May 1935, pp. 323-26.

above investigators (or both) was in error. In any case, it cannot be taken for granted that the consumers paid the tax. The usual economic analysis of commodity taxes seems to be indicated.

#### INCIDENCE ON THE MIDDLEMAN

None of the research workers advanced the opinion that the immediate incidence of the tax rested on the middleman. On the contrary, one of them gave figures showing that the cotton tax was added to the price of cloth and was not borne by the cotton mills,<sup>79</sup> and another in his discussion of the incidence of the tax on hogs presented figures and a chart showing that packers were not paying the tax or any substantial part of it. He also showed that the retailers were not paying the tax.<sup>80</sup>

#### INCIDENCE ON THE PRIMARY PRODUCER

There is something to be said for the view that the incidence of the tax was on the farmers themselves. One observer said, "Farmers say that the packers have forced the hog processing tax back on them, rather than on the city consumer."<sup>81</sup> Another, after the analysis of the consumer's demand curve for pork and the farmer's supply curve for hogs noted above, concluded; "It appears, then, that the farmer 'pays the processing tax' himself. That is the conclusion of economic theory, and that conclusion is confirmed by the evidence of the facts."<sup>82</sup> Professor Blough has agreed with this conclusion.<sup>83</sup>

#### CONCLUSIONS ON INCIDENCE

Such is the nature of the practical evidence and opinions advanced by these research studies: the middleman did not pay the tax; the incidence on the consumer is doubtful; and the farmer paid a substantial portion at least of the tax himself. From the point of view of economic theory, these conclusions would be expected if the middleman had both a monopsonistic and a monopolistic position (both with respect to purchases from the producer and sales to the consumer), and that he has previously more fully exploited the consumer end than he has the producer end therefore forcing the tax back to the producer rather than attempting to place it on the consumer. In view of the improved position

<sup>79</sup> L. Myers, *op. cit.*, 1935, p. 319.

<sup>80</sup> C. Shepherd, *op. cit.*, 1935, p. 323.

<sup>81</sup> R. Clapper, in *Review of Reviews*, October 1934, p. 33.

<sup>82</sup> C. Shepherd, *op. cit.*, p. 326.

<sup>83</sup> J. R. Blough, *Journal of Farm Economics*, 1935, pp. 335, 338.

## TAXATION

of the farmers through benefit payments together with the well-known institutional fact that the processing stage is relatively more monopolized than either the producing or consuming stage, the reasons for the statistical results are readily understood.

### Effects of Processing Taxes

A study of the effects of processing taxes provides an interesting opportunity to investigate tax consequences in a limited economic sphere. The difficulty, however, is that the agricultural reduction program was so integrally related to the tax program that it is almost impossible to disentangle the one from the other. The discussion that follows should be considered a suggestive rather than a conclusive economic analysis.

### CONSUMER DEMAND

The effects of the tax on the consumer will depend on whether the incidence is on him and on his elasticity of demand. One study showed that the consumer had been paying out approximately equal amounts of money for pork each year.<sup>84</sup> The implication of this is that he would consume a smaller amount of pork per year since the price would rise either because the incidence of the tax was on him or because of the increased price resulting from the accompanying reduction program. The effects of the reduction program are inseparable from the effects of the processing tax, so that even if the incidence of the tax was not on the consumer he would have been affected by the higher price caused by the reduction program. The exact extent of these effects would depend on how elastic is the consumer's demand for the products involved. Taken as a whole the demand for the products which were involved in the program may be expected to be relatively inelastic. Hence the physical volume of consumption would be maintained and the outlay would be increased at the expense of other types of consumption.

### PRODUCTION AND ENTERPRISE OF THE MIDDLEMAN

With respect to the middleman Kendrick pointed out that "profit from processing may be affected by excessive shifts in consumption in two ways: (1) The processing may have to be financed on a smaller margin between the price of the raw material and that of the finished product; (2) the processing may be done on the same margin, yet profits suffer or losses appear because of the smaller volume of business over

<sup>84</sup> C. Shepherd, *Journal of Farm Economics*, 1935, p. 329.

which indirect costs are spread."<sup>85</sup> Another researcher, having in mind the reduction program, stated that the packer's gross and net income was reduced because of the reduction in volume of hog slaughter and because of the overhead expenses.<sup>86</sup>

But Kendrick hastened to add that "such decline in profits from either effect is not permanent. In the long run, profits in an industry suffering from an excessive shift in consumption caused by payment of a processing tax will be restored to their former competitive relationship by the slow process of readjustment of capital investment."<sup>87</sup> Another author minimized the burden on the middleman and pointed out that "the tax does not require as much capital to finance the commodity . . . as would be required if prices were higher by the amount of the tax" and that "processors have received a certain amount of financial assistance by reason of the fact that in many instances the processed articles have been sold and payment received (with tax included) before the processor has paid the government" and that a postponement of payment for 180 days could be obtained.<sup>88</sup> It has also been pointed out that the retailer's gross and net income was little affected because he handled so many products.<sup>89</sup> Hence we may conclude that production and enterprise in the processing stage were not substantially affected.

#### PRODUCTION AND ENTERPRISE OF THE PRIMARY PRODUCER

In considering the effects on the production and enterprise of the primary producer, the beneficial effects of the reduction program must not be overlooked. Even if the farmer did pay the tax he may have benefited from the higher price resulting from the shorter supply.<sup>90</sup> In support of this view there are figures showing that "the farmer's net income is substantially increased by hog reduction."<sup>91</sup> The farmers also benefited through the less intensive cropping which the Act encouraged and made economically possible.<sup>92</sup>

Nevertheless, if some of the incidence of the tax was on the farmers, some unfavorable effects may be expected. It is true, as Blough says,

<sup>85</sup> M. S. Kendrick, "The Processing Taxes and Some Problems raised by Them," *Journal of Farm Economics*, May, 1935, p. 311.

<sup>86</sup> C. Shepherd, *Journal of Farm Economics*, 1935, pp. 328-29.

<sup>87</sup> Kendrick, *loc. cit.* Processing Taxes and Some Problems Raised by Them," *Journal of Farm Economics*, May, 1935, p. 311.

<sup>88</sup> L. Myers, *Journal of Farm Economics*, 1935, p. 318.

<sup>89</sup> Shepherd, *op. cit.*, p. 329.

<sup>90</sup> *Ibid.*, pp. 326, 327.

<sup>91</sup> *Ibid.*, pp. 331-33.

<sup>92</sup> *Ibid.*, p. 334.

that "if the incidence of the tax is on the farmers producing the taxed commodities, the tax serves merely as a means of inducing all producers to join in the crop reduction program." But more serious results may have occurred for the farmers expected to have their income increased through both higher prices and cash benefits, and "resentment against a program that thus led them into believing that they would get something for nothing might result in its overthrow in spite of its benefits through crop reduction."<sup>93</sup>

#### DISTRIBUTION OF WEALTH AND INCOME

The potential effects on distribution were greater than appeared on the surface. In so far as the incidence of the tax was on consumers, then, as Blough says, ". . . the processing taxes amount to a subsidy that one great class of citizens is obliged to pay to another great class of citizens to induce this latter class to restrict output and raise prices . . . If the incidence of the processing taxes is on consumers a great precedent has been set for the redistribution of wealth and income among producing classes by the taxation-subsidy system." But this, as Blough points out, is not so desirable as it may appear to be: "There might well arise extreme resentment against a program that penalizes the consumer not only by a reduction in supply but also by forcing him to pay the subsidy with which the government entices the farmer to participate in the program. This resentment might very possibly result in an overthrow of the whole program."<sup>94</sup>

The same sort of effect occurred in so far as the incidence was on the middleman. "If, by chance," says Blough, "the incidence is on the packers or other middlemen groups, the processing taxes might properly be considered an epoch-making step in the reduction of the margins of the middlemen in the processing and marketing of farm products."<sup>95</sup> However desirable, this possibility is unlikely, as has been shown.

In so far as the incidence of the tax was on the farmers and the process of shifting was not a very arduous one, the redistributive effects of the tax may be neglected in view of the benefit program.

#### Conclusions

With regard to incidence, it appears unlikely that the middleman absorbed any substantial part of the tax, but as to whether the bulk of

<sup>93</sup> Roy Blough, "AAA Processing Tax on Hogs: Discussion" *Journal of Farm Economics*, Vol. 17, May, 1935, p. 338.

<sup>94</sup> *Ibid.*

<sup>95</sup> *Ibid.*

the tax was borne by the producer or the consumer it is difficult to say. The situation is summarized by the statement: "Actually, the Government doesn't know who pays the processing tax."<sup>96</sup> The evidence presented above seems to indicate that both producer and consumer bore part of the burden. As for the effects—they can be estimated only in conjunction with the crop reduction program. Through crop reduction and increased prices there was a net benefit to the farmer at the expense slightly of the middleman but mainly of the consumer.

When we discuss broader implications we open the way for greater difference of opinion. One expert, who discussed at length the manner in which rural areas have suffered at the hands of urban areas, saw in the processing taxes "the beginning of a movement in the right direction."<sup>97</sup> Another offered a word of warning—"It should be observed that the use of taxes to finance a program of crop reduction involves a serious danger. It would be a most serious matter if the farmers became convinced that the way to prosperity lay in continued crop reduction. If every group in the community, seeing the farmer's success, were to adopt the same philosophy we should soon lower our standard of living to a serious degree."<sup>98</sup> Moreover, the assessment of taxes to finance a program of "plowing under," while there was undernourishment and starvation, could scarcely be considered the ideal method of regaining prosperity. It would seem that the program which was carried out by the Surplus Commodities Corporation and similar agencies was potentially as effective in benefiting the farmer as was a crop reduction program, and at the same time does not involve the serious social, to say nothing of legal, objections which could be raised against the latter.

### IMPORT TAXES

In any discussion of import taxes it is necessary to distinguish the protective element, present in both revenue and protective tariffs, from the revenue element itself. The relatively unimportant revenue element is essentially the same in its incidence and effects as a manufacturer's sales tax or as an excise tax. The protective element has far-reaching effects. Any adequate discussion of the economic effects of tariffs would have to be so large a project that it must be considered outside the scope of this book. We can mention only a few points of resemblance with other taxes and a few general aspects of import duties.

<sup>96</sup> R. Clapper, *Review of Reviews*, October, 1934, p. 33.

<sup>97</sup> J. T. Sanders in *Proceedings of the National Tax Association*, 1935, p. 180.

<sup>98</sup> Blough, *Journal of Farm Economics*, 1935, p. 339.

With respect to the protective tariff as a whole, which includes both revenue and protective elements, we have the paradoxical situation that the tax not only produces less revenue the higher it is but it is actually pushed higher and higher *in order that it produce less revenue*. Apart from general tariff structure there are a few special import taxes which apply to certain commodities. Among these are duties on coal, copper-bearing ores, fuel and mineral oils, lumber, petroleum and derivatives, certain seeds, and certain vegetable oils.

A profound difference between sales or excise tax and the tariff must be noted. Revenues from import taxes have been notoriously unstable in the United States. In the nineteenth century, particularly, embarrassing Treasury surpluses and deficits were caused by the tariff. This is easy to understand in so far as imported goods are non-essential and are highly elastic to fluctuations in the national income. Where the revenue tariff is placed on a few articles of staple consumption, however, the customs revenue is much more stable, as may be demonstrated from experience in England.<sup>99</sup>

The receipts derived from a protective tariff are even more unstable than the receipts from a revenue tariff. The rates in a revenue tariff could conceivably be adjusted rapidly in relation to changing economic conditions. In the case of a protective tariff, however, there are political and social factors which introduce an important element of inflexibility. The rates tend to remain fixed and the receipts therefore vary greatly with changing economic conditions.

The tariff therefore has had important fiscal consequences through the direct effect on revenues. Indirectly it is also of considerable fiscal importance. Prior to the last war some authors pointed out that a lowering of tariffs would make possible a greater payment of war debts through increased trade. This revival of trade would increase customs receipts, would stimulate business activity, and would therefore increase the yield of domestic taxes.<sup>100</sup> Thus lower tariffs would make possible a reduction in public debt in two ways: (1) It would make possible an actual transfer of funds to the government by the debtor nations; (2) it would increase both customs and domestic tax revenues (provided that domestic trade is not disrupted by the action). The present situation may seem to be different because of the impoverishment of Europe and her inability to

<sup>99</sup> T. O. Williams, "Tariffs and Economic Nationalism," *South African Journal of Economics*, 1934, p. 48.

<sup>100</sup> *Balancing the Budget, Federal Fiscal Policy During the Depression*, Public Policy Pamphlets No. 1, pp. 23-24 (Chicago: University of Chicago Press, 1933).

supply large quantities of goods in trade. Any improvement in this situation strengthens the traditional argument and emphasizes once again the fiscal consequences of reduced tariffs.

### CAPITAL STOCK TAXES

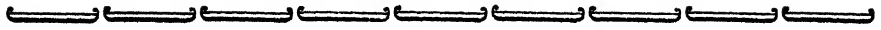
Many state governments have imposed taxes on the equity element of a corporation. This may take the form of a tax on the capital stock or on the excess of the value of the business as a whole over the value of tangible assets. They are often associated with "franchise" taxes imposed for the privilege of doing business in the state. The taxes are usually small in amount and have negligible economic effects.

A federal capital stock tax was in operation during World War I but was dropped in 1926. The Declared Value Excess Profits Tax which existed in the United States from 1933 to 1945 was not really a tax on excess profits but rather a device for taxing capital stock. Under the Capital Stock Tax which existed during the same period there was a levy of \$1.25 on each \$1000 of the capital stock of a corporation. The difficult question of valuing capital stock existed. Corporations were permitted to set their own value. Since this would obviously lead to abuse, the corporation's earnings were used as a device for checking on the reasonableness of the valuation put on the capital stock. A tax of 6.6 per cent was imposed on all profits in excess of 10 per cent (but not in excess of 15 per cent) of the valuation declared by the company and 13.2 per cent on the excess over 15 per cent. This provided a fascinating "guessing-game"<sup>101</sup> for lawyers and accountants, but its effects on business operations were probably nil.

<sup>101</sup> Cf. Harold M. Groves, *Postwar Taxation and Economic Progress*, pp. 82-83 (New York: McGraw-Hill Book Co., 1946).



## Reforming the Tax System



An examination of the contents of the preceding chapters will indicate that all taxes have some undesirable consequences. It is difficult to conceive of any tax which is entirely good. That does not mean, however, that modifications in the tax structure may be made indiscriminately. In order to achieve the desired end, whatever it may be in the particular circumstance, there may be a variety of possible tax devices varying in the extent to which they incidentally have undesirable effects. No tax can be evaluated unless its purpose is known. A tax which may be desirable for one purpose may be completely unacceptable for another. Thus it is necessary to state the objective of the tax program clearly before tax policies and tax reforms can be considered adequately. As a prerequisite to a consideration of these matters, a review must be made of the incidence and effects of the various classes of taxes.

### Limitations of Analysis of Incidence and Effects

Considerable effort has been made above to evaluate a large number of different taxes. Who pays the tax? Who really bears the burden of the tax? What are the effects on consumption, production, savings, capital formation, economic fluctuations, and economic progress? These are some of the questions which have been asked. Answers have been attempted under stated conditions. We must be very cautious in generalizing the results, especially if we are to make specific recommendations for reforming the tax system.

### VARIETY OF CONDITIONS AFFECTING DEGREE OF SHIFTING

In Chapter 8 we saw that there was a discouraging variety of shifting conditions to examine: *forward* and *backward* shifting; *market period*, *short-run*, and *long-run* shifting; shifting under conditions of *pure com-*

*petition, monopolistic competition, and monopoly.* There is unfortunately no way to avoid any part of this analysis. True, many of these distinctions are neglected in some of the most authoritative of existing books on public finance. The confusing and untenable results contained therein stand as mute testimony to the need for a sharper analysis.

A recognition of the various types of shifting and attendant conditions does not make the analysis any more theoretical. On the contrary, it makes it more realistic. It recognizes the various practical possibilities and indicates what shifting is likely to take place under them. A failure to allow for the variety of conditions which may be faced would make the analysis less applicable to reality and, as the terms are commonly used or abused, more "theoretical" or "abstract." The net effect is, however, that generalizations as to shifting and incidence are difficult to make.

#### SHIFTING THE TAX DOES NOT NECESSARILY SHIFT THE BURDEN

Shifting a tax is often considered to be synonymous with avoiding the "burden" of the tax.<sup>1</sup> Using the term "burden" here in its ordinary sense, the two ideas are not necessarily the same. It is actually one thing to shift a tax completely by raising the price of the taxed article by the full amount of the tax and another thing to avoid any burden. A short-run example may make this point clear. An increase in the price of any article will, barring concurrent and off-setting changes elsewhere, result in a reduction in amount demanded, with few exceptions (notably the case of completely inelastic demand). This must mean less profit than before the tax was imposed and the price was raised. If it meant more profit or the same profit despite the tax, then we assume that the manufacturer would have set the price at the higher level before the tax was ever imposed.

Suppose that a shoe manufacturer finds that he can make the most profit by selling his shoes at five dollars a pair, at which price he can sell a thousand pair a week. Any other price will give him a smaller profit. Now a tax of a dollar a pair is imposed and the manufacturer finds that the most profitable thing for him to do is raise the price to six dollars, thus "shifting" the tax completely. Yet the new profit after taxes must be less than the profit he had made before the tax. He, there-

<sup>1</sup> For instance, von Mering in his *Shifting and Incidence of Taxation* says (citing Pantalconi): "Shifting of the tax: through suitable price changes the payer succeeds in avoiding all or part of the tax burden" (p. 3).

fore, bears some of the "burden" of the tax, since his profits are reduced, yet the tax has been shifted completely.

This is not a contradiction. It is merely that shifting has to do with a change in price and a change in price does not necessarily solve everything. It is clear that an evaluation of particular taxes cannot be confined to the question of tax shifting alone.

#### ANALYSIS OF SHIFTING AND EFFECTS IS USEFUL IN SPITE OF LIMITATIONS

Not all taxes are dealt with in detail in the discussion of incidence and effects. Even the humblest tax requires a full analysis for reliable conclusions on economic implications. General statements on shifting are very dangerous since the possibility of shifting a particular tax depends on the details of the tax and prevailing competitive and other economic conditions. The discussion of incidence and effects is designed to give the reader an example of how the problem might be approached in a practical case, what to watch for, and how to handle the relevant variables. The shifting of any particular tax evidently depends on a great variety of conditions. The effects of the tax cannot, however, be evaluated with any degree of accuracy unless some judgment can be formed concerning the incidence of the tax. Here the analyst must decide what conditions are most likely to be faced in practice and thereby obtain a working conclusion regarding the incidence which may be used as a starting point in the examination of the other economic effects. Every field of economic policy is faced with the same dilemma. The fact that the variety of possible conditions has been explicitly recognized in the above discussion should not in itself give the impression that conclusions reached in fiscal policy analysis are more tenuous than those reached in other fields of economic policy.

#### Evaluation of Various Classes of Taxes

Any tax, regardless of how small it may be, has economic effects which cannot be ignored. A prohibitive tax interferes with some economic activity or forces it underground. A revenue-producing tax involves a transfer from the public to the government. The funds transferred might have been used for the purchase of consumption goods, securities, and actual capital goods or may merely have reduced cash balances which were not replenished. A reduction of cash balances would usually carry with it an attempt to replenish them by cutting down on consumption or investment or both. All these possible effects (with the conceivable

exception of the unreplenished cash balances) have *unfavorable* economic effects to a greater or less extent. The reduction in consumption has an unfavorable effect on business activity; the reduction on the purchase of capital goods likewise reduces the volume of business; and the reduction in the savings devoted to the purchase of securities tightens the credit market. The last would have serious effects to the extent that the banking system is not lending with perfect freedom. Thus all taxation, in the merely mechanical aspect of transferring funds from public to government, tends to reduce the volume of national income and business activity.

Before looking at the less mechanical aspects of the question, we may classify the various taxes according to whether they primarily affect consumption or investment in the first instance. The following taxes would tend to affect consumption: excise tax, revenue tariff, payroll tax, sales tax. The following would tend to affect consumption to a lesser extent: income, inheritance, and property. Other taxes might be said to affect consumption negligibly. Investment is affected to a large extent by income, inheritance, property, undistributed profits, and excess profits tax. The other taxes affect investment directly but only to a negligible extent. Whether the "investment" actually means a tightening of the credit market such that capital formation is reduced depends on the banking system. Here it should be stressed that we are discussing short-run effects, i.e., before the long run has arrived and the taxes are "diffused" over the whole system.

A word may be said about the distinction made throughout this book between the economic effects on "individual money savings" and that on capital formation. We have done this a number of times but the point is so important and the possibilities of confusion so great that another reference to the analysis is warranted. If a projected capital investment is considered profitable and the funds are not available from private investors, those funds may possibly be obtained from the banks. The fact that it may not be easy to obtain funds from the banks does not upset the general conclusion that we cannot look merely at the individual savings to determine the national supply of capital goods. As a result of this sort of error, we find some authors unearthing a "shortage of capital" at every turn. For instance, in discussing the downturn of 1937, Colm and Lehmann say, "At least it seems safe to conclude that a shortage of adequate capital funds would have become a serious problem if other factors had not reversed the tide of business. . . . The shortage of capital funds, especially the shortage of funds available for investment in com-

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mon stocks, has been blamed on the new tax laws, and to the extent that this shortage caused insufficient private investment, taxation has been blamed for the present situation.”<sup>2</sup> To give content to these conclusions the authors would have to show that plans for profitable capital investment had to be abandoned merely because private savings were reduced.

Turning from the mechanical transfer of funds from public to government, taxes can have other effects than merely cutting down consumption or investment in the direct manner discussed above. The amount of revenue received as a result of the protective tariff, for instance, is not an indication of its economic effects. The amount of revenue received from an undistributed profits tax does not measure the effect that such a tax might have. Further effects on either consumption or investment or both may be expected as a result of the effect of the relative profitability of the uses to which different economic resources may be put; similarly with other taxes. The indirect influences should not be lost sight of for they may be much more important and far-reaching than the direct mechanical influence. Some of the indirect influences may conceivably be beneficial to business activity. Such “incentive” effects are relatively unimportant in general. We cannot escape the general conclusion that taxation in itself is deflationary and detrimental to business activity; and may offset to a greater or less extent the efforts of government to promote recovery.

Some taxes, such as progressive income and estate taxes, may sometimes have virtually no unfavorable economic consequences, but it may sometimes happen that through their influence on the supply of capital, they might seriously deter private investment. Finally, we must distinguish between short-term and long-term economic effects. A tax might have some slight detrimental effects on business activity in the short run through a reduction in available working capital. This might possibly have resulted from the undistributed profits tax. But in the long run it may actually be looked on with favor if self-financing is considered undesirable for the firm or the economy.

### TAXES ON COMMODITIES AND SERVICES

There are a few words that might be said specifically about commodity taxes as a background for reforming the tax system. One important warning that must be mentioned in connection with commodity

<sup>2</sup> Colm and Lehmann, *Economic Consequences of Recent American Tax Policy*, Supplement 1, *Social Research*, 1938, p. 63.

taxes is that the shifting process is a very uncertain one indeed. There is no assurance that the tax will be passed on to the consumer; and there is no assurance that the commodity taxed will be the one which actually bears the tax. Either of these conditions would defeat the purpose of many a commodity tax which exists. There is also some possibility of indirect effects upon tax-free commodities through increased demand for the latter which would result from shifts away from the taxed commodities.

It is possible that the tax will be absorbed by the businessman instead of being shifted to the consumer. This will occur where certain established price lines, for instance, \$2.98, are in force and the businessman hesitates to raise the price to, say, \$3.14. It may also occur even where there are no established price lines and the businessman has calculated (or guessed!) that the price-without-tax will make possible so much greater a turnover than the price-with-tax that it pays him to absorb the tax himself in order to keep sales up. This is just an example of a case where profit per unit of capital invested is higher with a lower margin on sales than with a higher margin on sales. The higher the tax the less likely it is that this sort of absorption will develop. After the tax is imposed a study would have to be made of prices in the commodities affected in an attempt to see whether absorption by the businessman is taking place.

Likewise, there is no assurance that the businessman will make the commodity which is taxed actually bear the tax. In a large store, with a variety of products, it may well be advisable for the businessman to impose the tax upon (that is, raise the price of) a tax-free commodity which he considers better able (from the point of view of sales and profits) to bear the tax. Departmental and "5 and 10" stores are the most likely places for this sort of practice.

In this case, too, the effectiveness of the tax for the purposes for which it was imposed will depend on the height of the tax. A low tax can readily be shifted from one commodity to another. A hundred per cent tax, however, will certainly be felt at least partly by purchasers of the commodity taxed, for otherwise that commodity would be sold at a loss. To take an extreme example to bring this home, if a ten dollar article is taxed ten dollars, and is still sold for ten dollars in all to the consumer, the businessman is effectively receiving nothing, for he must turn over the whole ten dollars to the Treasury. Hence, we may be certain that part of the tax, at least, will be added to the price of this commodity.

A heavy tax imposed on one commodity will shift demand to close substitutes if these substitutes are tax free or are not taxed so heavily. It may be that these substitutes were plentiful to begin with and no tax

was necessary. Through the increased demand, resulting from the shift away from the taxed commodity, there may now be a danger of an inflationary price rise in the formerly plentiful commodity. In this way one tax will beget another, just as one priority begets another. The administration of a comprehensive system of sales or excise taxes is no easy task.

Throughout this discussion of commodity taxes we have stressed the contention that the use of commodity taxes brings with it many undesirable and harmful consequences. Granted that some way had to be found, following World War I, during the Great Depression (and possibly during World War II) to provide increased revenues in order to balance budgets, why was commodity taxation chosen in many countries? Shirras suggests an interesting answer:

To the financier indirect taxes are invariably tempting. By these he can reach the poorer classes on whom it is difficult if not altogether impossible to levy direct taxes. . . . Many indirect taxes are productive, and to the Finance Minister, who has to get revenue with as little fuss as possible, that is of first importance. They are also convenient and less irritating than direct taxes. Thus a large revenue can be raised with little protest. This sometimes tends to promote extravagance. It is expedient to have balance between direct and indirect taxation. Indirect taxation, therefore, prevents exclusive concentration on the important direct taxes and preserves the golden rule that the collection of a State's revenue should be on as broad a basis as possible. Too heavy taxation, direct or indirect, at any point or points will tend to evasion, and to the interference with and the crippling of industry."<sup>3</sup>

But this cannot be a complete answer. We have seen there are many disadvantages to commodity taxes. Why then was the use of indirect taxation so extensive in the early part of the century? It may be that 'a theory of *the bargaining which precedes the imposition of a tax*' or a 'theory of pressure groups' might explain the extensive use of regressive taxation. In the bargaining which precedes the imposition of a tax the consumer's one-vote-every-so-often is of negligible importance. Especially is this so in view of the likelihood of even that vote being used unintelligently—in matters of tax policy—because of the relative "silence" and "painlessness" of commodity taxation.

Will this tendency continue? It seems inevitable that it will. It may be true that "in the long run you cannot silence the conviction of the average man that taxes ought to be borne by individuals in accordance with their wealth."<sup>4</sup> But we live in the short run. And in the short run

<sup>3</sup> G. F. Shirras, *The Science of Public Finance*, 1927, p. 19. [Reprinted by permission of the Macmillan Company.]

<sup>4</sup> Seligman, E. R. A., "Newer Tendencies in American Taxation," *Annals of the American Academy*, Vol. 58, 1915, p. 9.

the "conviction of the average man" has not succeeded in preventing the imposition of regressive taxes all during the long, long run that has elapsed since the time when the first regressive tax, whatever it was, was imposed. The extent of the use of regressive taxes may fluctuate with the fluctuations of the business cycle and with the state of national defense, but there is no reason to believe that these taxes will ever be dispensed with entirely.

### TAXES ON INCOME AND WEALTH

With a few minor exceptions, such as that of the poll tax, the analysis of the preceding chapters indicates that the main impact of taxes on income and wealth has been on the volume of money saving in the past. More recently, with low exemptions, income taxes have cut into consumption. These taxes are essentially a transfer to the government from individuals and enterprises of funds which would have been or have already been saved. Even with large exemptions there is also some direct effect on consumption. The mechanical nature of these direct transfers should not obscure the fact that many of the taxes such as those on capital gains and undistributed profits have further potential effects on enterprise. For ordinary peace-time conditions with less than full employment, it is not difficult to find economic arguments against these taxes because the unfavorable effects of any tax become more prominent than at any other time.

But we must not ignore the broader social effects. Taxes on income and wealth can more readily be made progressive than can taxes on commodities. Hence the former types of taxes are usually associated with the redistribution of wealth and income. Curiously, in the aristocracy of Plato we find the law that any one who acquires more than four times the average of the citizens must relinquish the excess to the state. Moreover, in this connection we may mention that the redistribution of income and wealth appears in some proposals to prevent unemployment. In recent years Keynes has argued that a redistribution of wealth and income would tend to increase the propensity to consume and thus have long run favorable effects on production and employment.

### INDIRECT VS. DIRECT TAXES

One of the fundamental tenets of modern tax theory is that direct taxes are preferable to indirect taxes as far as the taxpayer's level of satisfaction is concerned. A given amount of revenue raised through an income tax, for instance, leaves the taxpaying consumer better off than



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the same amount of revenue raised through a commodity tax. The argument is essentially that the commodity tax effectively changes the price of the commodity and this introduces a distortion in the individual's expenditures which does not take place under an income tax.<sup>5</sup> This has been called the "excess burden of indirect taxation."

Wald has shown that relative to leisure, even income taxes have an "excess burden" in that they distort the relation between leisure hours and working hours.<sup>6</sup> Only those taxes which are not dependent for their magnitude on any decision of the taxpayer have no "excess burden." Poll taxes and windfall taxes are examples.

The fact that, in relation to a certain standard, income taxes as well as commodity taxes have an "excess burden" does not impair the validity of the classical conclusion that income taxes are preferable to commodity taxes as far as the taxpayer's level of satisfaction is concerned. It merely shows that there are some taxes which are even more desirable than income taxes in that respect. There is still an excess burden of commodity taxes over income taxes which is in no wise diminished or belittled by the fact that there is an excess burden of income taxes over, say, poll taxes.<sup>7</sup>

### Some Reforms in the Tax System

Suggestions for tax reform must be based on assumptions regarding the economic, social, and political aims of government. Should the government try to equalize income and wealth? Should it try to stabilize economic activity? Should it try to maximize the standard of living? Should it try to maximize employment? These are a few of the questions that may be asked. Each may call for different modifications in the tax system. In the following discussion emphasis will be placed on a dynamic stability of employment at a high level whereby continued investment and progress may occur with the necessary spurts and starts but without substantial decline in business activity.

### Flexible Tax Policy

Changes in tax rates are often made after the economic need for them has passed. In general, a lightening of the tax load in depression and an

<sup>5</sup> For an excellent up-to-date review of this argument, see Haskell P. Wald, "The Classical Indictment of Indirect Taxation," *Quarterly Journal of Economics*, August, 1945, pp. 577-96.

<sup>6</sup> *Loc. cit.*

<sup>7</sup> Wald's conclusion on this point is not in agreement with this. He says, "The oft-quoted theorem that all commodity taxes are more burdensome than income taxes . . . cannot be substantiated on a priori grounds." *Op. cit.*, p. 596.

increase in prosperity would assist in "neutralizing" the economic effects of taxes to a considerable extent. Since the main reliance of the federal budget is on the income tax, there is not much danger in the existing tax structure as a factor promoting instability. Tax revenues fall with income but the fall in income is not aggravated by the existence of the taxes. One exception to this generalization may be in the lower brackets where a substantial part of the amount paid in taxes might have been spent. Another qualification may be the high progressive rates which may impinge on venture capital.

In considering the question of flexibility, we must not be misled by any conclusions regarding "harmful" effects which taxation may have on business activity. Under some conditions, e.g. at the height of a war effort, such "harmful" effects on certain activities may be precisely what is needed to make possible a transition from peacetime to wartime production. Conditions could be such that taxes which impinge on private savings actually retard capital formation. Nevertheless such taxes may actually be socially desirable through the "harmful" effects they have. Tax policy should therefore be as flexible as possible. As Colm and Lehmann suggest, tax policy should be directed toward the fulfilment of certain long-run social aims but at the same time it should be capable of short-run adjustment to short-run conditions.<sup>8</sup> The short-run adjustment would vary from case to case and would be different for times of peace and times of war. Although the need for a flexible tax policy is undeniable, there still remains a good deal of room for decision as to the extent of the flexibility, its nature, and as to the degree of effectiveness of a flexible tax policy, even at best. In practice there has always been a certain degree of flexibility in our tax system. In times of war it has been taken for granted that taxes should generally be increased. The rationale for the increase in taxes during the war has been *fiscal*, i.e. the need for more revenue, *ethical*, i.e. all should contribute more heavily owing to the exigencies of the war, and *economic*, i.e. it has been necessary to cut down on certain lines of consumption to release resources for productive purposes. In spite of this recognized need, tax increases have often been slow to come even in wartime. The peacetime response to inflationary and deflationary dangers has been even slower.

Increased flexibility in tax rates would contribute greatly to the effectiveness of tax policy. The Board of Governors of the Federal Reserve System has the power to alter reserve requirements within

<sup>8</sup> Gerhard Colm and Fritz Lehmann, "Economic Consequences of Recent American Tax Policy," Supplement I, *Social Research*, 1938, p. 87.

limits. Why not give equal power over tax rates to some competent body? The limits would have to be specified rigidly and other conditions might have to be imposed. The proposal does not involve any greater degree of delegation of power than now exists in credit control and many other fields. The result would constitute a major reform in the tax system.

### **Double Taxation of Dividends**

The double taxation of dividends has been widely hailed as a blemish on the American tax structure. The argument runs that the corporation pays a tax on its net income and then the shareholder pays a tax on dividends received out of that same net income. In the case of partnerships or sole proprietorships or in the case of professional persons, no such problem arises. The claim is that venture capital for corporate enterprise is thereby discouraged.

In considering this problem it should be borne in mind that the extent of double taxation is smaller than it may appear.<sup>9</sup> (1) Some dividends are distributed to individuals whose exemptions and deductions are high enough to make their dividend receipts non-taxable. (2) Large amounts of dividends are paid to exempt organizations such as educational and charitable institutions. (3) Retained earnings which are permanently invested in the business are not submitted to double taxation except in so far as the capital gains tax applies to a higher level of security prices that may develop. (4) Owner-managers in closely held or controlled corporations may (within limits) pay themselves higher salaries, which are deductible for tax purposes, instead of dividends, which are not.

### **DOUBLE TAXATION AS A TAX ON CORPORATE ENTERPRISE**

The existence of double taxation cannot be denied: the corporation is taxed on its income and the shareholder is taxed on the same income in so far as it is distributed in the form of dividends. Whether it should be removed or modified depends on the purpose, if any, of the double taxation. The extra tax paid on income produced by corporate enterprise may be considered a price exacted by the community for incorporation and the privileges which go with it. But this price acts in a peculiar fashion. In itself it encourages the non-distribution of corporate income. A reduction in personal income taxes would, of course, reduce this

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<sup>9</sup> See Louis Shere, "The Fiscal Significance of the Corporation Income Tax," *N.T.A. Proceedings*, 1947, pp. 13-14.

tendency. The tax law of 1948 was, in fact, expected to increase dividend distributions because of the reduction in personal income taxes.<sup>10</sup> Together with the low rate long term capital gains tax the corporation income tax promotes the retention of earnings with a view to the ultimate sale of the shares of stock at a gain. The provisions of the federal income tax law which guard against excessive accumulation of surplus do not apply in a sufficient number of cases to be an effective safeguard. It is difficult to conceive of any wholesome economic end which would be served through this particular type of intervention in the free decisions of business firms. The major consequences of our business income tax structure have been discussed in Chapter 13.

#### DOUBLE TAXATION AS A PENALTY ON EQUITY FINANCING

Another way of looking at the double taxation of dividends is to say that dividend payments by corporations are not exempted from corporate taxation the way interest payments are. This is perhaps the major consequence of double taxation. Although it is never a matter of complete indifference to a corporation whether to use bond or stock financing, yet very often the choice between them is very close. Thus double taxation discriminates against stock financing and in favor of bond financing. Since bond financing with its fixed interest commitment introduces a rigidity into the economic system which might lead to bankruptcies and thus depression, there is much to be said in favor of removing the discrimination from the point of view of economic stability.

#### REMEDIAL DEVICES

Numerous devices have been proposed to eliminate the double taxation of dividends.<sup>11</sup> These devices are:<sup>12</sup> (1) The *partnership* approach whereby the shareholders are taxed at regular individual income tax rates on their full share of corporate profits whether paid out or not; (2) the *dividends-paid credit* approach whereby dividends paid out by corpora-

<sup>10</sup> J. K. Lasser, "New Tax Law and Speculation," *Commercial and Financial Chronicle*, June 17, 1948, p. 8.

<sup>11</sup> See Harold M. Groves, "Revision of the Corporation Income Tax," *N.T.A. Proceedings*, 1947, pp. 100-104.

Richard Goode, "Alternative Approaches to the Integration of Corporate and Individual Income Taxes," *N.T.A. Proceedings*, 1947, pp. 134-45.

John L. Connolly, "Alternative Methods of Taxing Corporate Earnings at the Personal Level," *N.T.A. Proceedings*, 1947, pp. 146-50.

George E. Lent, "Alternative Methods of Taxing Corporation Earnings at the Personal Level: The Withholding Approach," *N.T.A. Proceedings*, 1947, pp. 151-60.

J. Keith Butters, "Should the Profits of Small Corporations be Taxed Like

tions are deductible for tax purposes by the corporation in the same way as interest payments; (3) the *withholding* approach whereby the tax paid by the corporations is regarded as having been withheld on behalf of the shareholders who then declare as income their dividends received plus the taxes withheld on account of those dividends but are credited with the withholding tax in computing net tax liability; and (4) the *dividend-received credit* approach whereby dividends received are exempted from part of the individual tax rates. One special form of the last proposal would reduce the corporate tax to the level of the first-bracket rate of the individual income tax and would exempt dividends received from that rate. It has also been suggested that partnerships might be taxed as corporations.<sup>13</sup>

In evaluating these proposals<sup>14</sup> (assuming orthodox methods of government finance), the substantial loss of revenue which would result must be balanced off against any desirable economic effects of eliminating the double taxation of corporate income. Moreover, as Professor Ford has emphasized, the double taxation argument holds only on the assumption that corporate profits are not shifted.<sup>15</sup>

### Accelerated Depreciation

Accelerated depreciation has been proposed as a method of encouraging private investment and thereby (1) reducing the severity of downturns in business activity and (2) speeding an upturn in case a depression has set in. Rapid amortization of capital equipment over a short period

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Partnership Earnings?" in *How Should Corporations Be Taxed?*, pp. 72-90 (New York: The Tax Institute, 1947).

Harold M. Groves, *Postwar Taxation and Economic Progress* (New York: McGraw-Hill Book Co., 1946).

Richard B. Goode, *The Postwar Corporation Tax Structure* (Washington: U.S. Treasury Department, 1946).

See Robert Murray Haig (Chairman), "Final Report of the Committee of the National Tax Association on Federal Taxation of Corporations," *N.T.A. Proceedings*, 1939, pp. 534-99.

<sup>12</sup> Goode, *N.T.A. Proceedings*, 1947, p. 137.

<sup>13</sup> "Discussion," *N.T.A. Proceedings*, 1947, pp. 169-71.

<sup>14</sup> See R. A. Musgrave, "Should an Absolute Corporation Tax be Retained?" *N.T.A. Proceedings*, 1947, pp. 111-20.

Ellsworth C. Alvord, "Would Integration of Corporate and Individual Taxes Injure Business?" *N.T.A. Proceedings*, 1947, pp. 175-79.

William Vickrey, "The Effects of Integration of Corporate and Individual Income Taxes on Business," *N.T.A. Proceedings*, 1947, pp. 179-88.

J. Keith Butters, "Would the Complete Integration of the Corporate and Personal Income Taxes Injure Small Business?" *N.T.A. Proceedings*, 1947, pp. 189-93.

<sup>15</sup> See Robert S. Ford, "Some Economic Aspects of the Present Corporate Income Tax," *Proceedings of the National Tax Association*, 1947, p. 56.

of say five years is one form of this proposal. During the war of the 1940's this was actually permitted in connection with emergency facilities. There are other forms of the proposal some of which would permit the management to decide on any period it desires. More liberal variants would even permit alterations in the period at the discretion of the management. A one-year write-off has also been proposed for serious consideration.<sup>16</sup>

#### MERITS OF THE PROPOSAL

The proposal is based on the assumption that the businessman can see ahead more clearly over a short period than over a longer period. Presumably the businessman contemplating investment expects to make a profit on the investment but he holds his expectations with less and less certainty the farther they go into the future. If he can be assured of writing off his investment during a short period, say five years, he will therefore be able to charge the investment against expected earnings. Otherwise some of the depreciation will be "wasted" taxwise, that is, will be deducted or deductible in years of loss. This type of reasoning does not apply in the case of investments which require several years of development at a loss. A program of accelerated depreciation would have to permit of a waiting period before depreciation allowances would be made. A program which allows the tax payer to vary the depreciation period at will handles all possible cases, of course. Needless to say the tax loss to the Treasury will be very great unless the level of investment and income is raised as a result of this device sufficiently to offset a decline.

#### INEFFECTIVENESS OF RAPID AMORTIZATION

There is little reason to believe that a specific program of accelerated depreciation providing for, say, a five-year period for writing down of assets, will actually provide any substantial stimulus to the economy in the midst of a widespread depression. The main characteristics of such a period are of course very poor expectations and only the more far-seeing businessmen are likely to invest. But this means that they will look ahead to the future rather than immediate profits. If a short period of amortization is *required* they are likely to be discouraged from investing; and if it is *optional* they are not likely to expect to take advantage of it. Thus the plan is relatively ineffective under such conditions.

<sup>16</sup> See E. Cary Brown, "Business-Income Taxation and Investment Incentives," *Income, Employment and Public Policy: Essays in Honor of Alvin H. Hansen*, pp. 300-16 (New York: W. W. Norton & Co., 1948).

DANGERS IN RAPID AMORTIZATION

Rapid amortization will, however, encourage investment when the expectations of profit are high for a few years at least. In other words, the plan would be effective during prosperous conditions. It is liable to promote overinvestment and lead to an inflationary situation which could initiate or aggravate a downturn. A compulsory program of rapid amortization is rigid to the point of danger. An optional program is dangerous from the point of view of national business conditions in allowing wide discretionary powers to the businessman in a field where individual decisions are notoriously unreliable for the maintenance of national stability. All in all, although depreciation procedures are by no means perfect, any radical alteration of the type proposed carries with it as many potential dangers as advantages.<sup>17</sup>

Averaging of Income and Carryover of Losses

Another proposal which has received widespread comment is that income be averaged for income tax purposes. This is the most far-reaching of the proposals for tax reform considered here. Some provision of this sort exists in the corporate income tax through the limited carryover of losses but this is not general in the tax law and in any case is not quite the same thing as the averaging of income. The carryover of losses may be considered a special case of averaging of income. Full loss offsets, whereby the Treasury pays for business losses at the same rate as it taxes income, have also been suggested.<sup>18</sup>

INEQUITY OF PRESENT PROCEDURE

The inequity of the present procedure for tax collection on an annual income may be illustrated by the following example. Suppose that there are the following tax brackets:

<i>Net Taxable Income</i>	<i>Bracket Rate</i>
\$ 0 to \$ 2,000	20%
2,001 to 4,000	30%
4,001 to 6,000	40%
6,001 to 8,000	50%
8,001 to 10,000	60%

<sup>17</sup> For a well-balanced discussion of accelerated depreciation, see John M. Blair, Howard R. Bowen, and C. C. Fichtner, *Taxation*, pp. 36-39 (Washington: Smaller War Plants Corporation, 1945).

<sup>18</sup> See E. D. Domar and R. A. Musgrave, "Proportional Income Taxation and Risk-Taking," *Quarterly Journal of Economics*, May, 1944, pp. 388-422.

Suppose there are two individuals who make the same aggregate income in two years, namely \$10,000, but A makes \$2000 the first year and \$8000 the second year. Individual B makes \$5000 each year. A's tax liability is \$400 the first year and \$2800 the second year. The latter is computed as follows: \$400 on the first \$2000, \$600 on the next \$2000, \$800 on the next \$2000, \$1000 on the next \$2000. For the two years, therefore, his total tax liability is \$3200 on an aggregate income of \$10,000. Individual B, however, pays \$1400 each year, making a total of \$2800 on his aggregate income of \$10,000 for the two years. Thus the tax law penalizes the individual with fluctuating income. Under a provision for averaging income he would pay each year a tax on the average of the two years. Both individuals would pay the same total tax for the two years.

#### COMPUTING THE TAX ON AVERAGE INDIVIDUAL INCOME

The precise method of determining the average is worthy of some study since the complications are greater than may appear on the surface. If the averaging provision is for a two-year period, then the taxable income each year might be as indicated below:

<i>Year Number</i>	<i>Actual Income</i>	<i>Taxable Income (Averaged)</i>
1	\$10,000	
2	8,000	\$9,000
3	4,000	6,000
4	7,000	5,500
5	3,000	5,000

This would be the simplest method once the program is under way. There would, however, be the problem of initiating the program. Suppose that the program is initiated in Year 2. That would mean that in Year 1 the taxpayer will presumably have paid on \$10,000 in the ordinary way. But if, as in the example, he then pays on \$9,000 in the following year he will be paying on a total of \$19,000 during the two years rather than only \$18,000. A problem of this sort would not arise if the income in Year 1 were smaller than in Year 2. The solution seems to lie in allowing the taxpayer to make an adequate adjustment in Year 2, the first year of the operation of the averaging plan, so that the aggregate tax paid in Years 1 and 2 would not exceed what would have been paid without an averaging program.



## USE OF TENTATIVE TAX AND REBATES

The difficulty with this plan as outlined above is that in a year of low income the tax liability may be high because the preceding year was one of high income. This is true particularly in Years 3 and 5. This will cause considerable difficulty for most taxpayers. Therefore the best procedure may seem to be to collect each year the full tax on a non-averaging basis and then to collect only any differentials or to give rebates when a recomputation is made on the basis of an averaged income. In the table given above, in Year 1 the tentative tax would be on \$10,000. This would come to \$4,000. In the following year, with an income of \$8,000, it becomes apparent that the taxable income for each year should have been \$9,000, that is \$3,400 for each year, or a total of \$6,800. Therefore in the second year the taxpayer would be billed for only the differential, that is \$2,800 (\$6,800 minus the \$4,000 paid). This also solves the problem of initiating the averaging program.

The device illustrated above requires further refinement in order to handle the third and subsequent years. Since the income in Year 3 is lower, an additional recomputation is necessary. The average of Years 2 and 3 is \$6,000, that is, a tax of \$1,800 for each year. According to the previous computation the average tax attributable to Year 2 was \$3,400. Should the average tax for Year 2 have been only \$1,800? This would mean that the taxpayer is entitled to a credit of \$3,400 minus \$1,800 or \$1,600 on account of Year 2. His tax for Year 3 is \$1,800. Therefore his net tax payable in Year 3 is \$200. This may seem to be too liberal a method of computation. Other devices can be set up if necessary.

## NEED FOR AVERAGING IN CASE OF UNINCORPORATED BUSINESS

In the case of unincorporated business firms the inequity of the present year-to-year basis of taxation is even greater than in the case of individual salary income because of the possibility of losses. Suppose that Firm A makes a loss of \$4,000 one year and a profit of \$8,000 the next year, while Firm B makes a profit of \$2,000 both years. For the two years both firms have an aggregate net profit of \$4,000. Firm A pays no tax the first year and pays a tax of \$2,800 the second year, making a total of \$2,800 for the two years. Firm B pays a tax of \$400 each year, making a total of \$800 for the two years. At the very least this indicates the desirability for permitting the carryover of losses for all firms whether incorporated or not. But it also indicates the desirability of a thoroughgoing averaging system.

### PECULIARITY OF PRESENT CORPORATE TAX STRUCTURE

One peculiarity of the prevailing corporate tax in the United States is that the top bracket of income is taxed at a lower rate than the immediately preceding bracket. All income above \$50,000 is taxable at 38 per cent. Income in the preceding bracket is taxed at 53 per cent (combining the normal and surtax rates and disregarding the differences between normal tax net income and surtax net income). Thus a firm which is in the lower bracket one year and the higher bracket the next year will pay a lower total tax than a firm with the same aggregate income which finds itself in the lower bracket both years.

### STABILIZING EFFECTS OF AVERAGING

Let us now examine this tentative plan to see whether it is likely to have desirable consequences. The effects of averaging may appear to be generally stabilizing for the economy. The fluctuations in purchasing power of individuals would be offset somewhat by averaging provided that the difficulty of paying on a high average income during the year of low income is eliminated by a withholding system or other device. Business fluctuations would generally be reduced for this reason alone. Averaging of business income would also have a stabilizing effect. The prospect of losses or low profits for the first few years would not discourage investments under a five-year averaging system. Thus during depression years, when expectations for a few years at least might be unfavorable, the averaging system would stimulate investment. During prosperous years averaging of income (including losses) would likewise stimulate investment and possibly lead to inflationary price increases because the firm could anticipate refunds during the subsequent years of low income. (Certain reservations concerning the application of these conclusions to the capital gains tax have been mentioned in Chapter 12.)

### FORWARD VS. BACKWARD AVERAGING

This points up the necessity of considering the desirability of forward averaging as opposed to backward averaging. In other words, should the preceding five years or the subsequent five years be averaged to determine the final tax liability in any year? Similarly, in connection with losses, should losses be carried forward, or backward, or both? The problem may be stated thus: Should low income of any year be averaged with high income of preceding years or with high income of succeeding years? If the low income of any year is averaged with the high income of

preceding years then the stimulation of investment during prosperity is to be expected. If low income of any year is to be averaged only with the income of succeeding years, then investment will be stimulated during depression. Ordinary averaging implies both procedures and therefore has both effects. It might be necessary through various tax credit and refund devices to devise a system under which low incomes are only averaged forward and high incomes only averaged backward. In terms of losses this would mean the forward carryover of losses only. Dr. William Vickrey has proposed a cumulative method of averaging whereby the tax burden on a given individual is unaltered by any changes in the way his income is allocated to the various income years.<sup>19</sup>

### MONOPOLISTIC FACTORS

Monopolistic considerations are frequently included in an evaluation of various carryover provisions. A well-established firm with a record of high profits can afford to risk losses for a few years if those losses can be carried back to the prosperous years. A new firm trying to become established has no backlog of high profits and therefore has no expectation of tax reimbursement under a carryback plan. From this point of view the carry forward of losses is preferable since it avoids the discrimination in favor of established firms and thus removes or reduces the barrier to free entry into industry.

### TAX REFUNDS VS. TAX CREDITS

The carry backward of losses means that tax refunds will be given during depression years when they will be useful and have a stabilizing influence. The carry forward of losses simply means that taxes will be reduced in prosperous years when tax reduction may be undesirable. This means that there is a conflict between providing incentives to investment in depression years by a carry forward proposal or providing the cash for investment through a carry backward proposal. Neither one is sufficient for investment alone. Favorable expectations are ineffective if cash is lacking and cash is sterile if the incentive is lacking. However, under a forward looking system, especially if it is bolstered by some type of liberal credit policy, it is much easier to provide the funds where incentive exists. Thus on balance the forward carryover of losses and the

<sup>19</sup> William Vickrey, "Averaging of Income for Income Tax Purposes," *Journal of Political Economy*, Vol. 47, June, 1939, pp. 379 ff.; *Agenda for Progressive Taxation*; pp. 172 ff.; and "The Effects of Integration of Corporate and Individual Income Taxes on Business," *Proceedings of the National Tax Association*, 1947, pp. 179-88.

forward averaging of low incomes would seem to be preferable. The actual tax details would have to be worked out with care to prevent harmful effects during either depression or prosperity years.

### Other Reforms

The reforms discussed above are only a few of the many that are needed. Some of the others that require fuller attention are: revision of the capital gains tax to reduce its influence on economic stability; a revision of the penalty tax on unreasonable accumulation of surplus (Section 102 of the Internal Revenue Code); elimination of tax exemption as a refuge for a small number of bondholders; the removal of the many deterrents to the growth of new small enterprises; the setting of tax rates in relation to the resources as well as the income of the firm;<sup>20</sup> and the imposition of a "value-added" tax to avoid the pyramiding of taxes which occurs when shiftable taxes are imposed at successive stages in the manufacture of goods.<sup>21</sup>

### Conclusions

It has been suggested that legislative blundering rather than vested interests may be considered responsible for the most conspicuous shortcomings of the tax system, hence the obstacles to reform should not prove too serious.<sup>22</sup> Most of the reforms will result in some reduction in revenues of the Treasury. Any billions of reduction in revenues achieved through tax reforms of the type suggested above will yield more lasting benefits to the economy than an equal reduction in revenue achieved through general rate reduction.

<sup>20</sup> See David McCord Wright, "Income Redistribution Reconsidered," *Income, Employment and Public Policy: Essays in Honor of Alvin H. Hansen*, pp. 169-170 (New York: W. W. Norton Co., 1948).

<sup>21</sup> See Paul Studenski, "Toward a Theory of Business Taxation," *Journal of Political Economy*, Vol. 48, October, 1940, pp. 621-54.

<sup>22</sup> H. S. Ellis, "Economic Expansion Through Competitive Markets," *Financing American Prosperity* (P. T. Homan and F. Machlup, eds.), p. 176 (New York: Twentieth Century Fund, 1945).



**Part IV**  
**Government Borrowing**



## Trends in Government Borrowing

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The size of the public debt was a matter of general concern during the depression years of the 1930's. Prior to that time debt had risen mainly as a result of war. Now there took place a tremendous increase in the public debt under peacetime conditions. Many individuals were certain that the growth of public debt under such circumstances would lead to serious economic consequences for the country. Some were afraid of a runaway inflation and an economic collapse. Others were concerned that the debt meant that future generations would have to bear the burden of dealing with the depression.

The increase in debt which took place during the war in the 1940's made any prior increase seem negligible in comparison. Yet there were no cries of calamity. The public had apparently become used to large debts and had discounted claims that they would lead to chaos.

State and local debt acted in a manner very different from that of federal debt during these decades. Because of fiscal incapacity state and local debt did not rise the way federal debts did during the depression of the '30's. During the war of the '40's, high revenues and lack of opportunity for spending kept down the level of state and local debt. This difference in behavior of state-local and federal debt points to an essential complexity of the problem of public finance at the various levels of government.

Among the trends which may be studied are those in the size of the debt, who holds the debt, and what does the debt cost. These are considered in this chapter. Later chapters will consider the effects of government borrowing and repayment on the money markets and on the economy as a whole, including a discussion of limits which exist in the size of government debt.



GOVERNMENT BORROWING

**The Long-term Trend of Federal, State, and Local Debt<sup>1</sup>**

The total of federal, state, and local debt was about \$275 billion on June 30, 1945 and came close to \$300 billion the following year. Most of this tremendous sum, in fact more than \$250 billion, represented the war debts of the Federal Government incurred during the first and second World Wars. A statement of the gross public debt for selected years from 1897 to 1946 is given in Table 20, below.

*Table 20*  
GROSS PUBLIC DEBT FOR SELECTED YEARS 1897-1946\* (IN MILLIONS)

Year	Federal (Excluding Guaranteed Obligations)	State	Local	Totals
1897.....	\$ 1,227	\$ 270 <sup>a</sup>	\$ 1,700 <sup>a</sup>	\$ 3,197 <sup>b</sup>
1902.....	1,178	270	1,924	3,372
1912.....	1,194	423	4,075	5,692
1919.....	25,482	800 <sup>a</sup>	6,000 <sup>a</sup>	32,282 <sup>b</sup>
	(peak of war debt)			
1922.....	22,964	1,163	9,093	33,220
1930.....	16,185	2,444 <sup>c</sup>	15,000 <sup>a</sup>	33,629 <sup>b</sup>
	(lowest point since World War I)			
1932.....	19,487	2,882 <sup>d</sup>	16,680	39,049
1937.....	36,425	3,260 <sup>d</sup>	16,309	55,994
1940.....	42,968	3,489 <sup>d</sup>	16,720	63,177
1941.....	48,961	3,370 <sup>d</sup>	16,812	69,143
1942.....	72,422	3,163 <sup>d</sup>	16,479	92,064
1943.....	136,696	2,862 <sup>d</sup>	15,783	155,341
1944.....	201,003	2,723 <sup>d</sup>	14,703	218,429
1945.....	258,682	2,388 <sup>d</sup>	14,164	275,234
1946 (Feb. 28).....	279,214	2,300 <sup>b</sup>	14,000 <sup>b</sup>	295,514 <sup>b</sup>
1946 (Apr. 30).....	273,898	2,300 <sup>b</sup>	14,000 <sup>b</sup>	290,198 <sup>b</sup>

\* From *Tax Policy*, April, 1946.

<sup>a</sup> Data for these years are not available. The figures given are merely what seem to be reasonable interpolations.

<sup>b</sup> Estimated.

<sup>c</sup> *Financial Statistics of States*: 1930.

<sup>d</sup> Exclusive of state debts for reloan to local governments.

<sup>1</sup> The factual data in this chapter, except where otherwise indicated, are derived from "A Half Century of Public Debt," *Tax Policy*, New York Tax Institute, April, 1946; "The Picture of the National Debt," *Tax Policy*, March, 1948; and "The Picture of State and Local Debt," *Tax Policy*, May, 1948.

The figures for 1947 are roughly of the same order of magnitude.<sup>2</sup> The overwhelming importance of federal debt in the total in recent years is noteworthy. The per capita public debt for all governmental units increased from approximately \$44 in 1897 to more than \$2,100 in 1946. The federal debt per capita increased from \$17 to \$2000, the state debt from \$4 to \$16, and the local debt from \$23 to \$100.

### RECENT GROWTH OF FEDERAL DEBT<sup>3</sup>

A further word may be said about the recent growth in the federal debt. In 1912 it stood only at \$1 billion and by 1919 it had reached \$25½ billion. Subsequently repayments of the debt were made until in 1930 it stood at \$16 billion. In the '30's the governmental policy of public spending changed the trend. Between 1930 and 1932 \$3½ billion was added to the debt and ever greater changes took place in subsequent years. The decade of the '30's accounts for a rise in the public debt to \$40 billion. During the war of the '40's the federal debt reached a peak of \$279 billion in February, 1946. It dropped subsequently to \$253 billion in July, 1948, but largely as a result of the reduction in the Treasury's cash balance.

### TREND OF STATE DEBT

At the beginning of the nineteenth century state debt was of almost negligible proportions. In the first half of the century state governments were making large expenditures for roads, canals, and steam railroads. Little change in state debt took place during the rest of the century. State debt has been estimated at \$270 million for the beginning of the twentieth century. During the twentieth century highways and state aid for local governments required large expenditures. State debt stood at \$3,489 million in 1940. During the war of the 1940's state debt declined because of increasing revenues and postponed expenditures. It was estimated at \$2,942 million in 1947.

### LOCAL DEBTS

The total of local debts exceeds state debt many times over. From about 1820 to 1932 local debt rose steadily and almost without interruption. During this period cities grew rapidly and the proportion of the population in urban places increased from 7 per cent to 56 per cent.

<sup>2</sup> *Tax Policy*, March, 1948, p. 4; and May, 1948, p. 3.

<sup>3</sup> *Annual Report of the Secretary of the Treasury, 1947* and subsequent *Treasury Bulletins*.

## GOVERNMENT BORROWING

Local debt was around \$1.7 billion in 1897 and increased to \$16.7 billion in 1932. Slight decreases took place thereafter but a peak to \$16.8 billion was reached in 1941. More recently it has fallen to the \$14 billion mark and was at approximately that level in 1947. The expectations are that long deferred expenditures when finally made will tend to increase the local debt.

*Table 21*  
**LOCAL DEBT BY GOVERNMENTAL UNITS, SELECTED YEARS,  
 1902-1947**  
 (IN MILLIONS)\*

<i>Year</i>	<i>City</i>	<i>County</i>	<i>Town- ship</i>	<i>School District</i>	<i>Special District</i>	<i>Total</i>
1902.....	\$1,612	\$ 205	\$ 57	\$ 46	\$ 5	\$ 1,925
1912.....	3,447	393	80	119	36	4,075
1922.....	5,810	1,387	130	1,127	639	9,093
1932.....	9,909	2,775	433	2,170	1,393	16,680
1940.....	9,899	2,156	290	1,813	2,562	16,720
1942.....	9,806	1,846	273	1,701	2,853	16,479
1944.....	8,624	1,694	202	1,465	2,718	14,703
1945.....	8,411	1,545	178	1,363	2,667	14,164
1946.....	8,101	1,417	166	1,283	2,597	13,564
1947.....	8,097	1,481	178	1,355	2,736	13,847

\* From *Tax Policy*, May, 1948.

The cities have more than half the local debt. At the beginning of the twentieth century townships, school districts, and special districts followed in importance. In the middle '40's the debt of the special districts was far greater than that of counties and the debt of the townships was overshadowed by the school district debt. The details of these trends are shown in Table 21.

### Interest Costs of the Public Debt

The natural tendency to carry over private attitudes to public savings prompts the question, what does it cost the government to borrow money? Without venturing any opinion at this stage as to the consequences of the interest cost, the bare statistics are presented. The total of all interest payments of governmental units stood at \$4.2 billion in 1945, a three-fold increase from the \$1.4 billion of 1932. Table 22 indicates some of the other magnitudes involved.

TRENDS IN GOVERNMENT BORROWING

Table 22\*

ANNUAL INTEREST PAYMENTS, SELECTED YEARS, 1932-1945  
(IN MILLIONS)

Type of Government	1932	1942	1944	1945
Federal.....	\$ 599	\$1,260	\$2,609	\$3,617
State.....	112	123	102	94†
County.....	119	78	73	67†
City.....	419‡	345	328	316
Township, school district, and special district..	194	161	153	145
Totals.....	\$1,443	\$1,967	\$3,265	\$4,239

\* From *Tax Policy*, April, 1946.

† Subject to slight revision in Volume 3 of *State Finances: 1945* for state interest payments and in *County Finances: 1944* for county interest payments.

‡ Revised to conform to the reclassification of Massachusetts and Rhode Island towns from cities to townships.

INTEREST PAYMENTS ON FEDERAL DEBT

Federal interest increased the greatest amount in this period and stood at \$3.6 billion in 1945. The interest rate at which the governmental units borrow money is of great concern to students of government finance. In 1916 the computed interest rate of the federal debt was 2.376 per cent. During the First World War it rose and reached 4.339 per cent by 1921. It decreased steadily thereafter until 1926, when a level of 3.87 per cent was reached. A rise then took place to 3.946 per cent in 1929. Since 1929 there has been a substantial and steady decline; in February, 1946 it was only 1.972 per cent. Because of the easy money conditions which have prevailed, the interest costs of the Federal Government have not advanced in proportion to the growth in the public debt.

STATE AND LOCAL INTEREST PAYMENTS

Interest payments on state and local debt declined in the period 1932 to 1945. The interest rates on state and local borrowing have shown the same tendencies as the federal rate, that is, a long-term decline. The *Bond Buyer* index shows that the rate of interest on municipal bonds was 4.16 per cent at the end of 1914. It ranged between 4 per cent and 5 per cent thereafter with the exception of 1927 when it was 3.93 per cent and 1933 when it rose to 5.52 per cent. Since the latter year the interest rate has fallen sharply and has even been below 2 per cent in recent years. An all time low of 1.35 per cent was reached on May 1, 1945.

## GOVERNMENT BORROWING

### The Holders of the Public Debt

Perhaps the most vital set of statistics concerning the economic effects of the public debt is that which is concerned with the holders of the debt. These are the recipients of the interest payments and are therefore in a strategic position to affect business activity since the public debt and the interest payments are of considerable magnitude.

#### GOVERNMENT OWNERSHIP OF GOVERNMENT DEBT

Table 23 shows the division between governmentally owned and privately owned debt of various governmental units on December 31, 1947. The figures for June 30, 1948 are substantially the same. One inter-

Table 23

#### GOVERNMENTAL AND PRIVATE HOLDERS OF THE PUBLIC DEBT\* (December 31, 1947)

<i> Holders </i>	<i> Amount </i>	<i> Percentage </i>
<b>BANKS</b>		
Commercial.....	\$68.6 billion	27.0
Federal Reserve.....	22.6	8.9
Total banks.....	\$ 91.2 billion	35.9
<b>GOVERNMENTS</b>		
Federal government agencies and trust funds.....	\$34.4 billion	13.5
State and local.....	7.3	2.9
Total governments.....	\$ 41.7 billion	16.4
<b>OTHER INVESTORS</b>		
Individuals.....	65.3	25.7
Insurance companies.....	24.3	9.6
Mutual savings banks.....	12.0	4.7
Other corporations and associations.....	19.9	7.8
Total other.....	121.5 billion	47.8
Total interest-bearing debt.....	\$254.3† billion	100.0†

\* From *Tax Policy*, March, 1948, p. 9. Current data are available in monthly *Treasury Bulletins*.

† Figures do not add to totals due to rounding of numbers.

esting point regarding Table 23 is that a substantial part of the government debt is owned by governmental units themselves. In a consolidated statement some of the debt would actually be eliminated. The amount involved is over 16 per cent of the total. The Federal Government alone,

in fact, on its own account or through its agencies owns 13.5 per cent of the governmental debt.

#### PRIVATE HOLDERS OF THE DEBT

The distribution of the debt among private holders as well as governmental units is indicated in Table 23. It will be observed that the banks own more than a third of the total debt. Out of a total of \$254.3 billion on December 31, 1947, the banks owned \$91.2 billion. Of this latter amount \$68.6 billion was held by commercial banks. Thus commercial banks own over a quarter of the national debt. As previously pointed out, governmental units, mainly the Federal Government, own over 16 per cent of the debt, or \$41.7 billion in this case. Of the several holders of the debt, private individuals account for \$65.3 billion, or more than a quarter of the total. Insurance companies are substantial holders, with \$24.3 billion.

#### Concluding Notes on Trends in Government Borrowing

The total federal debt of \$253 billion in 1948 will be repaid only slowly and over a great many years. Interest payments will be high for many years to come. Assuming orthodox methods of finance the interest payments will come out of tax revenues and the debt will be paid back out of budget surpluses. This means that the public as a whole will be paying interest and principal to the holders of the debt. Individuals pay the major portion of taxes under present federal, state, and local tax structures. As was previously pointed out, individuals hold less than one-quarter of the federal debt and that may be taken as a general indication of public debt holdings. This means that the taxpaying public as a whole will be transferring income and capital to institutional holders of the debt such as banks, insurance companies, and business corporations. This is an important point to be borne in mind in considering the effects which the debt will have on the money and capital markets and on economic activity as a whole.

## Public Borrowing and Private Finance

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Governmental policies concerning borrowing and debt repayment profoundly affect the money and capital markets. Money borrowed by the government from private individuals and corporations may have gone into security issues of private companies and stimulated investment on their part. The direct effect would be on the interest rate at which business firms might borrow and the cost of borrowing might increase to them as a result of the diversion of funds to the government. Even governmental borrowing from commercial banks may have the effect of raising the interest rate if the banks find it necessary to restrict private credit in order to make loans to the government. It can readily be seen that any influence which government borrowing may have on the private capital market might have effects of the greatest importance on economic activity. Money which is used for the purchase of government securities might have gone to finance private investment or consumption. That is the essence of the relationship between public borrowing and private finance. Whether the public borrowing does in fact discourage private investment or consumption depends on the state of the money and capital markets. The various conditions which may prevail in these markets and the resulting significance for a study of the effects of government debt are the subjects of this chapter.

### Analysis of Debt Holdings

A brief description of public debt holdings was given in the preceding chapter. A more detailed analysis of a specified period is now in order. It cannot be emphasized too much that in our study of the economic effects of the public debt it is of the utmost importance for us to know who holds the debt.

## FLOTATION OF BONDS

At the time the bonds are floated, there may be virtually no effects if the banks buy the bonds and at the same time the legal reserve system is such that the purchase of the government bonds does not interfere with the purchase of industrial securities or the extension of short-term loans. On the other hand, if business corporations buy the bonds, there may be a slight tightening of the capital market since business corporations are limited in the size of their portfolios. The purchase of government bonds may then be at the expense of private securities or internal financing. At the same time virtually no effects on consumption may be expected.

If private individuals purchase the bonds, there may take place a tightening of the capital market (which can easily be relieved by a banking system with plenty of excess reserves) or, in so far as the existence of government bonds induces savings (as may possibly be true of United States Savings Bonds) which would not otherwise take place, consumption may be reduced. If the bonds are purchased by government agencies (the so-called "special" issues), there are virtually no positive economic effects but the capital market is relieved of the task of a certain amount of government financing—a consideration which is offset by the possibility that the agencies would have bought industrial bonds with the funds at their disposal.

## PAYMENT OF INTEREST AND PRINCIPAL

In the payment of interest and principal it is likewise important to know who holds the bonds. With respect to bank holdings, the payment of principal would have no effect where government bonds constituted legal reserves, but under the arrangement which prevails at the present time the redemption of the bonds may result in a loosening of credit through the increase of excess reserves. The payment of interest would tend to go into the profit statement of the bank and may eventually end up in dividends being paid to the higher income groups. This would have virtually no effect on consumption but might loosen the private capital market somewhat where bank credit was not freely available for private financing. The redemption of government bonds held by corporations would also relieve the capital market, as would the payment of interest, particularly in view of the phenomenon of undivided profits.

As for individuals, the repayment of the principal would generally result in an increase in the amount of credit available for further invest-



## GOVERNMENT BORROWING

ment but may promote consumption in so far as the bonds (e.g. the United States Savings Bonds) form part of a definite saving program, the redemption of the bonds signifying the culmination of that program and the spending of the money involved. With respect to the interest, the likelihood is greater that it will be spent on consumption, although in the higher brackets the effects would more likely be to loosen the capital market *via* increased savings and loanable funds. The distinction between capital and interest probably disappears in the case of bonds (like Series E) which provide for lump sum payment of interest at maturity. The servicing of bonds held by government agencies would have a tendency to relieve the capital market only in so far as the funds made available might be used to purchase private securities. Where merely a refunding operation is involved, the amount of credit available to private investment would remain virtually unaffected but there may be a change in the type of credit.

We cannot, of course, hope to know all those facts about the holding of the debt which would influence our analysis of the economic effects of the flotation and repayment of public bonds. Nevertheless, any information we have regarding debt holders will enable us to limit the possibilities substantially. A limited period, 1933-39, will be studied intensively.

### GENERAL TREND: 1933-39<sup>1</sup>—DIRECT OBLIGATIONS

For the period 1933-39, information on the holders of the public debt is available with the following break-down:<sup>2</sup> (a) Government agencies and trust funds, (b) Federal Reserve Banks, and (c) other holders. Since the last category includes all ordinary banks, corporations, individuals, and local governments, the break-down is less satisfactory than it might be. Yet it is important for us to know the extent of Reserve Bank holdings and the extent of the holdings of government agencies and trust funds, since the type of effects we may expect when bonds are purchased by and redeemed from these institutions are, as pointed out above, of a peculiar nature. If we may ignore the holdings by state and local public authorities, we may say that the data at our disposal for this period will give us an idea of the relative holdings of public authorities on the one hand and private individuals and enterprise on the other. This in itself will help us greatly in an analysis of economic effects.

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<sup>1</sup> *Treasury Bulletin* April, 1940, p. 24 (percentages computed).

<sup>2</sup> For the period 1929-32 see A. G. Hart, *Debts and Recovery* (New York, Twentieth Century Fund, 1938), Table 58, p. 360.

**Federal Reserve Banks.**<sup>3</sup> We must give special attention to a point which we will find of great significance later, namely the importance of holdings of government bonds in the outstanding credit of the Federal Reserve Banks. A brief glance at a longer period is useful as a background for our discussion. During the period 1917-39, there was a tremendous change in the break-down of Federal Reserve Bank credit outstanding. At the end of 1917, United States Government securities constituted only \$122 million out of a total of \$1,171 million, the remainder being bills discounted, bills paid, and other Reserve Bank credit. The relative importance of government securities fell greatly by the end of 1918, the figures being \$239 million and \$2,498 million, respectively. From then on the proportion remained 1:10 (very roughly speaking) during 1919 and 1920. In 1921 the relative importance of government securities rose to \$234 million out of \$1,563 million and in 1922 it was \$436 million out of a total of \$1,405 million. The relative unimportance of this item continued until 1930 when, for the first time, government securities constituted more than 50 per cent of the total, the figures being \$729 million and \$1,373 million, respectively. The next marked change took place in 1932, government securities constituting \$1,855 million out of a total of \$2,145 million, and in 1933 when the figures rose to \$2,437 million and \$2,688 million, respectively. From then on, other items became negligible. In 1934, \$2,430 million out of a total of \$2,463 million Reserve Bank credit outstanding was in the form of United States Government securities, in 1939 they were \$2,484 million and \$2,593 million, respectively, and in 1940 they were \$2,184 million and \$2,274 million respectively.<sup>4</sup> These figures demonstrate the tremendous absolute and relative increase in the purchase of government securities by the Federal Reserve Banks. Practically all of the Reserve Bank credit consisted of government securities, with bills discounted, bills bought, and other items practically negligible. Through the use of these holdings in open-market operations Reserve Banks could exercise great control over the ease with which government borrowing took place. In order to avoid a loss of perspective, however, it should be noted that the holdings of the Reserve Banks in the period 1933-39 decreased relatively even though they increased absolutely. While the holdings of the Reserve Banks constituted approxi-

<sup>3</sup> *Twenty-first Annual Report of the Federal Reserve Board*, 1934, p. 78; *Twenty-fourth Annual Report of the Board of Governors of the Federal Reserve System*, 1937, p. 44; *Federal Reserve Bulletin*, February, 1939, p. 114; December, 1939, p. 1096; February, 1940, p. 120; and February, 1941, p. 129.

<sup>4</sup> These are all year-end figures.

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mately 9 per cent of the total in 1933 (9.0 per cent), 1934 (9.2 per cent), and 1935 (8.8 per cent), they were only 7 per cent in the years, 1936 (7.4 per cent), 1937 (7.1 per cent), and 1938 (7.0 per cent), and fell to 6 per cent in the year 1939 (6.4 per cent).

**Government Agencies and Trust Funds.** The holdings of government agencies and trust funds increased both absolutely and relatively in the period under review. From \$0.58 billion in 1933, the figure rose steadily to \$1.29 billion in 1934, to \$1.62 billion in 1935, to \$1.93 billion in 1936, and then jumped greatly to \$3.20 billion in 1937, \$4.46 billion in 1938, and \$5.61 billion in 1939. The percentage change was much more gradual throughout the period. From 2.6 per cent in 1933, the percentage of direct obligations held by government agencies and trust funds rose to 4.9 per cent in 1934, 5.8 per cent in 1935, 5.9 per cent in 1936, 8.9 per cent in 1937, and exceeded 10 per cent in both 1938 and 1939, the figures being 12.2 per cent and 14.1 per cent, respectively.

**Other Holdings.** The holdings of banks (other than Federal Reserve Banks), business firms, individuals, etc., taken together, rose absolutely over the period as a whole but fell relatively. From a total of \$19.58 billion in 1933, these holdings rose to \$22.76 billion in 1934, \$23.60 billion in 1935, \$28.40 billion in 1936, \$30.08 billion in 1937, then fell slightly to \$29.56 billion in 1938, but rose again to a high of \$31.73 billion in 1939. The proportion of the total thus held fell from 88.4 per cent in 1933 to 85.9 per cent in 1934 and 85.4 per cent in 1935, then rose to 86.7 per cent in 1936, with a consistent fall thereafter to 84.0 per cent in 1937, 80.8 per cent in 1938, and 79.5 per cent in 1939.

**Summary.** Prior to the war, the holdings of direct obligations of the Federal Government may roughly be considered to have been distributed as follows: 6 per cent in the hands of the Federal Reserve Banks, 14 per cent in the hands of government agencies and trust funds, and 80 per cent distributed among other holders such as ordinary private banks, business firms, individuals, etc. The trend, moreover, is quite clear: in absolute amount, all three broad groups involved increased their holdings greatly; relatively speaking, however, holdings of government agencies and trust funds tended to increase while those of the Federal Reserve Banks and others, in the aggregate, tended to decrease.

### GENERAL TREND: 1934-39<sup>5</sup>—GUARANTEED OBLIGATIONS

For the holdings of guaranteed obligations of the Federal Government, we have data in two broad groups over the period 1934-39: (1)

<sup>5</sup> *Treasury Bulletin*, April, 1940, p. 24 (percentages computed).

Government agencies and trust funds and Federal Reserve Banks and (2) others.

**Federal Reserve Banks and Government Agencies and Trust Funds.** There was both an absolute and a relative decline in the guaranteed bond holdings of Federal Reserve Banks and government agencies and trust funds (leaving out of account the year 1934 when the amount was *nil*). From \$378 million in 1935, the figure rose to \$391 million in 1936 and then fell consistently during the remainder of the period to \$381 million in 1937, \$344 million in 1938, and falling nearly \$50 million, to \$295 million in 1939. A fall in the proportion of the total held was consistent throughout the period, being 9.2 per cent in 1935, 8.3 per cent in 1936, 8.2 per cent in 1937, 7.1 per cent in 1938, and 5.4 per cent in 1939.

**Other Holders.** Guaranteed obligations in the hands of other holders rose greatly in the period under review in absolute amount, and, leaving out of account the year 1934 when all guaranteed obligations were in the hands of these holders, rose somewhat in relative terms also. From \$681 million in 1934, the figure jumped greatly to \$3.75 billion in 1935 and then rose to \$4.33 billion in 1936, fell slightly to \$4.28 billion in 1937, but rose again to reach \$4.51 billion in 1938 and \$5.16 billion in 1939. The proportions rose from 90.8 per cent in 1935 to 91.7 per cent in 1936, 91.8 per cent in 1937, 92.9 per cent in 1938, and to a high of 94.6 per cent in 1939.

**Summary.** Thus, at the end of the period, approximately 5 per cent of guaranteed obligations of the Federal Government were in the hands of the Federal Reserve Banks and government agencies and trust funds while practically 95 per cent were otherwise held. As for the trend over this period, guaranteed obligations in the hands of the Reserve Banks and government agencies and trust funds fell both in absolute amount and in proportion to the total volume of such bonds outstanding, whereas the opposite was true of guaranteed obligations otherwise held.

#### DETAILED BREAK-DOWN:<sup>6</sup> 1937-39

For the years 1937-8-9 information as to bond holdings is available with the following break-down: (a) Federal Reserve Banks; (b) other banks, including (i) operating, insured, commercial banks, (ii) other commercial and private banks, (iii) mutual savings banks; (c) insurance companies; (d) federal agencies and trust funds; (e) state and local trust funds; (f) tax exempt organizations; (g) other corporations; and (h) individuals.

<sup>6</sup> *Treasury Bulletin*, March, 1940, p. 20.

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In 1939 only 21 per cent of federal direct and guaranteed obligations were held by individuals, the remainder, 79 per cent, being institutionally held one way or another. The institutional holdings were made up as follows: financial institutions, 60 per cent of the total, 47 per cent being banks and 13 per cent insurance companies; federal agencies and trust funds, 13 per cent; and of the remaining 6 per cent, 1 per cent was held by state and local trust funds, 1 per cent by tax exempt organizations, and 4 per cent by other corporations. The bank holdings, constituting 47 per cent of the total, were made up as follows: Federal Reserve Banks 6 per cent of the total, operating insured commercial banks 33 per cent, other commercial and private banks 1 per cent, and mutual savings banks 7 per cent. During the period 1937-8-9, the only significant changes were: the relative fall in individual holdings from 24 per cent in 1937 to 23 per cent in 1938 and 21 per cent in 1939; the relative fall in holdings of operating insured commercial banks from 35 per cent in 1937 to 33 per cent in 1938 and 1939; and the relative rise in holdings of federal agencies and trust funds from 9 to 11 and 13 per cent, respectively.

### BOND PURCHASES: 1940

During the year 1940 banks continued to add to their holdings of government securities on a large scale. Member bank holdings of both direct and guaranteed obligation increased by \$1,500 million as compared with an increase of \$1,100 million in 1939. The 1940 figure was somewhat greater than the increase in the outstanding amount of publicly offered direct and guaranteed obligations of the United States Government, excluding United States Savings Bonds.<sup>7</sup> Since life insurance companies added about \$500 million to their holdings, it is estimated that individuals reduced their holdings by more than \$500 million. The latter did, however, add \$1,000 million of United States Savings Bonds.<sup>8</sup>

### SUMMARY OF STATISTICS

The above discussion indicates that during the period 1933-39 there was a growing percentage of direct obligations to the Federal Government held by government agencies and trust funds; a fall in the percentage held by the Federal Reserve Banks even though the absolute amount grew greatly, especially in relation to total Reserve Bank credit outstanding; and a fall in the percentage of direct obligations otherwise held. As for guaranteed obligations, Federal Reserve Banks and government

<sup>7</sup> *Federal Reserve Bulletin*, February, 1941, p. 89.

<sup>8</sup> *Ibid.*, p. 92.

agencies and trust funds took a decreasing percentage during this period. Taking the total of direct and guaranteed obligations, the vast majority, 79 per cent, were institutionally owned in 1939, with banks holding nearly half, precisely 47 per cent of the total. Insurance companies and government agencies and trust funds held much smaller proportions, but the figures, 13 per cent in each case, are by no means negligible. There was also a small proportion held by other corporations, 4 per cent.

Of the total increase in public debt during the fiscal years 1933-40, 46 per cent was taken up by the banks, 18 per cent by the insurance companies, and only 11 per cent by individuals and non-financial corporations.<sup>9</sup> The situation has been summarized by the Treasury as follows:

This institutionalization of investment has been one of the significant phenomena noted in the capital markets.

Individuals and non-financial corporations appear to have preferred to place their funds available for investment in bank accounts and insurance policies, instead of undertaking directly the investment of these funds in securities.<sup>10</sup>

#### SIGNIFICANCE OF THE STATISTICS

This distribution of the holdings of government bonds greatly restricts the type of economic effects we may expect from the flotation and repayment of government bonds and thus enables us to point to the probable effects with fewer qualifications than would otherwise be necessary.

At the time when the bonds were issued (after any "mopping up"<sup>11</sup> by the banks had taken place) in the period 1933-39, the greatest proportion, 79 per cent, was taken by institutions, with the rest, 21 per cent, taken up by individuals. Hence we might not expect any appreciable effect on consumption. Moreover, a significant proportion of the total, namely 19 per cent, was in the hands of public or semi-public authorities with Federal Reserve Banks holding 6 per cent and federal agencies 13 per cent. Issues taken up by the latter do not touch the open market at all and thus have no direct effect on the availability of funds and the interest rate. Those taken up by the former may be used to affect the rate of interest through open market operations. As for other banks, comprising 41 per cent of the whole, only if government bonds constituted reserves, would an expansionary effect on the availability of credit be expected.

<sup>9</sup> *New York Times*, January 9, 1941, p. 17.

<sup>10</sup> Quoted in *New York Times*, January 9, 1941, p. 17.

<sup>11</sup> Cf. Alvin H. Hansen, "Defense Financing and Inflation Potentialities," *The Review of Economic Statistics*, February, 1941, p. 4.

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Thus, by and large, any tendency to restrict capital available for private enterprise would, if it came at all (and our discussion of excess reserves and the availability of credit in the next section indicates that it is not very likely) have to be found in the 21 per cent of the total in the hands of individuals,<sup>12</sup> 13 per cent in the hands of insurance companies, and 4 per cent in the hands of corporations, a total of 38 per cent of the whole. As for holdings of individuals and insurance companies, it is unquestionably true that with respect to a substantial portion the question whether the capital involved should be invested in private corporations or not scarcely arises. This is true through the inclination of the holder or through legal requirements affecting him. As for the rest of these holdings, a choice between government and private investment does actually exist. With respect to this relatively small percentage of the total, then, we can say that the flotation of government bonds attracts money to the government which would otherwise have been available for investment in private enterprise.

During the repayment of the debt, very little effect may be expected to be felt on consumption owing to the vast preponderance of institutional holdings. Moreover, relatively little effect may be expected on the availability of capital owing to the large proportion of government bonds held by the banks and government agencies. Nevertheless, we may expect some effect on consumption through the servicing of the debt, since 21 per cent of the bonds are in the hands of individuals, 13 per cent in the hands of insurance companies and 4 per cent in the hands of corporations who may declare dividends (which, however, would preponderantly go to the wealthy owners and thus have little effect on consumption). With respect to these minority holders, the repayment of the debt does open up the possibility of an increase in loanable funds available to private enterprise from private sources.

By and large, then, we would expect few effects on private finance resulting from the flotation, servicing, and repayment of the debt, taken by themselves. To a large extent these processes are merely book entries created when the debt is issued and erased when the debt is repaid. Yet even the minority percentage of 38 per cent in the hands of individuals, insurance companies, and other corporations may be of some importance in the availability of capital and to a lesser extent in fluctuations of consumption. Before we can make a decision on these factors we must con-

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<sup>12</sup> This figure understates the importance of private savings, however, since credit institutions may be considered, in part at least, as transferring private savings to the government. Cf. Hart, *op. cit.*, pp. 240-41.

sider whether any restriction or loosening in the availability of capital from private sources will have any significant effect on the general availability of capital, i.e. we must consider the interrelated factors of Reserve Bank credit, excess reserves, working cash balance, and arbitrary monetary policy, and we must take account of the effects of both the expenditure by the government and the money borrowed and the raising of the revenue through taxation to obtain funds for servicing and redeeming the debt. The statistical findings are significant in that they show that it is to these factors that we must refer in order to ascertain the effects of public borrowing on private finance rather than to the flotation and repayment of the debt in the narrow sense. Nevertheless a later section will deal rather fully with the effect of the flotation of government bonds and the capital market since that problem plays an important part in the "accepted" literature on the subject as well as in the thoughts and prejudices of many economists and business men. The effects of repaying the debt (both interest and principal) will also be considered.

The distribution of debt holdings has significance in a different direction from that discussed above. Since banks and other financial institutions are considered highly sensitive to changes in yield, they will be seriously affected by changes in rates; there is a tendency for these institutions to dump their holdings when the yield of new government issues is higher than the old. This has serious effects upon the capital market and government credit and endangers the banks' position as credit institutions.<sup>13</sup>

### **Some Institutional Factors Determining the Effects of Government Borrowing**

As a preliminary step in determining the impact of public borrowing on the economic system, a few of the main characteristics of such borrowing may be mentioned.

#### VARIETY OF FINANCIAL MARKETS AFFECTED BY GOVERNMENT BORROWING

The government borrows in both short-term and long-term capital markets. It has obligations extending for a few months and others extending for twenty or more years. The various markets are interrelated to an even greater degree than comparable commodity markets. The availability of government obligations with their freedom from risk and

<sup>13</sup> Simeon E. Leland, "Our National Debt," *Harvard Business Review*, Spring, 1938, pp. 263-64.



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tax exemption in some cases can readily be seen to have a profound influence on these markets.

The term "financial markets" should not be interpreted narrowly for this purpose. The readiness with which individuals will deposit money in savings banks, for instance, must be influenced by the availability of Series E bonds yielding 2.9 per cent to maturity. The availability of money on call or for other private loan purposes must be influenced by the availability of Treasury bills of several months' duration. High-grade long-term corporate bonds are unquestionably in competition for funds with the U.S. Government, and also certain municipal bonds. Even commercial banks making ordinary loans and savings banks making mortgage loans cannot fail to be influenced by the fact that they can earn 2 or 2½ per cent without significant risk and without collection costs, by buying government bonds. The extent to which commercial banks necessarily limit their credit to individuals and business firms as a result of the banks' purchases of government bonds depends, among other things, on the reserve situation and on general expectations.

### THE "RISKLESS" CHARACTER OF GOVERNMENT BONDS

In order to understand the impact of government borrowing on the financial markets, it is necessary to consider the peculiar characteristics of such obligations. It is generally assumed that securities of the United States Government involve no risk if held to maturity. Some state and municipal bonds are undoubtedly in the same category. On the other hand, a few state and many municipal bonds involve a high degree of risk over the longer period both as to interest payments and repayment of capital. Foreign governments cannot necessarily be assumed to be riskless in these respects. Imperial Russian bonds may be mentioned as an example and the difficulty with some South American bonds is well known. Even some American states repudiated debt in the early days. And as a general statement, of course, the obligations of the losing side in any revolution or attempted revolution cannot be considered riskless, to say the least.

### THE TAX EXEMPTION PRIVILEGE

Another important peculiarity of government bonds is the tax exemption privilege which many of them afford. By the United States Constitution no government may tax the obligations of any other. All state and local bonds and some federal bonds are wholly exempt from

the income tax. Income from other federal obligations has been exempt from normal tax. The United States has removed the tax exemption privilege on income from its own bonds for federal tax purposes in the case of bonds issued prior to March 1, 1941. Another aspect of the tax exemption privilege arises in connection with property taxation. States and municipalities which tax intangible personal property must and do exempt government securities. This explains in part the low yields possible on Treasury bills—sometimes even negative yields. Individuals and corporations sometimes shift to government obligations in anticipation of assessment day.<sup>14</sup>

### THE TREASURY BALANCE

The existence of a large working cash balance during the war influences our discussion of the economic effects of public debt in two respects. For one thing, there need be no chronological coincidence between the creation of a deficit and government borrowing. This means that increased expenditures by the Federal Government can be made from the working cash balance without immediately involving the necessity of the government coming to the capital market for funds. Likewise when increased government borrowing does take place we cannot be certain that government expenditures are also taking place at the same time, since funds received from borrowing may be used to build up the working cash balance. In other words, deficit (or surplus) and borrowing (or repaying) need not be chronologically related to each other: each may precede the other with impunity. The lag thus introduced into the analysis greatly influences the type of consequence we may expect because it means that the effects of borrowing can take place independently of the effects of spending, for a time at least; and the effects of public expenditures need not be dependent upon the effects of borrowing the money spent, again for a certain time interval.

This is not, however, the only reason why a large Treasury balance is important. In the following discussion of excess reserves we consider the manner in which an increase or decrease in Treasury deposits with the Federal Reserve Banks can affect the volume of excess reserves and the quantity of credit available for private purposes. The greater the size of the working cash balance, the greater the extent of monetary control which the Treasury can exercise in this way.

<sup>14</sup> See Roy Blough, "Intergovernmental Exemptions from the Federal Point of View," Chapter 6 in *Tax Exemptions* (New York: Tax Policy League, 1939).

## EXCESS RESERVES AND AVAILABILITY OF CREDIT

In considering the importance of the large amount of bank holdings of government bonds and the availability of private credit, it is necessary for us to take account of the volume of excess reserves. Although the magnitude of legal excess reserves does not necessarily tell us precisely what volume of credit prudent bank management can make available, it does give us an idea of the legal maximum of the credit expansion which is possible. A glance at the behavior of excess reserves in the period 1932-39 is useful to provide a frame of reference.<sup>15</sup> There was a steady growth of legal excess reserves in the period 1932 to 1935 from \$576 million at the end of 1932 to \$859 million at the end of 1933, \$1,814 at the end of 1934 and \$2,844 at the end of 1935. By the end of 1936 the figure, after fluctuating greatly, stood at \$1,984 million. In 1937 the figure dropped to \$1,212 million but rose steadily thereafter to \$3,205 million at the end of 1938 and \$5,209 million at the end of 1939. The highest monthly figure attained during this whole period was \$5,553 million, reached in October, 1939. We may take a few subsequent instances to show the trend up to the war. In mid-July, 1940, a record peak was set and the amount of excess reserves "was within striking distance of the astronomical figure of \$7 billion."<sup>16</sup> About the middle of October, 1940, the figure was not far behind this.<sup>17</sup> On December 24, 1940, excess reserves were \$6,440 million.<sup>18</sup> Roughly speaking, then, we may take excess reserves to have been in the vicinity of \$7 billion prior to the war.

This large volume of excess reserves meant that there was a great deal of credit available for private borrowing. Although the existence of legal excess reserves of \$7 billion did not necessarily mean that the volume of credit could wisely be expanded by this amount, it did mean that a considerable volume of profitable private investment could readily be financed by the banks, e.g. through bank purchase of securities. The Board of Governors of the Federal Reserve System, did, in fact, make a survey for the National Defense Advisory Commission directed toward determining the volume of credit available to manufacturers for emergency defense plan construction. They estimated that \$3 billion was

<sup>15</sup> *Federal Reserve Bulletin*, July, 1935, p. 18; February, 1939, p. 114; December, 1939, p. 1096; and February, 1940, p. 120; and *Twenty-fourth Annual Report of the Board of Governors of the Federal Reserve System*, 1937, p. 44.

<sup>16</sup> *New York Times*, October 20, 1940, p. F1.

<sup>17</sup> *Ibid.*

<sup>18</sup> *Ibid.*, December 27, 1940, p. 33.

available for this purpose, an amount which is "several times that which at present is believed required for building emergency production capacity."<sup>19</sup> Thus it is obvious that the large volume of government financing in pre-war years did not interfere with the availability of credit for private financing. It may well be, however, that the existence of a large number of government bonds made it *unnecessary* for banks to invest in private securities.

Government bonds purchased by member banks cannot be used as legal reserves against which private credit may be expanded. The ultimate effect on excess reserves depends on what the government does with the money. Treasury operations may affect excess reserves through changes in Treasury balances with Federal Reserve Banks.<sup>20</sup> The manner in which this operates is illustrated below:

"The temporary shrinkage of excess reserves from July 17 to August 7 reflected the deposit with the Reserve Banks by the Treasury of the proceeds of the latter's sale of new securities. Since that time the Treasury has been spending the money, automatically adding to excess reserves. And by the same token, new sales of securities by the Treasury will temporarily decrease reserves, and as Treasury disbursements are made the climb of excess reserves continues to new heights."<sup>21</sup>

In this way Treasury operations affect lendable reserves, the issuance of government bonds and the deposit of the money received with the Federal Reserve Banks having the effect of reducing excess reserves. But the fluctuations caused in this way are generally minor ones relative to the total volume of excess reserves outstanding.

It may be mentioned in passing that excess reserves have frequently been considered a serious inflation potential. The suggestion that reserve requirements be raised to thwart inflation has, therefore, been made. The Federal Reserve authorities have frequently urged this approach to the problem.<sup>22</sup> The fear of inflation resulting from excess reserves is well expressed in the following newspaper statement:

On the face of it, this vast accumulation of unused bank credit is a potential threat at a time when business generally is expanding and when orders in connection with the rearmament program are beginning to be felt. Some economists have

<sup>19</sup> "Bank Credit Available for Defense Needs," *Federal Reserve Bulletin*, October, 1940, pp. 1050-51.

<sup>20</sup> Cf. Edward C. Simmons, "Treasury Deposits and Excess Reserves," *Journal of Political Economy*, June, 1940, p. 342, n.

<sup>21</sup> *New York Times*, October, 20, 1940, p. F1.

<sup>22</sup> See "Special Report to Congress," *Federal Reserve Bulletin*, January, 1941, pp. 1-2.

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likened the huge excess reserves to a powder keg that might be set off by the tinder of wartime inflation. Thus far the markets have continued in subdued fashion, oblivious to the nation's idle funds. Nevertheless, the question of what to do about excess reserves has passed from the academic stages to a position of prime importance.<sup>23</sup>

### TREASURY MONETARY POLICY

Finally, we come to a discussion of the manner in which the Treasury can consciously influence the state of the money market if it so desires. It has been pointed out that “. . . with the advent of central banks, endowed with note-issue privileges, public credit has come to be closely related to national monetary systems.”<sup>24</sup> At times, in the United States the relation has been one mainly of opposition, the Treasury being to a large extent at loggerheads with the central bank, i.e., the Federal Reserve System. This situation was brought to a head before the war of the 1940's by the controversy which arose out of a report by Governor Eccles. The Federal Reserve group advocated a tightening of the money market while the Treasury group favored a maintenance of the easy money policy. The following interview was rather pointed in this connection.

Mr. Morgenthau: “Treasury policy is to borrow money as cheaply as possible.”  
Reporter: “But Governor Eccles says money is too cheap.”  
Mr. Morgenthau: “I refuse to feel insulted.”<sup>25</sup>

During the war the two agencies coöperated but in the postwar years divergences arose again.

The Treasury can flout the Federal Reserve to a great extent because of the monetary powers it has. We have previously noted the way in which it can affect excess reserves and the availability of credit through changing the volume of Treasury deposits with the Reserve Banks. Simmons claims that the Treasury has used this power to ease the money market in advance of a large flotation of bonds<sup>26</sup> and Hart takes it for granted that the Treasury has influenced the money market for purposes of its own financing.<sup>27</sup> The gold buying program is another aspect of Treasury monetary control. The following description of former Secretary of the Treasury Morgenthau's views on this question is self-explanatory.

<sup>23</sup> *New York Times*, October 20, 1940, p. F1.

<sup>24</sup> Leland, *op. cit.*, p. 257.

<sup>25</sup> *New York Times*, January 7, 1941, p. 37.

<sup>26</sup> Simmons, *loc. cit.*

<sup>27</sup> Hart, *op. cit.*, p. 220.

"In connection with the steadily increasing gold supply he reiterated his statement of March, 1939, that 'although we should like to receive less gold and even to get rid of substantial amounts of the gold we already have,' to cease buying gold now would cause such dislocation that the remedy would be worse than the disease. Only peace and the world-wide recovery, the Secretary said, could reverse the flow of gold."<sup>28</sup>

When we take into account the large monetary powers at the Treasury's disposal, we can see how important it may be for the effects of a public debt program.

### Interrelations of Public and Private Capital Markets

The relation between public and private rates in the interest structure forms an interesting study. Much that has been done on the theory of interest and the interest structure in recent years is useful in this connection. In considering the financial effects of public borrowing we must direct our attention in the first instance to the transfer of funds which takes place between the bond purchasers and the Government. As Adams says: "Since it is through the medium of capital that public borrowing comes into contact with industries, it follows that the industrial effects of borrowing will vary according to the fund of capital moved by the placement of a loan."<sup>29</sup>

We cannot confine our attention to the direct impact which the flotation of the government bonds has upon the capital market, as evidenced in such factors as the volume, prices, and yields of private securities. If a diminution in credit available for private business takes place, we must also consider what effects this diminution may have on production, enterprise, and employment. We cannot even limit the problem, as Adams does, to the movement of the "fund of capital" and its effects upon the supply of capital, for if consumption is reduced, there will be a fall in the *demand* for capital as well.

### DISTINCTION BETWEEN FOREIGN AND DOMESTIC DEBTS

Before going into these problems it is necessary to distinguish between the domestic effects of a loan floated at home and the domestic effects of a loan floated abroad. We shall first discuss the latter briefly. At this stage in the analysis, it should be pointed out, we are not concerned with

<sup>28</sup> *New York Times*, January 9, 1941, p. 17.

<sup>29</sup> Henry C. Adams, *Public Debts*, pp. 57-58. New York: Appleton-Century Company, 1890.

the sum total effects of public debt operations (borrowing, spending, taxing, and repaying) but merely with the effects of borrowing alone.

**Foreign Debts.** There is some difference of opinion over what is meant by a foreign debt in this context. Taken as a whole, the net addition to foreign debt during the course of any period, say a year, is the net capital movement into the country. This net movement is increased by an increase in the excess of commodity imports over exports, by an increase in the net value of our tourist expenditures and other "invisible" items, and by an increase in the net flow of gold into the country. This last item requires a little discussion since it means that a net outflow of gold would tend to diminish the net foreign debt (in the sense of net capital movement into this country). Adams, however, has a peculiar interpretation of the significance of gold flows in this context for he says that *exports* of gold may be considered "in the same light as the creation of foreign debt":

For our present purpose, it is right to regard the exportation of gold in the same light as the creation of foreign debt. This is true because it was made possible to spare so much gold from circulation by the fact that part of the public debt was so shaped as to serve the purposes of domestic money. The commercial results were the same as though bonds to an equal amount had been placed on the foreign market and the gold retained in circulation. It appears, therefore, that the full extent of assistance rendered by foreign peoples to this government, for which a debt was created, is measured by the gold exports added to the excess of values imported.<sup>30</sup>

The reasoning here is faulty, however, and would, if accepted, involve us in serious difficulties. The movement of gold out of a country tends to offset other items, for instance, the "excess of values imported," thus tending to diminish the total of the net capital movement to this country and thus the increase in the foreign debt. The fallacy seems to revolve about the implicit assumption that the amount of money in domestic circulation must remain constant so that if gold (which in this context is considered synonymous with money) is exported, domestic debt to an equivalent amount begins to perform the function of money.

In order to consider the domestic effects of the flotation of a loan in a foreign country, we must pass to some special considerations. Any particular government loan floated in a foreign country means, when taken by itself, that a flow of capital to this country must take place. This flow of capital may be in the form of a shipment of gold to this country or it may be in the form of an excess of imports over exports (both "visible" and "invisible") or the building up of credits abroad

<sup>30</sup> Adams, *op. cit.* pp. 59-60.

or the reduction of foreign credits in this country. As Adams points out, the domestic effects of any particular foreign loan depend on the sort of capital movement involved:

The first distinction which it is necessary to notice is one that exists in the nature of loans themselves. Does the placement of debt effect a movement in the capital of the countries, or is it followed merely by an adjustment of credits? . . . Public borrowing then comes to be a transaction in capital when, by means of it, the government gains control over a definite portion of the country's labor . . .

But it is possible for a government to borrow money in such a manner, and to use it in such a way, that the industries of the country are not in the least affected. This is the case when a debt already existing is paid with the proceeds of a new debt, or when floating indebtedness is taken up by the issue of bonds, or when an account is settled between two countries.<sup>31</sup>

The import of gold may, but need not necessarily, make possible an expansion of credit and thus, if the expansion is a moderate one and unemployment exists, would tend to favor production, enterprise, and employment. The excess of imports, provided that it does not come through a fall in exports, might have competitive effects on private business and at the same time might raise the standard of living. The building up of credits abroad or the reduction of foreign credits here are important in this context only in so far as they potentially increase the net gold or commodity inflow. Finally, it is possible that the flotation of the government loan in a foreign country restricts the amount of foreign credit available to private manufacturers in this country. This might tend to curtail possible essential imports for private business.

**Domestic Loans.** In tracing the effects of a domestic loan floated by the government, Adams confines himself to a consideration of whether the rate of return on the government bonds is "normal," "high," or "abnormally high":

. . . different funds of capital are moved according to the different strength of the motives offered by the government to secure money. Let us then seek to trace the industrial effects of the loan policy, first, when money may be secured by offering normal rates of interest; second, when unusual rates must be offered to secure the requisite funds; and third, when the government finds it necessary to give excessive rates of interest.<sup>32</sup>

This is, however, only a rough beginning. Today a great many other factors must be taken into account. For one thing we must distinguish

<sup>31</sup> Adams, *op. cit.*, pp. 53-54.

<sup>32</sup> *Ibid.*, pp. 61-62.



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between loans floated on the open market and the special issues which go to some agency fund. The "special" issue in itself (\$1.1 billion out of the \$3.0 billion increase in direct interest-bearing debt of the government in 1940 consisted of "special" issues)<sup>33</sup> has no effect on the capital market but in so far as it eliminates the necessity of the government going into the open market it tends to relieve any scarcity of loanable funds which may exist. We must also consider the effect of the existence or absence of large excess reserves and we must take account of a government policy which is directed toward reducing the market rate of interest,<sup>34</sup> i.e., lowering the "normal." This, under ordinary circumstances, is beneficial to private enterprise. Moreover, the existence of the tax exemption privilege somewhat obscures the significance of the actual yield on the bonds. Aside from the complete or partial exemption on income from government bonds we must take account of the fact that United States securities are fully exempt from property taxes. Some of these points are emphasized in the following summary of part of former Secretary Morgenthau's report to Congress several years ago:

The interest rate on short-term government obligations decreased remarkably. For six series of Treasury bills sold in 1940 the buyers paid the Treasury a slight premium for the privilege of holding the bills offered on those dates. On five-year Treasury notes in 1932 3¼ per cent interest was paid, whereas in 1940 the rate had dropped to three-fourths of 1 per cent.

This low level of short-term yields is attributed to the rapid growth in the volume of excess bank reserves pressing for investment. Bids over par on Treasury bills seem to arise from "the increasingly large amounts of uninvested funds of a short-term nature seeking placement, coupled with the fact that Treasury bills, like all other United States securities, are fully exempt from property taxes and thus offer an inexpensive medium for the holding of liquid funds that would otherwise be taxable."<sup>35</sup>

We must also consider the fact that the government bond in itself provides a safe accumulating investment for the small saver, a consideration which was particularly important before the insurance of bank deposits, when hoarding often seemed the only available alternative.<sup>36</sup> On the other hand, we must not leave out of account the fact that government bonds also provide an attractive investment. This, as previously pointed out, has its bad as well as its good effects.

<sup>33</sup> *Federal Reserve Bulletin*, February, 1941, p. 89.

<sup>34</sup> See above, note 20.

<sup>35</sup> *New York Times*, January 9, 1941, p. 17.

<sup>36</sup> Leland, *op. cit.*, p. 264.

## SIGNIFICANCE OF VARIOUS INTEREST RATES ON PUBLIC DEBTS

The following study is mainly a criticism of the "classical" analysis of the effects which public borrowing has upon the capital market. The most complete discussion of this, given the classical assumptions, is that of H. C. Adams. For purposes of convenience we shall make Adams the scapegoat and criticize his analysis in the light of current monetary conditions. It should be understood, of course, that this is not a criticism of Adams himself or, for that matter, of the classical school, in so far as the assumptions upon which their analysis was based were relevant to the conditions of their time. The ideas they propounded have persisted, however, and it is the ideas that we must examine. For this purpose it is necessary to quote rather extensively from Adams.

**Normal Rates.** Where the government offers its bonds at what may be considered a going rate of return, considering the relative risk and other features, it is Adams' opinion that although existing industries are not interfered with, expansion is checked:

A public loan which offers only the normal rate of interest cannot exert any decided influence upon established industries, for there is no motive presented to one whose capital is well invested to withdraw any part of it from its accustomed employment and place it at the disposal of the state . . . Its full effect is to check further industrial expansion, and this it does by turning the energy of the country into other channels. In case, then, of a sudden emergency calling for increased public revenue, there is much to be said in favor of resorting to loans, provided the loans may be placed at reasonable rates.<sup>37</sup>

If the conditions of the country at the time a loan is made are such as to encourage an extension of private enterprises, then the loan will be felt in the rate paid for money. But if the state of the market is such as to depress business hopes, to render calculations uncertain, and to discourage rather than encourage industrial managers (facts which usually present themselves at the outbreak of a war, before belligerent conditions are fully established), undertakers will be fully satisfied to maintain established conditions. This being the case, they will not compete with the government in the placement of its loan . . . The effect of a loan that extends no farther than to draw to the disposal of the state the fund of free capital in the country, does not tend to disturb existing industrial conditions. Its influence is prospective; it tends only to check normal development.<sup>38</sup>

This is however, based on the double assumption of full employment and lack of bank credit. Where there are unused resources it is not neces-

<sup>37</sup> Adams, *op. cit.*, pp. 62-63. Cf. Richard A. Musgrave, "Credit Controls, Interest Rates, and Management of Public Debt," in *Income, Employment and Public Policy: Essays in Honor of Alvin H. Hansen*, pp. 221-54 (New York: W. W. Norton & Co., 1948).

<sup>38</sup> Adams, *op. cit.*, pp. 65-66.

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sary to divert the "energy" of a country provided that the "handmaiden," credit, is available with which to call these resources into employment.

The same sort of criticism may be applied to Adams' claim that the government may have to raise the rate of interest in order to be able to float its bonds:

It is quite generally assumed that a demand for capital by the state tends to raise the rate of current interest, and that this rise is due to competition between the government and business men for control over the country's fund of free capital . . . The completeness of this explanation may be doubted, and its truth also, unless its statement be very carefully guarded. Other causes may be mentioned for the rise of interest which frequently follows the placement of public bonds. The stability of a government is likely to be the most seriously questioned just at the time of its greatest financial necessities, and on this account investors will demand a little extra payment by way of insurance. Every person, also, who has had extended dealings in money, contracts a habit of thought which naturally controls his investments. It is like starting a wagon out of a rut to bring him to think of lending it to the government, and for this reason the government may find it necessary to increase slightly its offers.<sup>39</sup>

The state desires to gain control over the fund of free capital; the undertakers desire to accomplish the same purpose, for otherwise it will be impossible for them to extend their own self-employment by which alone their self-pay may be increased. If the state insists on getting the money, it must in some manner induce the managers of capital to forego their prospects of increased self-remuneration, and, if no other argument can be brought to bear, the government will be under the necessity of increasing slightly the rate of interest.<sup>40</sup>

Where the Treasury has sufficient monetary powers—as the Treasury now has—it need not raise the rate of interest to attract capital. By maintaining "easy money" conditions it may easily offset its own credit demand, thus having no tightening effect upon the market in the form of increased interest rates.

A further point to be considered in the discussion of government bonds issued at normal rates of return is the possible effect on savings. It is generally assumed that a government loan taken privately (i.e., not through credit expansion by the banks) merely involves a transfer of the existing voluntary savings of the economy. To the extent that there is an actual advantage to the small saver in the purchase of government bonds, it is not unlikely that such bonds as the United States Savings Bonds (\$1.0 billion out of the \$3.0 billion increase in direct interest-bearing debt of the government in 1940 consisted of United States Sav-

<sup>39</sup> Adams, *op. cit.*, p. 63.

<sup>40</sup> *Ibid.*, p. 65.

ings Bonds),<sup>41</sup> to say nothing of the Liberty type of bonds actually induce voluntary savings which might not otherwise take place. In so far as this is true the following statement of Adams requires modification:

It is sometimes said in this connection that the placement of a loan induces men to save, and for this reason public borrowing is not altogether an evil. It may be there are some people who have such confidence in government bonds, and such fear of private securities, that they will buy a bond with greater pleasure than invest in common stocks. This is true of the French and possibly of the Germans; but the consideration is of slight importance for England or for the United States. Those conditions which lead men to private saving are not changed by the offer of public bonds at normal rates of interest, and it is doubtful if such a result may be relied upon in countries where private credits are well developed.<sup>42</sup>

**Higher Rates.** When the rate of interest offered by the government is, all considered, higher than the going rate of return, Adams mentions the possibility of three types of effects: (1) Reduction in consumers' expenditures, (2) abandonment of some industries, and (3) increased activity of other industries. The effects of the first, reduction in consumers' expenditures, depend largely on the expenditure of the funds by the government:

There are three sources from which the state may hope to secure funds, over and above those susceptible to an offer of normal inducements. Thus, in the first place, the government may expect something as the result of savings in personal expenditure, and here for the first time is it possible to trace a direct connection between public borrowing and industrial affairs. Any general movement of this sort among the people will certainly disturb the established distribution of labor. For if people cease to use certain classes of commodities, laborers must cease to produce them . . . No government whose administration is under the direction of sound rules of finance would enter upon this second step of the loan policy, had it not taken in hand some matter calling for men as well as capital. The result, therefore, of any general saving in personal expenditure would be, that those who before had employed men to serve themselves would now support an equal number of men in the service of the state . . . So far considered, then, this second step in loan-contracting is followed by no immediate industrial consequences of a serious nature.<sup>43</sup>

If we disregard government expenditures for a moment, it becomes evident that any flotation of government bonds which results in a reduction in consumers' expenditure has unfavorable industrial consequences. The second type of effect, abandonment of certain enterprise, has the same sort of influence according to Adams:

<sup>41</sup> *Federal Reserve Bulletin*, February, 1941, p. 89.

<sup>42</sup> Adams, *op. cit.*, p. 63.

<sup>43</sup> *Ibid.*, pp. 66-67.

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In the second place, capital may be secured through the abandonment of certain industries which, before the appearance of the state upon the money market, were on the verge of paying no profit; or from a temporary suspension of certain industries which a change in demand has rendered unprofitable . . . . Meanwhile, he invests the proceeds of the last lot of goods produced in public bonds, believing that the premium which these bonds will ultimately pay will compensate his immediate loss. The labor which he has been accustomed to employ is likewise available for the use of the government.<sup>44</sup>

It should be stressed here that the physical capital cannot be transferred from industry to government merely by abandoning certain industries; hence it is difficult to agree with Adams when he implies that some owners of capital would be willing to abandon their plant merely in the anticipation of a possible profitable investment in government bonds of the proceeds of their last sale of goods. At most, this would merely involve their working capital, and the return on the government bonds would have to be high indeed to induce those involved to abandon or junk their fixed capital.

The third effect, namely increased industrial activity, is rather naively put by Adams thus:

The third source from which government loans may be filled, when the second step in loan-contracting has been entered upon, is created by the increased intensity of industrial energy on the part of the paying industries.<sup>45</sup>

If the conditions are such that the increased supply of commodities will not result in a fall of their price, general business will display increased activity in order to supply the state with such funds as it demands.<sup>46</sup>

It is usually, and not unreasonably, assumed that industry ordinarily makes as much profit as circumstances allow; hence it is not easy to see why a relatively high rate of return on government bonds would increase the profit earned and thus the availability of loanable funds.

**Abnormal Rates.** A similar type of criticism must be applied to Adams' discussion of the effects of government bonds carrying abnormally high rates of return. These effects he considers to be the drying up of the source of income and the oppression of the laborers:

The evil consequences of offering excessive rates of interest for money are two. In the first place, it tends to dry up the source of income upon which the treasurer must rely in the future; and in the second place, it results in a saving forced from the laborers, the benefits of which the laborers do not enjoy. That is to say, under the industrial conditions introduced by public borrowing at high rates, the employers

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<sup>44</sup> *Ibid.*, pp. 67-68.

<sup>45</sup> *Ibid.*, p. 68.

<sup>46</sup> *Ibid.*, p. 70.

have it in their power to force their workmen to live on less than their usual allowance, and with the difference to buy bonds in their own name.

In this manner there is established within the community a class living out of the proceeds of taxes, who are yet not of necessity actively engaged in current production. They were originally constant producers and tax-payers; they are now at liberty to become idlers and tax-receivers. Although the fiscal demands of the government remain as great as before, it has deprived itself of the assistance of certain of its subjects. It is in this manner that excessive appeals through loans tend to dry up the source of revenue upon which the state must rely. Indeed, a government entering upon this third step in loan-contracting is in the position of a man who consumes his capital in running expenses; it is only a question of time when it will reach the end of its financial resources.<sup>47</sup>

The possibility of the creation of a rentier class by the offer of government bonds at an abnormally high rate of interest is quite a conceivable one. A rather general movement would have to take place, however, before the creation of this rentier class carried along with it so great a restriction in the amount of capital available for private enterprise that a reduction in business activity would take place. Here again, Adams thinks of the volume of loanable funds as being synonymous with the volume of voluntary private savings. If business remains *profitable* (and there is no reason to believe that it would not), it can be financed through bank purchase of its securities. Such purchase is not substantially interfered with (either legally or economically) by bank purchase of government bonds since the latter may be sold when necessary and are, in small amounts, perfectly liquid. (In large amounts there is danger of excessively depressing the bond market when sales are made.)

The argument regarding the effect on labor is even more questionable. This assumes: (1) That increased activity will be promoted by the high rates of return offered by the government and (2) that enterprisers will be able to raise prices as a result of their zeal and (3) that wage earners will not be able to resist a fall in real wages.<sup>48</sup>

It may be thought that high interest rates may have anti-inflationary effects under conditions of full employment. Professor Harris has stated

<sup>47</sup> Adams, *op. cit.*, pp. 71-73.

<sup>48</sup> The movement of real wages with output—a question of the utmost importance—is still undecided. See J. M. Keynes, *The General Theory of Employment, Interest and Money*, pp. 9-10; J. T. Dunlop, "The Movement of Real and Money Wages," *Economic Journal*, September, 1938; L. Tarshis, "Changes in Real and Money Wages," *Economic Journal*, March, 1939; J. M. Keynes, "Relative Movements of Real Wages and Output," *Economic Journal*, March, 1939; J. H. Richardson, "Real Wage Movements," *Economic Journal*, September, 1939; and Richard Ruggles, "The Relative Movements of Real and Money Wage Rates," *Quarterly Journal of Economics*, November, 1940.

the counter-argument succinctly: "What is required to reduce inflationary pressures is a reduction of spending, not an exchange of idle cash for government securities. In the writer's opinion, no *practical* rise in the rate of interest will seriously affect the amount of consumption demand, though it may have a small influence on investment."<sup>49</sup>

**Significance of the Theoretical Analysis.** From the above discussion it is plain that we cannot analyze the effects of public debt at the time of issue merely by looking at the rates of return. Government bonds carry with them special privileges, as exemption from taxation in some cases, and have special attractions for some investors, as, virtually complete security. They may also have important effects on the credit structure, as when banks find it necessary to reduce their holdings regardless of whether the rate offered by the government is equal to or higher than the going rate of return. Hence we cannot accept Adams' simplified analysis which turns almost entirely upon the relative rates of return. This does not mean, of course, that we can neglect the rate of return as one of the factors determining the economic effects of the flotation of government bonds.

The issuance of government bonds may cut into consumption and promote savings where there is a strong patriotic appeal, as in time of war; or where a convenient method of long-term savings is presented, as through the United States Savings Bonds; or where the money borrowed is really obtained through taxation, as in the special issues under the Social Security Act; or, finally, where the rate of interest is high and the tendency to increase saving as a result of a high rate of interest is more than sufficient to offset the tendency to decrease it under the same circumstances (the latter existing where the individual wishes to have a certain amount of money for future use so that a higher rate of interest means that less will have to be put aside each year). In such cases private savings may be diverted to public use. This does not, however, mean a reduction in private capital formation if unemployed resources and bank credit are available. If public borrowing actually did restrict private loans or raise interest rates on private loans, one should seriously reconsider the desirability of continued deficits.<sup>50</sup> We cannot even be certain that either consumption or investment will be affected in

<sup>49</sup> S. E. Harris, *The National Debt and the New Economics*, p. 17 (New York and London: McGraw-Hill, 1947). Professor Simmons has emphasized the interchangeability of cash and public debt in the public's mind. See Edward C. Simmons, "Federal Reserve Policy and the National Debt During the War Years," *The Journal of Business of the University of Chicago*, Vol. 20, April, 1947, pp. 84-95.

<sup>50</sup> Cf. Leland, *op. cit.*, p. 263.

any way. Under the conditions described above it is possible that people who would otherwise save and *hoard* their money might now be induced to invest it. The same sort of consideration exists when banks feel willing to buy government bonds but no other securities.

### A STATISTICAL STUDY OF THE INTERRELATIONS

The theory on which the classical analysis is based implies that government financing is done at the expense of private financing. As was shown above, this seems to be much too simple a theory for present conditions. A statistical study cannot tell us whether the complicated theory is more realistic than the simple—it can merely tell us whether the actual experience is *consistent with* one or the other theory. It cannot, in itself, tell us anything about the causal direction, particularly when we take into account the fact that a causal relationship may take several years to work out and may act both ways at the same time. A theory, such as that of Adams, which implies that an increase in government borrowing must mean a concurrent decrease in private borrowing, has to be modified if we find that the two increase and decrease concurrently. The statistical analysis may be useful not in positively establishing any particular theory but rather in showing that some theory or other cannot be as generally held as the advocates of the theory may believe. With these rather stringent reservations in mind we may turn to a study of the relevant statistics. The twenty-year period 1919–39 is covered.

**Volume of Flotations.** The most relevant concept in a study of the relation between government borrowing and the capital market would seem to be *net* public debt receipts (public debt receipts minus public debt expenditures) rather than public debt receipts alone. The net figure gives us an idea of the volume of loanable funds absorbed by the government in its public debt activities, while the gross figure merely tells us one side of the story. Hence the following discussion will be mainly in terms of net public debt receipts.

In 1919 net public debt receipts<sup>51</sup> were over \$13 billion. From that year on, with the minor exception of 1921, there was a net expenditure (public debt expenditure exceeding public debt receipts) until the year 1931. Public debt receipts fell from \$29 billion in 1919 to \$16 billion in 1920, and during the period 1921 to 1931 fluctuated between about \$2 billion and \$7 billion, reaching the figure of \$6½ billion in the latter

<sup>51</sup> *Annual Report of the Secretary of the Treasury, 1931*, p. 460; *1932*, p. 422; *1933*, p. 150; *1934*, p. 154; and *1939*, p. 355.



year. New corporate capital issues<sup>52</sup> rose during this period from \$2¼ billion in 1919 to \$8 billion in 1929 and then fell to \$1½ billion in 1931.<sup>53</sup> For most of the period, then; it was true that as the Federal Government took less of loanable funds, private business took more. Hence, generally speaking, the statistics do not refute a theory such as that of Adams in which an inverse relationship is postulated.

We may make a more detailed analysis of the period to check on these conclusions. From 1919 to 1920 net receipts of over \$13 billion were changed to net expenditures of over \$1 billion. The increase in new corporate capital, however, was only \$¼ billion, from \$2¼ billion to \$2½ billion, an amount practically equal to the decline in flotations of federal agencies (not included in public debt receipts and expenditures) from over \$¼ billion in 1919 to nil in 1920. State and municipal flotations remained virtually unchanged. By next year, 1921, net public debt expenditures of over \$1 billion had changed to net public debt receipts of \$100 million. In the same year corporate flotations fell over \$¾ billion, with federal agencies rising over \$100 billion and state and municipal over \$½ billion. In these early years there is some "confirmation" (i.e., lack of refutation) for the simple theory of Adams.

When we consider the large rise in net public debt receipts from net expenditures of \$200 million in 1930 to net receipts of over \$1 billion in 1931 and observe that this was accompanied by a fall in new corporate capital issues of nearly \$3.0 billion to only \$1½ billion we again find "confirmation" in principle. In the intervening years, however, there is no such nice relation. Net public debt expenditures fell from 1922 to 1923, rose in 1924, fell in 1925, rose in 1926 and 1927, then fell in 1928 and 1929 and rose slightly in 1930. Gross public debt receipts also fluctuated greatly in this period. New corporate capital issues, however, rose steadily from 1922 to 1929, in which year they reached a peak of \$8 billion, and then fell to \$4½ billion in 1930. Thus the simple theory of Adams which implies that an increase in capital going to government must be associated with a fall in that going to new private undertakings must be modified to take account of a great many factors related to

<sup>52</sup> *Twenty-fourth Annual Report of the Board of Governors of the Federal Reserve System*, 1937, p. 169, and *Federal Reserve Bulletin*, February 1940, p. 140.

<sup>53</sup> As the public debt figures are in terms of fiscal years and the capital issues figures in terms of calendar years, an implicit lead of one-half year is introduced into the analysis. The interpretations made above would have to be revised only if both sets of figures were put on the same basis, and a *consistent* relationship were found between the two. (Similar considerations apply with respect to other parts of the statistical analysis.)

general business conditions, e.g. employment and availability of capital generally, in order to explain how in some cases the two rose and fell together.

The same holds true in the period 1932 to 1939. Net public debt receipts which stood at \$2¾ billion in 1932 rose to over \$3 billion in 1933 and to over \$4½ billion in 1934, then fell drastically to less than \$1¾ billion in 1935, rose again to over \$5 billion in 1936, and then fell to less than \$2¾ billion in 1937, and to less than \$¾ billion in 1938 with a revival in 1939 when the figure exceeded \$3¾ billion. In this period the simple theory was substantially confirmed until 1935, for new corporate issues were over \$300 million in 1932, fell to the neighborhood of \$180 million in 1933 and 1934 and then rose to \$400 million in 1935 at the time of the great decline in net public debt receipts. New corporate issues continued to increase in 1936, during which year it was between \$1 and \$1¼ billion, at the same time that net receipts increased. From 1937 to 1938 new corporate issues and net public debt receipts fell. In 1939 they continued to fall while net public debt receipts rose by \$2½ billion. The trend of gross public debt receipts shows similar characteristics and demonstrates the inconstancy of the relationship between the two.

When we take federal agencies and state and local issues into account, only slight modifications need be introduced since these are overshadowed by the magnitude of the operations of the Federal Government. It must be pointed out, however, that while federal agency issues rose from 1937 to 1939 by about \$800 million, new corporate issues fell by practically the same amount. For the period as a whole it is apparent that no simple inverse relationship exists between the absorption of loanable funds by the Federal Government on public debt account and by private enterprise for new issues.

**Security Prices.** A corollary of the simple theory might be that when outstanding government bonds attract capital to themselves, as evidenced in the bidding up of their prices, capital is attracted away from private bonds with a consequent bidding down of their prices. Though our statistical analysis cannot prove or disprove the theory, it can show whether the objective results required by the theory actually are found in practice. If they are not it means that *at best* the theory points only to one of a number of relevant factors.

The index of security prices<sup>54</sup> of United States Government Bonds

<sup>54</sup> *Twenty-fourth Annual Report of the Board of Governors of the Federal Reserve System, 1937, p. 171, and Federal Reserve Bulletin.* These indices do not have the same

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fell from 94 in 1919 to 88 in 1920, and high-grade municipal fell from 90 to 84. At the same time stocks also fell, preferred from 111 to 103, total common from 71 to 64, industrial from 73 to 66, railroad from 70 to 64, and public utility from 60 to 55. The fall in every case, it will be noted, was of a roughly similar order of magnitude. In the period 1920 to 1927, United States Government Bond prices rose from 88 to 108 and high-grade municipal from 84 to 97. At the same time a general rise took place in stocks, preferred stocks rising from 103 to 127, total common from 64 to 118, industrial from 66 to 119, railroad from 64 to 119, and public utility from 55 to 116. There were, however, some substantial fluctuations in this period, e.g. when total common stocks fell from 64 in 1920 to 55 in 1921 and then rose to 68 in 1922.

From 1927 to 1929, there took place a fall in United States government bond prices from 108 to 102 and in high grade municipals from 97 to 93, whereas common stocks rose from 118 to 190 with public utilities showing the greatest increase from 116 to 235 and railroads the least from 119 to 147, the change in industrial stocks being virtually the same as that in the total. Corporate bonds in this period followed neither the government nor the common stock pattern, total corporate bonds remaining virtually unchanged at about 101 in 1927 and 1928 and falling to 98 in 1929; industrial bonds being similar at 96 in 1927 and 1928 and falling to 93 in 1929. Railroads also showed little change at 107 in 1927 and 1928 and fell to 103 in 1929. Utility bonds rose slightly from 99 in 1927 to 100 in 1928 but then fell to 98 in 1929. Preferred stocks, however, remained virtually unaltered rising from 127 in 1927, to 131 in 1928, and falling back to 127 in 1929.

In the period 1929 to 1939, United States government bonds fluctuated considerably, rising from 102 in 1929 to 106 in 1930 then falling to a low of 99 in 1932, rising to a high of 107 in 1936, falling to 103 in 1938, and rising again to 106 in 1939. High-grade municipal bonds showed fewer fluctuations, rising from 93 in 1929 to 96 in 1931, then falling to 87 in 1933, and rising consistently to 116 in 1939. Corporate bond prices followed the United States government pattern very closely. They rose from 98 in 1929 to 99 in 1930, then fell sharply to 70 in 1932 rising to a peak of 98 in 1936 and falling to 79 in 1938, with a subsequent slight rise to 82 in 1939. Utility bonds also followed this pattern with low points in 1929, 1932, and 1938 and high points in 1930, 1936, and 1939. Railroad bonds followed a slightly different pattern after 1934. From 84

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base. As we are not interested in relating the fluctuations to any particular year or in making exact quantitative comparisons, the actual base year does not matter.

in that year, there was a downturn to 80 in 1935, then an upturn to 95 in 1936. From then on there was a consistent decline to a low of 58 in 1939. Industrial bonds followed the pattern of total corporate bonds with the exception of a slight decline from 93.2 in 1929 to 92.6 in 1930, as compared with a slight rise in the total. During the earlier part of the 1929-39 period, stocks seemed to follow the industrial bond pattern more closely than the United States government pattern. Preferred stocks showed a decline from 127 in 1929 to 96 in 1932. Total stocks showed a greater decline from 190 to 49, industrial from 190 to 47, railroad from 147 to 26, and public utility from 235 to 79. Then there was a steady rise to 1936 for preferred (139) and public utility stocks (104) and to 1937 in total common stocks (112) and industrial stocks (131). Railroad stocks showed the same peculiar pattern as railroad bonds with a rise to 1934 (42), a fall in 1935 (34), and then a rise in 1936 (51).

In all cases stocks reached a low in 1938 and rose in 1939. By and large, we may say that the general pattern of private securities was similar to that of United States government bonds from 1930 on, the main consistent difference being from 1929 to 1930 when all stock averages and the industrial bond average declined while the government bond averages and all the remaining corporate bond averages rose.

Taking the period as a whole and particularly when we concern ourselves with the average of total corporate bonds and stocks, we can definitely say that the statistical evidence is not such as one would expect if the bidding up in prices of government bonds were made at the expense of private securities. The statistical evidence does not, and cannot, say that such a tendency does not exist. It merely shows that if the tendency does exist it is overshadowed in certain periods by forces tending to attract capital to, and bid up the prices of, *both* government and corporate securities. What these forces are do not at the moment concern us; suffice it to say that the statistical evidence does not substantiate any theory to the effect that the fund of capital available for all securities is, as Adams' theory implies, of such a nature that any investment in government securities must be at the expense of private securities.

**Yields.** As a check on our analysis of prices of government and corporate securities we may study the fluctuations in their yields. We must first of all renounce any attempt to make a statistical test of Adams' discussion of "normal," "high," and "abnormally high" interest rates on government bonds. Owing to the many significant differences existing between government bonds and corporate securities, there would be no point whatever in comparing an average of government bond yields with

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the averages of corporate bond and stock yields. But Adams' theory does lead us to expect that when government borrowing increases, private credit becomes "tighter," i.e. corporate bond and stock yields rise. It is this sort of relationship which we may subject to a statistical test.

From 1919 to 1920 public debt receipts<sup>55</sup> fell from \$29 billion to \$16 billion and net public debt receipts changed from a positive figure of \$13 billion to a negative figure of \$1 billion. Yet the average of corporate bond yields<sup>56</sup> rose from 6.3 per cent to 7.1 per cent and the average of stock yields<sup>57</sup> rose from 5.8 per cent to 6.1 per cent. Hence even when the government not only reduced its absorption of loanable funds but also actually released some of these funds, the yield on corporate securities rose, i.e. tightening of the private capital market took place. Net public debt receipts rose to a positive figure of \$100 million in 1921 while corporate bond yields fell a slight amount to 7.0 per cent and stock yields rose from 6.1 per cent to 6.5 per cent.

From 1921 to 1922 net public debt receipts changed to a negative figure of \$600 million, i.e. there was a net release by the government. In this year outstanding corporate bond yields fell from 7.0 per cent to 6.0 per cent and outstanding stock yields fell from 6.5 per cent to 5.8 per cent and new corporate bonds<sup>58</sup> from 7.2 per cent to 6.3 per cent, a trend which is consistent with Adams' simple theory. During the whole period 1922 to 1930, when there was a net release of loanable funds by the Federal Government in its public debt operations, outstanding corporate bond and stock yields as well as new corporate bond yields were lower than in the year 1921 when there was a net absorption of loanable funds by the government in its public debt operations.

In the period 1931 to 1939, during the whole of which there was a large net absorption by the government which fell below \$1 billion only in 1938 when the figure reached \$740 million, there was for a short time only a rise in corporate yields, the subsequent decline over most of the period bringing yields far below previous levels. For instance, outstanding corporate bond yields rose from 5.1 per cent in 1930 to 5.8 per cent in 1931 and 6.9 per cent in 1932, then fell almost consistently to 1939 when the figure was 3.8 per cent. Outstanding stock yields similarly rose

<sup>55</sup> *Annual Report of the Secretary of the Treasury*, 1931, p. 460; 1932, p. 422; 1933, p. 150; 1934, p. 154; and 1939, p. 355.

<sup>56</sup> *Twenty-fourth Annual Report of the Board of Governors of the Federal Reserve System*, 1937, p. 172, and *Federal Reserve Bulletin*, January, 1940, p. 39.

<sup>57</sup> Alfred Cowles 3rd, and Associates, *Common Stock Indexes, 1871-1937*, p. 373.

<sup>58</sup> *Moody's Industrials*, 1939, A35-A36.

from 4.3 per cent in 1930 to 5.6 per cent in 1931 and 6.7 per cent in 1932 but then fell and stood at 4.9 per cent in 1937. The temporary rise in yields did not develop immediately in the case of new corporate bonds, the 1930 figure of 5.2 per cent falling slightly to 4.8 per cent in 1931; but the yield rose in the next year to 5.7 per cent. Subsequently, however, there was a decline and the rate was 3.5 per cent in 1938. In some cases, then, government borrowing was associated with a tightening of the private capital market (as expressed in a rise in yields) while in other cases the opposite relationship held.

**Summary of Statistical Findings.** The above statistical analysis has shown that in some periods an increase in the absorption of loanable funds by the Federal Government has been accompanied by a fall in new corporate issues, while at other times, both new corporate issues and federal absorptions rose together. The relation between government bond prices and prices of corporate securities also varied from period to period. No constant relation, moreover, was found between changes in the net public debt receipts of the Federal Government and changes in the "price," i.e., the yield, paid by corporate enterprise through the issue of stocks and bonds. There are, of course, many limitations to the statistics employed: only averages and indices were considered; for the most part, only the direct public debt operations of the Federal Government were taken into account; short-term and self-financing were not brought into the picture. Hence we cannot validly draw any conclusions regarding the total amount of capital of all sorts absorbed by all government agencies and the total amount of capital of all sorts absorbed by private enterprise.

**Significance of Statistical Findings.** Nevertheless, the statistical findings clearly indicate that no simple relationship exists between long-term capital directly absorbed by the Federal Government and long-term borrowed and equity capital absorbed by private enterprise. An increase in the volume of capital absorbed by the Federal Government is not necessarily associated with a corresponding fall in the amount absorbed by private enterprise.

The statistical results do not, however, prove that the inverse tendency postulated in Adams' theory does not exist at all. It may still be an important force. But at some times at least, other forces are more important, so that the volume of long-term capital absorbed by the government and industry may rise and fall together. Long-term government financing need not be at the expense of long-term private financing through the open market, in the sense that a rise in the volume of the former need not mean a fall in the volume of the latter.

### Significance of Debt Retirement Policy

The above discussion has been largely in terms of the *net* absorption of capital funds by the government. It is worthwhile to consider debt service by itself for a moment.

#### RELATION TO TAX POLICY

The servicing of the debt depends to some extent on the tax policy which is followed. The problems of public debt are essentially problems of "taxation later" as compared with those of "taxation now," provided that the given level of expenditures is to be maintained and resort is not to be had to outright printing of money. Thus the question of the incidence and other economic effects of taxation is an integral part, possibly the most important part, of a study of the public debt. This is true not only in the narrow sense that public borrowing is a method of avoiding taxation now and making necessary taxation later, but also in the broader sense "that public credit depends upon the adequacy of the taxing power, together with the willingness of the people (or government) to employ it in the service and repayment of the public debt."<sup>59</sup>

Payment of interest and retirement of debt could conceivably be achieved by continued borrowing or by printing money. Otherwise taxes must be levied for the purpose. Thus the full effects of debt service policy cannot be considered independently of the effects of the taxation it necessitates. Such effects include the impact on the supply of loanable funds and therefore on private finance. An attempt was made to point out such effects in Part III of this book and no adequate summary could be attempted here.

#### FINANCIAL EFFECTS

The payment of interest and principal on account of the public debt may have important financial consequences. When the bond holder receives his payments of interest and principal he may conceivably reinvest them in securities or increase his consumption or merely add to his cash balances. Of these possibilities the first and third are the most likely with respect to the payments of principal. The only significant exception is the case where the government bond is part of a definite savings program of the bond holder and when the maturity of the bond signifies the time when the savings are to be consumed. As for the interest it may be expected that consumption will again come in for only a small share since

<sup>59</sup> Leland, *Harvard Business Review*, *op. cit.*, p. 257.

only a small proportion of all government bond holders are individuals. As for dividends made possible through the interest payments received by corporations, it is mainly the higher income groups which will benefit. Hence with respect to both interest and principal the overwhelming portion of the sums involved will find their way into savings, mainly the purchase of government and private securities. The increase in consumption and the resulting multiplier effects will be virtually negligible.

We now turn to the choice between the purchase of government or private securities with the funds received as a result of the service of the debt. The existence of a choice will in itself tend to ease the credit situation for private enterprise since there is a possibility, at least, of the investment of the funds in private enterprise. This tendency is, however, only one of several important factors to be considered. If government bonds are merely being refunded, then a favorable tendency (with respect to the private credit market) will be offset somewhat by the fact that the government is again absorbing an equivalent sum of money. The existence of large excess reserves modifies the importance of this latter consideration. At the same time the effect of an arbitrary monetary policy on the part of the Treasury makes questionable the significance of all these tendencies since the government has sufficient powers to offset any or all. The effect of debt service upon the availability of capital for private enterprise must be held in the background, to assume an important role when Treasury policy subsides. This is true particularly in cases where Treasury policy is of a sporadic nature making itself felt mainly before a particularly large volume of government borrowing—with respect to which there is some evidence as well as reason.

Public debt retirements or public debt charges generally constitute only one aspect of the public debt program at any time. Their effects on the capital market are of the same quality and therefore are capable of being overshadowed by increased public debt receipts at any time. The effects of retirement upon business may be overshadowed by the similar effects (usually acting in the opposite direction) of public debt borrowing. Hence very little in the way of a consistent relation between retirements and business activity can be expected. There are, however, several periods in which public debt retirements did play a significant role. This is sufficient to warrant the greatest care in the management of public debt with respect to retirements.

The effects upon business, it should be noted, are mainly indirect, through increasing the availability of capital for private enterprise, than direct, e.g. via an increase in consumption. Hence retirements can act



as an additional instrument of monetary control in the hands of the Treasury, taken in conjunction with a large cash balance. When the private capital market shows signs of tightening and it is undesirable to use other methods of easing the situation, then the purchase of government bonds, preferably in the hands of non-banking corporations, by the Treasury out of its cash balances offers an opportunity of making available capital which may be used for investment in private enterprise. In cases where action of this sort may be extremely desirable, the Treasury might ensure success of its plans by restricting its short-term financing, via the banks, so that the *quality* of the capital it takes off the market is not such as to offset that which it wishes to put on the market through its retirement program.

### Conclusions

In our theoretical analysis we found that when we take account of certain significant institutional factors such as the existence of unemployment, the availability of credit, and the Treasury's easy money policy, government financing need not be achieved at the expense of private financing and capital investment. Both may increase and decrease concurrently. Our statistical analysis studied one aspect of this question, namely that of financing, the other aspect, that of actual capital investment and thus production and employment, being left to a later section of this study. With respect to the question of financing, the statistical findings are definitely not what the simple "classical" theory would lead us to expect. That theory leaves out of account the existence of unemployment, the availability of credit, and the easy money policy. On the contrary, these findings are precisely the type which one would expect from any realistic theory which takes account of a variety of factors which may offset any tendency for an inverse relationship between government and private financing.

If the government needs funds, it can get them in one way or another, e.g. from the banks, and can even substantially dictate the terms through the monetary powers at its disposal. The government certainly need not wait upon private savers. If private enterprise is sufficiently profitable, it too can obtain funds, usually from private savers with an eye to profit or, if necessary (and we are considering *profitable* enterprise) through the sale of its securities (e.g. notes) to the banks. As long as the banks have plenty of excess reserves, the choice they make with respect to their portfolios is more absolute than relative: they need not choose between government and private securities; they can take both if each is attractive

in itself. In this way the volume of government and private financing can rise and fall together. They need not always do so, however. An explanation of the case when the two act in opposite directions lies in the following statement by Professor Hart:

Government debt is unlike private debt . . . because its changes do not depend on prospects of profit for the debtor, or on the creditor's changing confidence. Government debt is thus more likely to rise during depression than is private debt. Its growth depends on such things as the desire to push public construction to help relieve unemployment, the fall of revenues below estimates, hesitation of governments to handicap business in hard times by raising tax rates, and even—in the case of federal debt—desire to control the volume of effective money. The Federal Government, moreover, "manages" not only the size and composition of its debt, but also—through its powers over money and banking—the character of the market for its securities. Public debt is thus linked with the problem of monetary management.<sup>60</sup>

When private enterprise finds it unprofitable to expand and does not absorb outside capital, the government may find it desirable, and through its monetary powers possible, to expand the volume of its own borrowing (e.g. to maintain relief payments). Hence government borrowing may sometimes be at the expense of private financing and sometimes quite unconnected with it.

### Supplementary Note

At several points in the above discussion the statement is made that the purchase of government bonds by the banking system need not bring about a decrease, and may even bring about an increase, in the volume of member bank excess reserves. This may require some amplification by referring to some of the various possible changes as explained in the *Federal Reserve Bulletin*.

**Case 1. Public Buys Bonds.** If the public buys the bonds by means of checks drawn on their bank accounts, there is a temporary fall in excess reserves when the Treasury deposits the checks at the Reserve Banks, but this temporary fall is removed when the government spends the money:

"Let us now consider the case in which the public buys new securities. Certain individuals and corporations exchange a portion of their spendable funds for government securities by drawing checks on their bank accounts. The Treasury deposits these checks in the Federal Reserve

<sup>60</sup> Hart, *op. cit.*, p. 220. Cf. Simeon E. Leland, "Management of the Public Debt after the War," *American Economic Review*, Supplement Vol. 34, June, 1944; and Charles C. Abbott, *Management of the Federal Debt* (New York: McGraw-Hill Book Co., 1946).

banks, which in turn charge them to the member banks' reserve accounts. Up to this point, therefore, there has been a decrease in bank deposits and in member bank reserve balances. When the Treasury disburses the funds derived from the sale of its securities by drawing checks on the Federal Reserve banks, those receiving the checks deposit them with their own banks; the banks in turn deposit these checks with the Federal Reserve banks, and thus banks' deposits and reserves are increased. All factors in the reserve situation—deposits, required reserves, and total reserves—are restored to their former level.”<sup>61</sup>

**Case 2. Member Banks Buy Bonds.** If member banks buy the bonds, their reserve balances are temporarily reduced but are replenished when the government spends the money it receives. The ultimate effect is an increase in deposits, an increase in required reserves, and, since reserve balances are unchanged, a fall in excess reserves:

“Let us first consider the case in which banks do the purchasing. The banks pay for these securities in one of two ways: either by drawing checks on their reserve balances at the Federal Reserve banks, or by giving the government deposit credit on their books. In so far as the banks make payment immediately ‘in cash,’ that is, in checks drawn on reserve balances, the debiting of the checks to those accounts results in a diminution of the total reserves of member banks. But the decrease is only temporary. When the government disburses the proceeds of the loan, as it usually does in the course of a relatively brief period, it draws on its balances at the Federal Reserve banks; these checks flow into the hands of individuals and corporations and are deposited in various banks, and as the banks in turn deposit the Treasury's checks with the Federal Reserve banks, member bank reserve balances in the aggregate are restored to their former level. The net result of this borrowing and spending operation, therefore, is that bank deposits have increased, while total reserve holdings of all banks have remained unchanged. Since an increase in deposits calls for a larger volume of required reserves, the required portion carried as excess reserves has declined.

“If instead of making payment in cash the banks pay for new securities by giving the government deposit credit on their books, as they frequently do, the net result is the same although the order of events is somewhat different. Total bank deposits immediately rise as the banks credit the Treasury's account, required reserves increase fractionally, and since total reserves remain unchanged, excess reserves decline. Sub-

<sup>61</sup> *Federal Reserve Bulletin*, January, 1940, p. 10.

sequently, when the Treasury calls on the banks for these funds, and they are drawn into the Federal Reserve banks, member bank reserves temporarily decline. But after the funds have been disbursed by the Treasury, the end result of the entire operation is an increase in the public's deposits and an increase in required reserves; total member bank reserve balances have been restored to their former level, and excess reserves have been diminished."<sup>62</sup>

**Case 3. Member Banks Resell Bonds to Reserve Banks.** If the member banks resell to the Reserve Banks the bonds they have purchased from the Treasury, or if the Reserve Banks should buy the bonds directly, reserve balances and member bank deposits rise equal amounts after the Treasury spends the money.<sup>63</sup> Since only part of the increase in reserve balances is required for the increased deposits, excess reserves rise:

"When the Reserve Banks buy United States Government securities or make advances, they put reserve funds at the disposal of member banks, and thereby increase their lending power."<sup>64</sup>

<sup>62</sup> *Federal Reserve Bulletin*, January, 1940, pp. 9-10.

<sup>63</sup> If the Reserve Banks buy from the Treasury and the latter deposits the money with the Reserve Banks, then the increase in member bank reserve balances occurs only after the Treasury spends the money.

<sup>64</sup> *Federal Reserve Bulletin*, February, 1941, p. 113.

## Economic Limits to the Public Debt

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We have all seen cartoons of a new-born babe with a millstone around its neck reading “\$2,000 per capita public debt,” or words to that effect. The impression that is intended is that the poor child is born with an obligation in the form of the per capita public debt and is thus under a financial handicap from the beginning through no fault of his own.

The same pictures should also show the child grasping in his hand a government bond reading “\$2,000 per capita public debt” or whatever the amount is at the time. For just as his share of the debt *owed* is \$2,000 so is his share of the debt *owned*, since only a negligible portion of government debt in the United States is owned outside the United States. It is clear that the per capita domestic debt owned is the same as the per capita domestic debt owed. The child is born under no financial handicap.

What, then, are the issues involved in a domestically held debt? How high can the debt be permitted to go? Is there really any economic limit to the debt? The answers turn around the distribution of debt holdings, the tax structure, the transfers from taxpayers to bondholders, the effects, if any, on the distribution of wealth and income, and the resulting or independent effects on economic activity. The subject of limit to the public debt is part and parcel of the general problem of the economic effects of government borrowing. In this case *all* aspects of public debt must be considered—borrowing, spending, taxing, and repaying. Economic limits to the public debt depend on the economic effect of all instruments of government finance.

### Impact of Public Debt upon the Economic System

The depression of the '30's and the defense program which was undertaken at the end of the same decade directed attention to the place of public debt in the economic system. We need not go far to find the

reasons. The gross public debt of the Federal Government rose from \$16.19 billion in the fiscal year 1930 to \$40.44 billion in the fiscal year 1939<sup>1</sup> and \$42.97 billion in the fiscal year 1940.<sup>2</sup> At the end of the calendar year 1940 the figure was \$44.46 billion.<sup>3</sup> The trend of debt which was then expected for the following few years is indicated by the increase in the legal debt limit to \$65 billion in 1941.<sup>4</sup>

The question which was asked and is still pertinent despite our present debt of about \$250 billion is, How high can we safely permit the public debt to be? Related to this question is a congeries of problems connected with the types and amounts of taxation and borrowing which are employed in financing any level of spending. Solutions to these problems must be based upon an analysis of the manner in which various aspects of public debt operations affect the economic system, taking into consideration the contemporary institutional set-up. Only when this analysis is completed are we in a position to consider fully the implications of a public debt program and relate these implications to the question of economic limits to the debt. A full consideration of the economic effects of public debt is thus a prerequisite and component part of a discussion of debt limits.

**Points of Impact.** There are two methods of financing a given volume of government expenditures: taxation and borrowing (including what is virtually printing money or creating credit where borrowing from banks is in excess of savings deposited in them). In comparing these two methods we must consider not only the effects of taxation on the one hand (i.e. *taxation now*) and borrowing on the other (i.e. *taxation later* when revenues must be raised to service the debt), but we must also take into account the following: the effects which the borrowing of the funds in itself may have upon the capital market and through it on other factors in the economy; the effects of the public expenditures made possible by the funds obtained; and the effects of repaying the debt with the possible repercussions upon purchasing power, availability of credit, etc. Thus in studying the economic effects of a public debt program we should really consider the effects of (1) borrowing, (2) spending, (3) taxing, and (4) repaying. Chronologically speaking, several of these aspects may coincide, but for purposes of analysis each may be considered separately and has been considered separately in earlier parts of this book.

<sup>1</sup> *Annual Report of the Secretary of the Treasury*, 1939, pp. 450-51.

<sup>2</sup> *Federal Reserve Bulletin*, February, 1941, p. 149.

<sup>3</sup> *Ibid.*, "Banking and Treasury Finance in 1940," p. 90.

<sup>4</sup> The debt limit is currently \$275 billion.

The independence of the various instruments of government finance is particularly noteworthy where there is a large and flexible working cash balance. Now that each aspect has been studied alone they may all be combined to give us a picture of the potential effects of the public debt program as a whole.

**Complexity of the Problem.** It will be evident that a study of this sort touches upon virtually every aspect of our economic life and presents serious problems of analysis. The economic system is so complicated, every variable has so many determinants, and interrelations among variables are so great that at best we can merely expect to indicate tendencies which manifest themselves under various special sets of conditions. Some of the more important factors and limitations are discussed in the following statement of Adams:

In tracing the industrial effect of loans, much depends upon the purpose for which money was borrowed; upon the nature of the transaction; upon the industrial condition of the people who bear the loan; upon social relations as indicated by the distribution of property among the people; upon the varying sums in which the loan is held, and the comparative numbers that become creditors of the state, as also upon the other conditions that will readily suggest themselves to the reader. Nor are loans themselves homogeneous, but vary in character as do the circumstances under which they are issued. Our conclusions, therefore, respecting the industrial effects of public borrowing must be hypothetical rather than general, and particular rather than universal. We can not expect to discover any grand principle by which financing may be reduced to rule, but we may hope to become more perfectly acquainted with the nature of deficit financing and to formulate certain maxims which will be of assistance in the practical administration of treasury affairs.<sup>5</sup>

**Dangers in Private Analogies.** Another element of complexity lies in the fact that analogies based upon private economic activity frequently lead to the most erroneous conclusions. There are fundamental differences between the effects of certain types of activity undertaken by private individuals and the effects of such activities undertaken by the economy as a whole. The complexity of the problems involved is, unfortunately, not generally recognized, with the result that we hear many glib statements regarding the disastrous effects of a deficit-spending program. The conviction that there is something inherently wrong in such a program is so deeply ingrained in the thinking of the American public as to be considered one of our social institutions. Dan Throop Smith presents an interesting statement of this point:

<sup>5</sup> H. C. Adams, *Public Debts*, pp. 52-53.

The view that deficits are destructive of the all-important element of business confidence may be presented in many ways. One has only to think back to the newspaper reports of 1931-32 to recall the simple and direct manner with which one was informed that an unbalanced budget was "dangerous," "cowardly," and, above all, "unthinkable." This somewhat negative and even adjectival attitude received perhaps its most spectacular manifestation when Vice-President (then Speaker) Garner brought the members of the House of Representatives to their feet by challenging all those who did not favor a balanced budget to remain seated.<sup>6</sup> On purely scientific grounds one might be inclined to ridicule such performances and speak of circular reasoning where the circle has a radius approximating zero. But this almost instinctive and intuitive belief in the sanctity of balanced budgets must not be treated lightly.

In past centuries unbalanced budgets have been associated with, and in many cases the cause of, calamitous events. The general opinion has come to be that such disasters follow as inevitable results, and, almost as a part of our heritage, deficits have been viewed as portentous. On the whole this popular belief is a most fortunate public safeguard. The acceptance of the view that unbalanced budgets are dangerous, even if it is at times unreasonable, serves as a check against legislative excesses.<sup>7</sup>

Essentially our task is to determine whether and to what extent this instinctive distrust of deficit spending is economically defensible; i.e. to what extent there are economic limits to the public debt.

**Significance of Unemployed Resources.** The existence or absence of unemployed resources is of peculiar importance in evaluating public borrowing. But the question of unemployment is not merely one of quantity; it is one of quality as well. There may be a shortage of labor in one type of activity and a surplus in another. This fact, true in general, is of particular importance if we relate our analysis, as we attempt to do, to the contemporary American economy. The unemployment situation of the '30's, with respect to both manpower and productive capacity, has been summarized in a very comprehensive and yet concise manner by Professor Alvin Hansen whom we take the liberty to quote at length:

When the vastly expanded defense program was undertaken in 1940, we were still a long way from full employment. Accordingly, expansion of output and employment to take care of the needs of defense, and even to increase civilian production, was possible . . . Employment averaged about 47 million persons, slightly above the 1937 level and about one million persons below the average for 1929. Since the labor force for 1940 was estimated at about 56 millions, some 9 million persons were unemployed—about 8 million by the end of the year. While some part of this number is more or less unemployable, one should remember that probably 2 to 3 million surplus workers, counted as employed in agriculture, are ready to

<sup>6</sup> Congressional Record, 72nd Congress, 1st session, p. 7028 (March 29, 1932).

<sup>7</sup> Dan Throop Smith, *Deficits and Depressions* (New York, 1936), p. 170. [With the permission of John Wiley & Sons, Inc., publishers.]



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seek jobs in urban industries whenever opportunity affords. Moreover, the World War experience indicated the existence always of a vast potential labor supply which can readily be drawn into the labor market when labor scarcity becomes intense . . .

With respect to plant and equipment, the possibilities for expansion have been shown to be enormous in the non-continuous process industries.<sup>8</sup> Two or even three shifts could be introduced, if necessary, thus providing greatly expanded output without any large capital outlays. To some extent a lengthening of the work week in the more essential industries, on the basis of overtime, would be helpful. The system of overtime may indeed be a quite scientific method of automatically adjusting wage rates in boom industries. The situation is most critical in steel, a continuous process industry; here at the end of 1940 we were already operating close to 100 per cent of capacity.<sup>9</sup>

The existence of unemployed resources, i.e. the possibility of expansion of our production, must play a crucial part in any consideration of the effects of a public debt program. At a time when there are virtually no unemployed resources, any growth in the public debt (or, perhaps, even the failure to reduce the public debt) must be viewed in a different light than at a time of widespread unemployment.

**Method of Analysis.** In attempting to reduce the problem to manageable proportions we are greatly aided by the fact that certain practical considerations enable us to limit the possibilities greatly. These were mentioned in the preceding chapter. They are: the distribution of public debt ownership; the relative importance which public debt holds in Reserve Bank credit; the availability of credit; the Treasury's working cash balance; and the Treasury's attitude toward an easy money policy. There are, of course, other institutional factors, such as the existence of various degrees of monopoly, which influence the analysis at various points. With these considerations in mind, we may review the effects of public debt at each point of impact upon the economic system: borrowing, spending, taxing, and repaying. Then in order to draw together the conclusions derived we deal with the effects of the public debt program as a whole in relation to such factors as production, prices, and business activity; savings and capital formation; distribution; the burden and finally limit of the public debt. At various stages in the analysis reference is made to statistical data, and in some cases a combined theoretical-statistical analysis is undertaken. Since we are not here concerned with the history of thought in the field of economic effects of public debt, no

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<sup>8</sup> See George Terborgh, "The Problem of Manufacturing Capacity," *Federal Reserve Bulletin*, July, 1940, pp. 639-46.

<sup>9</sup> Alvin H. Hansen, "Defense Financing and Inflation Potentialities," *Review of Economic Statistics*, February, 1941, p. 1.

comprehensive attempt is made to provide references to the literature on the subject.

### Relations Between Public Debt and Economic Activity

In considering the effects of public debt upon production, income, prices, and other economic variables which go into the concept of economic activity, we must take account of all aspects of the government's borrowing operations. We must consider the effects of the flotation of the bonds, of the spending of the money involved, and of the servicing of the debt. Moreover, in this analysis we cannot assume that the causal relation necessarily goes from public debt to economic activity. Hart has said that debt changes are both the cause and the effect of prosperity and depression.<sup>10</sup> This does not mean, of course, that every particular situation is a hopeless hodgepodge of causal interrelations. In some cases, particularly if we introduce the concept of time-lags, it is not difficult to trace the causal analysis step by step in one direction. One writer, Ackerman, to mention an extreme view, emphatically disapproves of any implication that the direction of causation during the period 1929-37 was from depression to debt.<sup>11</sup> Causal effects took place in both directions, but this does not mean that we must give up any attempt to find a predominant causal relation in one direction or the other.

Any statistical analysis of the relation between public debt and economic activity is faced with definite limitations. For one thing, regardless of how many leads or lags we may discover, the statistical analysis in itself cannot tell us the direction of causation in any particular instance. Moreover, and partly as a result of this, it cannot tell us the relative importance of various factors in a causal relationship. The best we can do is keep in mind the conclusions to which theoretical analysis leads us and see which of these conclusions may be eliminated as being inconsistent with the facts. For instance, a theory telling us that public deficits necessarily lead to inflation would be hard put to explain a statistical analysis which shows that there have been periods of increasing deficits accompanied by falling prices. The theory would, at least, have to be recast in terms of deficits *ultimately* leading to inflation, or public deficits being other than the predominant factor affecting prices. Qualifications such as these are of the utmost importance and any statistical analysis that can point definitely to the necessity of such qualifications

<sup>10</sup> A. G. Hart, *Debts and Recovery*, pp. 6-8.

<sup>11</sup> *Ibid.*, p. 248, n. 4.

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serves a useful purpose even though it cannot categorically answer the central question of causal direction.

### FLUCTUATIONS IN THE PRICE LEVEL

There are a number of ways in which changes in the public debt may affect the price level. At the time of borrowing, the price level of private securities may fall if holders of private bonds find it necessary to sell their holdings in order to purchase government bonds. Moreover, if the issue of public bonds has induced an amount of savings which would not otherwise have taken place, there would be a tendency for diminished purchases and thus for prices to fall. At the time of spending the money (as pointed out above, the existence of a large governmental cash balance means that the time of borrowing need not coincide with the time of spending) there will be a tendency for prices to be bid up in so far as government competes with private demands. The existence of a large volume of unemployed resources, however, would reduce the strength of this tendency. Rising prices in turn reduce the cost of the debt in terms of goods but impose a penalty on the holders of the debt; falling prices increase the cost of the debt in terms of goods but constitute a wind-fall to holders of the debt. The interrelations of debt, price change, and economic fluctuations are of prime importance in determining the burden of the debt.<sup>12</sup>

In the raising of revenue for repayment there are conflicting tendencies. Income taxes which impinge on consumption would tend to lower the price level through reduced expenditures, whereas taxes on commodities would tend to raise prices in so far as they are passed on. At the time of servicing the debt (again a large governmental cash balance means that the time of servicing of the debt and the time of raising the taxes need not coincide), there will be a tendency to raise the prices of both private securities and commodities through investment or expenditure of the funds released.

**Historical Relationship.** The following historical study does not enable us to tell the strength of the conflicting tendencies which exist

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<sup>12</sup> See S. E. Harris, *The National Debt and the New Economics*, especially Chapter 11 (New York and London: McGraw-Hill, 1947). Cf. Evsey D. Domar, "The 'Burden of the Debt' and the National Income," *American Economic Review*, December, 1944, pp. 798-827; and Abba P. Lerner, "The Burden of the National Debt," in *Income, Employment, and Public Policy: Essays in Honor of Alvin H. Hansen*, pp. 255-75 (New York: W. W. Norton & Co., 1948).

Sources of the following data: federal debt, U.S. Treasury; wholesale prices, U.S. Bureau of Labor Statistics; business activity, National Bureau of Economic Research.

but does permit us to tell whether the net effect of a change in debt has been strong enough in itself to result in a rise or fall of prices. The variable "annual changes in the federal debt" gives us roughly the net effect of the increase in the debt caused by deficit spending and the decrease brought about through retirements. We may compare this variable with wholesale prices of commodities.

The gross federal debt fell from \$86.43 million in 1803 to \$45.21 million in 1811. During this period wholesale prices first rose from 93.9 in 1803 (1926 = 100) to 104.2 in 1805, then fell to 93.9 in 1808, rose again to 107.7 in 1810, fell to 104.9 in 1811. Here obviously no consistent relationship one way or another can be found. From 1811 to 1815, public debt rose from \$45.21 million to \$127.33 million, then it fell to \$89.99 million in 1820 and rose somewhat to \$93.55 million in 1821. Wholesale prices also rose after 1811, the rise reaching a peak of 154.6 in 1814. Subsequently, it consistently declined, with a slight break in 1817 to 73.2 in 1821. In this period, substantially speaking, public debt and commodity prices rose and fell together, a pattern which is consistent with a theory that government deficit spending is a *predominant* fluctuating factor influencing prices.

From 1821 to 1834, there was a consistent fall in the public debt from \$93.55 million to \$0.03 million. Wholesale prices rose slightly from 1821-1822, but then fell consistently from 75.2 in the latter year to 65.6 in 1830; after a rise to 71.7 in 1832 it fell again to 65.6 in 1834. During the greater part of this period of net-repayment of the debt, it will be seen that public debt and prices moved together. From 1834 public debt rose with some significant fluctuations to \$68.3 million in 1851. There was no comparable rise in wholesale prices. In fact, the figure in 1851 was 64.5, slightly below the 65.6 of 1834. Public debt fell from 1851 to 1857, reaching a low of 28.70 in that year, and then it rose with the Civil War to a high of \$2.8 billion in 1866. The pattern of prices, although not coincident with this, was largely similar, a low of 60.9 being reached in 1860 and a high of 132.0 in 1865. Here again the theoretical explanation would run in terms of substantial effects of deficit spending occasioned by the war.

Public debt declined sporadically but nevertheless substantially from 1866 to 1893, when a low of \$961.43 million was reached. Prices also exhibited a substantial decline in this period, although the patterns did not quite coincide, the low of 46.5 being reached in 1896. During the period 1894 to 1916, no very significant movement in the public debt took place, the range being between \$1.0 billion and \$1.4 billion. Prices,

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however, tended to rise in the period, although substantial fluctuations did take place. The two series fluctuated diversely during this period without any marked relationship. The World War I peak in the public debt, 25.5 billion, was reached in 1919, with a consistent decline thereafter to 16.2 in 1930. Since then, of course, there has been a precipitous rise, the figure 40.4 being reached in 1939. The peak in wholesale prices, 154.4, came in 1920, and then there was a rather choppy fall to a low of 64.8 in 1932. Subsequently there was a rise of 86.3 in 1937 and a fall of 77.1 in 1938. Except for this last decrease the two patterns had a great deal of similarity. One cannot, however, attribute the fall in prices from 1937-38 to the small increase of only 0.7 billion in the debt in 1938 without being confronted by the fact that prices continued to fall in 1939 even though the increase in the debt that year was \$3.3 billion.

**Interpretation of the Historical Data.** The above analysis warrants certain observations regarding the historical behavior of the federal debt and prices. Only when great increases or decreases in the debt have taken place, e.g. with wars or severe depression, has there been any evidence of similarity in the patterns of debt and prices. During ordinary times there was no consistent relation one way or the other. This assists us in evaluating tentatively the role of public debt in the price system. The magnitude of public debt is not sufficiently great in ordinary times to have a predominant influence on the level of prices. It is only in extraordinary times the volume of deficit spending has reached such proportions as to offset the numerous counter-tendencies that exist in affecting prices.

## FLUCTUATIONS IN BUSINESS ACTIVITY

The analysis of the relation between public debt and business activity must likewise take account of all aspects of public debt operations: borrowing the money; spending it; raising the money for servicing the debt through tax revenues; and, finally, servicing the debt. In borrowing the money the government may affect business enterprise unfavorably if it attracts capital which would otherwise have been spent or invested in private enterprise or if it creates a general lack of confidence. At the time of spending the money, a favorable effect on business may occur through induced consumption and investment.

Tax revenues would tend to depress business so far as they impinged on consumption or restricted the flow of capital for private enterprise; provided the latter actually raised the cost of financing and restricted capital formation. The servicing of the debt would tend to promote busi-

ness activity in so far as it increased consumption or eased the money market for private enterprise. In addition to these factors, since business expectations are to a large extent a function of business confidence, we must consider the effects of a deficit-financing program on confidence. The net effect of all these factors may be judged roughly by comparing changes in the public debt with the high and low points in business activity over an extended period. Mitchell's designation of high and low points is used below.

**Historical Relationship.** The federal debt fell to a low point of \$28.70 million in 1857 after a steady decline from 1851 when the figure was \$68.31 million. This low point of 1857 coincides with a high point in business activity, achieved in 1857. This was followed by a low point in 1858. In the period 1857 to 1866, when a continued rise in the public debt took place, reaching a high of \$2.76 billion in the latter year, there were two high points and two low points in business activity. The high point of 1860 coincides with an increase of \$6.34 million and the low point of 1861 with an increase of \$25.74 million. The high point of 1865 coincides with public debt increase of \$0.86 billion. The low point in business activity in 1867 coincides with a fall to \$0.11 billion in the federal debt.

From 1866 there took place an almost steady decline in the federal debt to the year 1893, when the figure was \$96 million. During this period (leaving out 1867 which was previously considered) there were six high points and six low points. The high point of 1869 coincided with the fall of \$38.34 million, a smaller amount than in the previous two years. The low point in 1870 coincided with a fall of \$108.66 million, which was greater than in the previous three years. The business high point of 1873 coincides with the fall in the public debt of \$58.76 million which was less than the previous three years. The low point in 1879, however, corresponds to an increase of \$139.49 million in the public debt. The high point of 1882 corresponds to a debt fall of \$162.37 million, which was more than the fall of \$71.62 million of the previous year, 1881; the low point of 1885 corresponds to a relatively small decrease in the public debt of \$46.76 million. In the year of the next high point, 1887, the fall in the public debt was greater than this, \$90.17 million, and much greater than the previous year's fall of only \$22.89 million. The low point of 1888 coincides with the fall of \$80.86 million in the public debt, somewhat smaller than the previous year. The business high point of 1890 occurred during a much greater fall of \$27.07 million in the public debt. The low point in the following year coincides with a decrease in the

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public debt not significantly different, \$116.59 million. The decrease in the public debt became smaller during the next two years and reached a low of \$6.79 million in 1893 when there was a high point in business activity.

The next period, 1894–1916, is one of various fluctuations in the public debt, increases taking place to 1899, decreases to 1905, increase again to 1908, then alternating falls and rises of two years each for the remainder of the period. The low point of 1894 coincided with an increase of \$55.47 million. For the next high point, 1895, this increase in public debt had risen to \$80.01 million. Then after a greater increase of \$125.82 million in 1896, there was a sharp drop in the increase of \$4.06 million in 1897. In that year there was a low point in business activity. The increase in debt remained small the next year, being only \$5.95 million, but then took a great jump to \$203.96 million in 1899, when there was a high point in business activity. This large increase in the public debt was suddenly converted into a great decrease of \$173.28 million in 1900, in which year there was a low point in business activity. The decrease in debt slacked off during the next two years, being 41.85 in 1901 and 43.54 in 1902, in which year there was a high point in business activity.

During the next few years, however, the decrease in debt was even smaller (\$18.62 million in 1903, \$23.15 million in 1904, and \$3.90 million in 1905) yet there was a low point in business activity in 1904. In the year 1906, a slight increase of \$10.16 million took place and this was followed by a smaller increase of \$4.66 million in 1907, when there was a high point in business activity. During the next year, however, when an increase of \$30.51 million took place in the debt, there was a low point in business activity. During the next two years, there was a fall in debt and a high point in activity during the latter of the years, 1910. The increase in debt during the years 1911 and 1912 corresponds with a low point in activity in the latter year. In 1913 the debt increase of \$39.86 million of the previous year was converted to a fall of \$0.79 million and coincided with a high point in business.

In 1914 there was a low point, although the debt continued to decrease to the extent of \$4.81 million. From then on debt increased to the tune of \$9.27 billion in 1918 when a high point in business activity was reached. In the next year, however, there was a low point, yet debt increased by the enormous amount of \$13.24 billion. The high point of 1920 and the low point of 1921 both coincide with falls in public debt to \$1.18 billion and \$321.67 million, respectively. The high and low points of 1923–24, respectively, likewise correspond with continued falls in the

debt, this time in the reverse order of magnitude, \$614.39 million in the former year and \$1.10 billion in the latter. For the high and low points of 1926 and 1927 respectively, this order was maintained, the falls being \$873.90 million and \$1.13 billion respectively. The high point of 1929 corresponds with no significant change in the rate of decline in the public debt, the figure for that year being \$673.09 million and for the previous year, \$905.88 million.

Since 1931 there has been a continued increase in the public debt (with the exception of the most recent years) with a business low of 1933 again coinciding with no significant change in the rate of increase in the public debt, the figure for that year being \$3.05 billion and for the preceding year \$2.69 billion. The business high of 1936 coincided with a high point of \$4.84 billion increase in the public debt; the low level of business activity in 1937 and 1938 coincided with falls in the increase of the public debt from \$4.84 billion in 1936 to \$2.88 billion in 1937 and \$0.74 billion in 1938. Subsequently there was an improvement in business and a rise of \$3.28 billion in the public debt.

**Interpretation of the Data.** From this analysis it is evident that there is no consistent statistical relationship between public debt and business activity. The statistics are, however, interesting in emphasizing the necessity of taking account of different types of factors in various periods for the explanation of the relative changes in debt and business activity. For the earlier period, the amount of change in the public debt, or change in the rate of change, was not so great as to make it possible for us to find a markedly consistent relationship. During the period before the 1930's, by and large, business depression seemed to move in the same direction as debt changes. The economic explanation of this would probably run in terms of deficits resulting *from* falling business. In more recent years, however, the role of public debt became so important that we could see a definite relationship of the opposite sort. Increases in the rate of growth of debt were associated with improved business conditions and reductions in the rate of growth were associated with depressed business conditions. These statistics seem to warrant an explanation of the relation between public debt and business activity, giving an active role to the former. The consistency of the statistical results with the theoretical analysis strengthens the belief that the latter contains the major factors to be taken into account.

#### SAVINGS AND CAPITAL FORMATION

The preceding chapter on the important subject of the relation between public debt and the private capital market included a discussion



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of the effects of public debt upon savings and capital formation at the time borrowing takes place. We may briefly summarize these findings and then consider broadly the effects of other aspects of deficit spending, i.e. expenditures, taxation, and debt service. The term "savings" is used here to mean voluntary savings and not total actual savings. In the latter sense savings would equal net capital formation in any period.<sup>13</sup>

**Borrowing the Funds.** The flotation of the bonds ordinarily will not affect the volume of savings at all. Since the money is usually loaned voluntarily, it may be expected that the volume of savings will remain unchanged, a mere transfer of the funds taking place. There are, however, several exceptions to this. In time of war, when patriotic feeling is at its height, the existence of the bonds (or war savings stamps, or similar instruments) may in themselves promote some saving which would not otherwise take place. Even in ordinary times the existence of a convenient method of saving for the future, e.g. by means of the United States Savings Bonds, may induce some people to curtail their consumption in order to provide for the future. Forced saving through a price rise resulting from borrowing through credit inflation may also be considered an exception (and thus would take place only under such circumstances as full employment or "bottlenecks"). By and large, however, the flotation of the bonds does not affect the rate of saving.

The effect on the actual formation of capital is, however, another matter. In cases where bank credit is not readily available, it may be expected that an increase in government borrowing on the open market will result in a reduction in the volume of funds available for private enterprise. Unless corporations take stringent measures, such as a violent increase in business savings, the cost of financing capital investment would be expected to rise and a curtailment of investment would result. In cases where bank credit is available for financing investment (either short-term through a bank loan or long-term through a purchase of private securities), the curtailment in the formation of capital will be negligible if it occurs at all. Particularly in times when the low level of investment is due mainly to the unprofitability of expanding plant rather than to the high cost of capital financing, we may expect that there will be virtually no detrimental effects on capital formation through the act of public borrowing taken by itself.

<sup>13</sup> It is extremely important to understand these distinctions if confusion is to be avoided. See the items listed in Harold M. Somers, "Classified Bibliography of Articles on Business Cycle Theory," *Readings in Business Cycle Theory* (Philadelphia: The Blakiston Company, 1944), pp. 452-53.

**Spending the Borrowed Money.** Public expenditures tend to cause an upward movement in national income through the operation of the multiplier principle. This movement would usually also tend to be stimulated by private investment induced by the increased purchasing power made available by the government. These matters have been discussed in Chapters 4, 5, and 6.

It is conceivable but not very likely that the public expenditures and the attendant increase in the public debt will by its very existence affect business confidence so unfavorably as to cause a decline in private investment which would offset or more than offset the favorable effects of the government expenditures. This is, however, a most unlikely type behavior. As national income rises, savings will also rise, and, according to the "psychological law" of Keynes, will form an increasing proportion of the increased income. In other words, although both consumption and savings will increase, the volume of savings will rise relative to that of consumption.

The effect on the formation of capital will tend to be favorable up to a point. The increased purchasing power will increase the profitability of the heavy industries. The acceleration principle postulates that any increase in the rate of increase in consumption will, after a high level of employment of resources has been reached, tend to promote a relatively large percentage increase in the production of investment goods. This is, however, only one element in the complicated subject of the inducement to invest. A problem may arise in the increased volume and proportion of savings. Such savings mean that the increased volume and proportion of income paid out by businessmen will not be returned to them for the purchase of consumption goods. Unless this "gap" is filled by investment in some manner or other, either public or private, losses and a reduction in income, savings, and capital formation will result. In buoyant times the problem is not a substantial one since private business will fill, and more than fill, the gap. This will result from favorable long-term expectations. But in times of what may be called hand-to-mouth investment, e.g. as often alleged in the period preceding the 1937 downturn, it is necessary to have a continued supply of public expenditures in order to prevent a fall in savings and capital formation.

**Taxation for Debt Service.** Taxation may be regarded as a forced transfer of savings, from the taxpayer to the government. The taxes may conceivably be paid from that part of the individual's income which he has saved so that the tax does not result in a reduction of his consumption. This is not a very likely situation. Ordinarily taxes will reduce both

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consumption and saving. The taxes are ordinarily paid partly out of consumption in the sense that consumption is curtailed as a result of the tax.

It is necessary to extend the analysis to include the case where the tax in itself has beneficial or harmful consequences (we are not here considering the effects of the expenditure of the tax revenues). Excessively onerous business taxes, for instance, might tend to discourage enterprise and thus reduce income and savings. On the other hand, incentive taxation which would have the opposite effect will increase income and savings. Moreover, where the tax involves a transfer of forced savings, i.e. it impinges on consumption, it might tend to discourage business enterprise and thus lower income and savings. Finally, if credit is not freely available for private enterprise, the transfer of voluntary savings to the government will raise the cost of private financing and thus again might have a detrimental effect.

The effect on the formation of capital is closely related to the above. If enterprise is encouraged, e.g. through the (unusual) cases of incentive taxation, the formation of capital will be promoted. Otherwise any reduction in consumption or tightening of credit or direct impingement on the rate of profit will tend to have a detrimental effect upon capital formation.

**Debt Service and Repayment.** Interest on the public debt is considered income by the recipient and may be saved or consumed as with all income. If, taking the economy as a whole, this interest income supplants income which would have been derived from private enterprise, then public debt cannot be said to have had any net effect on income and savings. But if, as under present conditions, it is the more usual case, the flotation of the government bonds has not interfered with private investment and the income derived therefrom, then interest on the public debt constitutes a net addition to the money income of the community and thus an increase in part at least in the rate of saving.

The repayment of the principal involves a transfer of "capital" and thus cannot validly be considered to have any effects whatever on either the size of private wealth or its distribution or the rate of saving. The only exception to this is the case where the government bond represented a temporary investment to the individual and the retirement of the bonds indicates the time when the individual will begin the consumption of his capital. In such cases, debt retirement tends to reduce savings and promote consumption.

The possible effects on the formation of capital are not, however, so limited. Although the volume of private saving remains substantially

unchanged by virtue of debt service and retirement, the amount of savings available for *private enterprise* is increased or, at any rate, the debt holder has the decision open to him as to whether he should invest in private securities or in government bonds again. This in itself would tend to ease credit conditions and thus tend to promote any capital formation which has been held back by lack of funds. As pointed out repeatedly, however, under current conditions most capital formation, if it is held back at all, is held back by the uncertainty surrounding profit expectations rather than the cost of financing.

**Conclusions on Effects on Savings and Capital Formation.** In picking up all these ends and evaluating the net effect of a public debt program on savings and capital formation, we shall limit our problem to conditions where a large reserve of private capital is available and where the Treasury can virtually manufacture credit for its own purposes at will. In such cases a public debt program would likely have the following effects on savings: (1) At the time of borrowing, none; (2) at the time of expenditure, an increase; (3) at the time of taxation, none; and (4) at the time of repayment, a slight increase. In short, a public debt program taken as a whole can be so managed as to have a favorable effect, if anything, upon the rate of savings. This favorable effect, it will be noted, will come through the increased income and not through an impingement upon consumption at a given level of income.

Therefore capital formation will not be detrimentally affected on the demand side; and if credit is sufficiently freely available will not be detrimentally affected on the supply side through a scarcity of loanable funds. On the contrary, the increased consumption resulting from the increased income will tend to promote capital formation.

#### DISTRIBUTION OF WEALTH AND INCOME

We have some basis for a consideration of the effects of a public debt program upon the distribution of wealth and income. The flotation of the bonds has no effect since the borrower is as wealthy after as before. The expenditure of the funds in itself has an indeterminate effect. In the first instance the funds may go to poorer individuals, thus tending to even out the distribution of income. As soon as the money is spent by these individuals the usual economic forces operate and income is distributed largely in accordance with the prevailing pattern.

The effects of taxation will depend on the extent to which the tax structure is progressive. The servicing of the debt will provide income for the wealthier individuals who are preponderantly the owners of the

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bonds, either directly or indirectly through corporations. This implies an increase in income of wealthier groups, provided that income from corporate securities has not been affected. The repayment of the debt will have no effects in this respect since the holders of the bonds are then merely exchanging one form of private wealth for another. Thus a public debt program may (barring a regressive tax system) if properly managed, increase national income and thus presumably the wealth of all income groups. It will also have a tendency to increase differences in the distribution of income unless the tax structure is sufficiently progressive. The progressiveness would have to be enough to offset the increased income going to the higher income groups as a result of both the interest payments (assuming that the volume of corporate interest payments is not changed by the availability of government bonds) and any tendency for the public expenditures to gravitate to these groups, via profits.

### CONCLUDING NOTE ON ECONOMIC EFFECTS

From the above observations of the probable relation between public debt and various aspects of economic activity, we may conclude that in extraordinary times, when sharp increases in public debt take place, public debt has played a dominant role in economic life. In ordinary times, when the level of the debt has been relatively low, other factors have been sufficiently effective to offset any influence that changes in the public debt. The result has been that in such times no consistent relation may be expected between debt and economic activity.

The analysis indicates that it would be possible to obtain all the benefits of a public debt program without suffering any detrimental consequences. As soon, however, as the flotation of the bonds impinges on consumption and thus detrimentally affects the inducement to invest, or materially reduces the amount of credit available for private enterprise; and as soon as the public expenditures are undertaken in such a manner as to have a detrimental effect on business confidence, with a resulting decline in the formation of capital; and where the tax structure unnecessarily reduces consumption or discourages enterprise—then the effects on the formation of capital and thus of income are detrimental. The fear which many businessmen have of the public debt is alone sufficient to cause a decline in business activity. Professor Harris prescribes “a little homework” for the businessman on this subject.<sup>14</sup>

<sup>14</sup> See S. E. Harris, *The National Debt and the New Economics*, p. 26 and Chapter 5 (New York and London: McGraw-Hill Book Co., 1947).

### Burden of the Public Debt

The preceding discussion of the economic effects of the public debt provides a background for an approach to the more specific question of the burden of the debt. The time-worn question of the burden of the public debt is far from being settled. We must examine closely the meaning of the concept "burden" in this context, to see what is meant by those who glibly pronounce that "There is no burden to an internal debt" or that "Public borrowing cannot shift the burden of current expenditures to the future."

#### SOME SOURCES OF CONFUSION

There is an important sense in which statements like these are true. But there is an equally important sense in which they are false. The unfortunate thing is that these senses have become confused with the result that many attractive but erroneous statements have been made about the "debt burden" (and, as we shall see later, about the "debt limit").

**Strains and Frictions.** Those who say that public borrowing is merely a transfer from the right hand to the left are making a statement which is technically correct but which is very misleading; and which has been used in a misleading manner by economists as well as others. When one person owes some money to another living in the same house, we may say that the debt burden on the house as a whole is nil, but the internal strain of the borrowing, owing, and repaying may have the most important consequences. This point of view has been well expressed by Professor Wright:<sup>15</sup> ". . . the statement that an internally held public debt imposes no economic burden on society is not entirely true. The burden has been enormously exaggerated but it would be foolish to deny that it does exist. Strains and frictions may develop throughout the system." We may, if we wish, call the burden arising out of these "strains and frictions" a "fiscal" burden, on the grounds that the burden is on the Treasury, which has to make the transfers involved. But this is surely dressing the wolf in sheep's clothing, for all economic ills can probably be traced to "strains and frictions." If the concept of "burden" has any meaning in economics at all, it may certainly be applied to the burden involved in an internally held debt.

At the same time, this should not imply that we may ignore the purely fiscal burden, for the transfers involved pose serious questions

<sup>15</sup> David McC. Wright, *Quarterly Journal of Economics*, November, 1940, p. 129.

upon a Treasury which does not wish to upset either the capital market or production and consumption at the time of flotation or servicing of the debt. It is in light of this that we must interpret Hart's statement that there is no debt burden on the government.<sup>16</sup>

**Transfers of Wealth.** Another source of confusion which we must discuss briefly is the claim "Public debt increases the maldistribution of wealth and income," or "At the time of borrowing there is a transfer of wealth from bondholders to the public and at the time of repayment there is a transfer of wealth from the public to bondholders." These statements have an element of truth in them but again they are misleading and have been used in a misleading manner.

The first statement is true only *relatively*, i.e. when comparison is made with a highly progressive tax system. The purchaser of the government bonds has no greater share of the community's wealth after he purchases the bonds than before, nor has his income necessarily increased, for, by and large, he would have obtained an income from the use to which his resources were put before he purchased government bonds. The second statement is likewise misleading. The wealth of the bondholder is unchanged by the purchase of the bonds, hence the wealth cannot very well have been transferred to the government. What actually has taken place is a transfer of liquid private wealth (c.g. bank deposits) to the government in exchange for what is socially an illiquid claim (i.e. the government bond maturing in, say, twenty years) but what is privately actually quite liquid (since any individual can sell his bonds to obtain cash). One cannot even say that a transfer of a claim over social wealth has taken place since both bondholder and the government now have claims to social wealth. These two "confusions" may possibly be straw men, but, if so, they are straw men which have played a rather active role in the discussions of the past few decades.

**Shifting the Burden to the Future.** We must also consider the now less-disputed question of shifting the burden to the future. Agreed that the real burden cannot be shifted to the future, it still remains true that the burden involved in extracting money from taxpayers for servicing of the debt is shifted to the future and thus may be a burden of the greatest consequences. This point has been competently expressed as follows:<sup>17</sup>

Although as a nation we shall pay as we go, our government will have to spend money in colossal amounts. Must this money be borrowed, or will there be another

<sup>16</sup> Hart, *op. cit.* p. 219.

<sup>17</sup> Guy Greer, "Arming and Paying for It," *Harpers*, November, 1940, p. 650.

way to get it? Can we make our financial arrangements fit the fact that we are paying as we go, or must we add greatly to our already large internal debt? If we should do the latter in an effort to shift the burden to posterity we should be fooling ourselves. We should be postponing only the *distribution* of the burden, not the bearing of it. We should indeed be preparing a sorry mess for posterity, but it would not be the problem of paying for our armaments program. It would be the problem of making the descendants of most of us pay to the descendants of a few of us the enormous sums resulting from our national bookkeeping.

The burden of an entire deficit-spending program cannot of course be considered apart from the question of expenditures. As Professor Leland has said, "It is on the expenditure side of the book that the question of the real burden of payments is to be answered."<sup>18</sup> When we are comparing the effects of taxation and borrowing as *alternative* methods of financing a given volume of expenditures, we may, however, leave out of account the effects of those expenditures in evaluating the future burden of borrowing *per se*, since the effects of the expenditures would be common to both taxation and the borrowing. For a complete analysis one should, of course, take account of the detrimental effects of the taxation and also the detrimental effects, if any, of the flotation of the bonds. If we take the volume of expenditures as given, we need not consider whether the expenditures are productive or not in comparing the burden of present borrowing (i.e. future taxation under conventional budgetary practice) with the burden of present taxation.

**Postponing the Strains and Frictions.** Even though we reject the ordinary concept of an internal burden or of passing the burden to the future, we cannot, as pointed out above, neglect the fact that the existence of the debt means that the servicing of the debt involves a transfer from taxpayers to bondholders at some future date, with the attendant "strains and frictions." It is with respect to this future transfer that the much maligned measures of debt burden take on real meaning. These measures have been much abused and misunderstood, but when properly qualified they do give us a significant quantitative conception of the extent of the future burden—in terms of possible "strains and frictions"—involved in the servicing of the debt.

### MEASURING THE DEBT BURDEN

Essentially, measuring the debt burden involves comparing the size of the debt with meaningful economic concepts such as wealth or income. This is a useful comparison even though the proportion of debt to wealth,

<sup>18</sup> Simeon E. Leland, "Our National Debt," *Harvard Business Review*, Vol. 16, Spring, 1938, p. 267.



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for instance, does not necessarily mean that a transfer of that proportion of the wealth must be made. It is only through making a comparison with something else that we can obtain an idea of the magnitude of anything; and the comparison is useful even though there is no functional relationship between the two items compared. The fact that the comparison may be abused by those who do not comprehend its limitations is no reason why we must refrain from making the comparison ourselves.

The obverse of the problem of measuring debt burden is that of measuring debt-bearing capacity. It is difficult to decide just what constitutes the debt-bearing capacity of any country or governmental unit. This is especially true of course if the debt is internally held, in which case the debt is in the aggregate owned by the same people to whom interest payments are made. Transfers are involved from citizen to citizen via the government. What the maximum capacity is under such circumstances involves a consideration of the economic limits to the debt. Such being the case, it is no wonder that reliable measurements of debt-bearing capacity are not readily available since they would have to be created and interpreted with a full appreciation of the virtually unlimited problems considered in this chapter. "Measuring" the debt burden is one step in the analysis. In assessing the effects of the public debt it is useful to bear in mind economic measures of wealth and income without necessarily implying that the data used in such measures are functionally related. They are used merely as guideposts in determining relative magnitudes.

There are, of course, a great many relevant economic concepts with which we can compare debt and debt service, e.g. wealth, income, expenditures, population, etc. No one of them alone can give us a comprehensive idea of the burden of the debt, especially since each taken in itself has a great many qualifications attached to it. But just as the doctor inquires after a great many things, e.g. temperature, which taken by itself may not point directly to any particular disease, we must likewise take into account a number of relevant factors which when considered by themselves may be inconclusive.<sup>19</sup> Since we are here concerned with the "ability" of the debtor rather than with the size of the debt, we are interested in *comparison* throughout. Hence we shall be concerned mainly with ratios rather than with actual amounts.

**Debt Compared with Population.** The concept of *debt per capita* has been much abused in discussions of debt burden—so much so, in fact,

<sup>19</sup> See Hart, *op. cit.* p. 248.

that some writers have been led to discard the concept entirely. This is, however, a great mistake. The trend of debt per capita does contribute some valuable information regarding the burden of the debt. We previously referred to the drawings of the new-born babe with a millstone around its neck representing the per capita debt. As pointed out before, this is completely misleading if the debt is internally held. Such abuses of per capita figures have, however, put such figures into disrepute. One could just as well say that the babe is born with the same amount of debt owing to him. The "average" baby is born with exactly zero net domestic public debt owed either by him or to him.

The importance of *debt per capita* lies in an entirely different direction. It is useful to know the trend of debt compared with the trend of population because every part of the population is potentially a taxpayer and the size of the population tells us the number of persons among whom the tax burden may be distributed. It is true of course, that we should also know the distribution of wealth, income, and relative productivity, the number of unemployed, the number of unemployables, of minors, of morons, and the whole list of other factors which critics of the use of *debt per capita* may bring up. But this sort of attack can be made against any concept used in economics. We must marshal our facts one at a time and interpret each fact in relation to all relevant data, but that does not mean that we should throw out any set of facts because it, in itself, gives us an incomplete picture. Besides, in some cases, even debt per capita alone can give us a good idea of the burden of the future transfer through taxation. For instance, if the debt per capita doubles in a given period, and we are fairly certain that the productivity of workers has not nearly doubled in the same period, there is a good basis for saying that the burden of the debt has increased, in the sense used above. General price and income increases would also have to be taken into account in making a final decision.

With these reservations in mind, we may discuss the trend of federal debt per capita from 1789 to date. In the period 1789-91, federal debt per capita stood at \$19.07. A substantial decline, interrupted slightly at several points, took place until 1811, when the figure was \$6.07. Debt per capita rose to \$15.25 in 1815 and then fell steadily to virtually nil in the years 1833-36. The figure remained low, never reaching \$3.00, during the whole period from 1831 to 1861. In 1862 debt per capita was \$16.03, and it rose to \$77.69 in 1866. Another substantial decline took place, again with slight interruptions, to \$11.83 in 1915. In 1916 debt per capita rose only slightly to \$11.96. In the following year it jumped to \$28.57.

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Then came the first time that the figure exceeded \$100, the debt per capita in 1918 being \$115.65. It rose to \$240.09 in 1919 and then fell steadily to 1930 when the figure was \$131.38. Since that date there has been a large increase.

This means that in order to pay off the debt, a sizeable tax would have to be imposed on the population of the United States. In actual fact, of course, no such tax is contemplated; yet the trend of the debt per capita figure is indicative of the fact that during the course of the time during which the outstanding debt is paid off the tax burden would have to be much greater than it was, for instance, in 1840, when the debt per capita was only 31¢. The trend in the absolute magnitude of the federal debt shows the growth in the amount that would have to be raised by taxation. The trend of debt per capita gives us an idea of the increased amount that would have to come from present taxpayers, with the present tax structure. These are important items to have. The fact that neither of these items taken by themselves gives us a complete picture of the fiscal problem is no reason for rejecting either as a relevant statistic. A doctor may just as well refuse to take a patient's pulse because the pulse in itself does not make possible a complete diagnosis.

**Floating Debt Compared with Total Domestic Debt.** The trend of debt with a maturity of one year or less in comparison with that of the total domestic debt gives us an idea of the relative amount of the debt which either had to be paid off in the near future or converted into long-term debt. The comparison is not of great importance but it is suggestive of the imminent impact on the economy through either taxation or debt funding. A complication arises from the fact that some of the long-term debt may be coming due sooner than some of the floating debt. Nevertheless, the comparison does indicate the trend in that "burden" which arises from the "strains and frictions" involved in the conversion of floating into long-term debt.

We may trace briefly the trend of the floating/total domestic debt ratio. In 1916 floating debt was 3 per cent of the total domestic debt. It rose to a high of 19 per cent in 1922, and fell to 6 per cent in the following year. In 1929 floating debt was 28.39 per cent of total domestic debt. It fell to 19.47 per cent in 1931 and then rose steadily to 48.27 per cent in 1935, subsequently declining to 31.15 per cent in 1938. Over this decade, then, the relative importance of floating debt increased (the increase was even greater when compared with the previous two decades). This means that an increase took place in the fiscal "burden" involved in the conversion of floating to "funded" debt.

**Interest Compared with Total Revenues.** In order to gain some conception of the importance of interest in the federal budget, we may consider the proportion of federal expenditures which goes for the payment of interest. This gives us an idea of the magnitude of the transfer burden involved in diverting part of the tax revenues to bondholders on account of interest. This is a comparison of magnitudes rather than a tracing of the flow of funds. The specific dollars paid out for interest may, of course, come from borrowing just as well as from tax revenues.

Interest as a percentage of ordinary and postal receipts shows some illuminating trends. In 1789-91 interest was equal to more than half of all ordinary and postal receipts, the figure being 52.1 per cent. The next year it rose to the enormous figure of 85.6 per cent. From then until 1836 and 1837, when there was no debt, hence (no interest was paid) there was a persistent decline with, however, substantial fluctuations. From the period 1836-61, the proportion remained low, never attaining 10.0 per cent. In 1862 interest was equal to 21.9 per cent of receipts; it rose to 33.7 per cent in 1869 and, fluctuating somewhat, declined to 10.4 per cent in 1888 and 1.7 per cent in 1917. The figure then rose to 23.2 per cent in 1923. It fell to 13.5 per cent in 1930 and subsequently rose to a contemporary high of 25.8 per cent in 1933. After this there was a decline and the figure stood at 14.7 per cent in 1939. It is evident, therefore, that only a small percentage of tax revenues has been diverted to holders on account of interest. This percentage was not increasing in recent pre-war years, and it certainly did not increase in relation to the increase in the magnitude of the debt.

**Debt Charges Compared with National Income.** One useful standard of comparison for any economic aggregate is that of national income. When we compare the total federal debt charges with national income, we do not mean to imply that a transfer takes place *out of* national income from taxpayers and *into* national income to bondholders. The problems involved in the definition of national income on the one hand and that of the impact, shifting, and incidence of taxation on the other preclude such a strict interpretation. Nevertheless, to the extent that the concept of national income is meaningful, it is important for us to know how great are public debt charges in comparison with that national income. By and large, we may expect the "strains and frictions" to be the greater, the greater is the magnitude of all debt charges in comparison with the total volume of wages, rent, interest, and profits earned.

The trend of public debt charges as a percentage of national income shows some interesting variations. In 1850, debt charges were equal to

only 0.3 per cent of national income. The figure rose to 5.2 per cent in 1880 and then fell to a negligible proportion from 1900 to 1916, the figure in the former year being 0.5 per cent and in the latter 0.1 per cent. A substantial rise then took place, with a peak of 26.6 per cent reached in 1920. The figure fell subsequently but with considerable fluctuations. In 1930 public debt charges were only 7.5 per cent of national income. Then there took place a steady rise to 23.3 per cent in 1935. There was a decline to 16.1 per cent in 1936 and 11.3 per cent in 1937, with a rise back again to 16.1 per cent in 1938. To the extent that this measure of debt burden gives us an indication of the strains and frictions involved in the transfer necessitated by the servicing of the debt, we can say that, in recent pre-war years, debt "burden" was higher than during most preceding years but not so high as it was in the years 1919-21.

**Conclusions on Debt Burden.** The above information rounds out the picture of the burden of the public debt. Although the debt per capita was higher just before World War II than it had been at any time in the past, there was some indication that, both fiscally and economically, the debt was not so burdensome as it had been at some times in the past. The proportion of federal receipts which had to be diverted to bondholders in the form of interest stood in the neighborhood of only 15 per cent, which was less than a substantial part of the period since 1789. The narrower fiscal burden of the proportion of domestic total which is to be converted from floating to "funded" increased in the years before World War II, but the burden involved there was more significant administratively than economically. Compared with total national income, moreover, debt charges were not substantial, the figures being less than those applicable to the period of World War I and less even than for the early years of the 1930's. Although many other measures of debt burden can be taken into account to refine any conclusion derived, the evidence given above seems to indicate that the economic burden of the federal debt diminished in the years before World War II and it certainly was not of such proportions as to set that period apart from past periods in this respect.

### **What Are the Economic Limits?**

Our discussion of the burden of the public debt and more generally of the various economic effects of a public debt program gives us a basis for considering the limit to which we may safely permit our federal debt to go. More specifically, does the present high level of debt involve any

dangers to our economy? Should we repay the debt as quickly as possible?

In a strictly narrow mechanical sense there might seem to be no limit to an internally held debt. The government, acting as an intermediary, borrows from Peter and gives the money to Paul, who spends it. Much of the money spent finally goes back to Peter. The government then taxes both Peter and Paul in order to pay back Peter. It will have to pay Peter an amount equal to the sum originally borrowed plus interest. When it is all over, and even during the process, it may seem that they are not worse off than when the process began since all the money stayed "in the family" and the expenditures stimulated employment and production. The burden may be negative, i.e. a net benefit may result to all concerned and thus to the community as a whole.

Nevertheless, the greater the sum involved, the greater will be the transfers which must take place at each stage. It is in making these transfers that the burden of the debt program lies. The limit of the debt is set by the "strains and frictions" which may become increasingly evident as a large amount of debt or expenditures or taxes or debt service are involved. Except for the narrow administrative problem of trained personnel and bookkeeping machines, the limit to this sort of thing can arise if liquid resources are not available in sufficient magnitude to make possible the transfer. For instance, Peter (from whom the government borrowed the money) may not have sufficient cash to pay the taxes imposed upon him in order that he himself may be repaid. This, however, is more a bookkeeping problem than an economic problem. The limit in this case might just as well be \$2.50 as \$250 billion.

If the Treasury and the monetary authorities have sufficient controls (and they have) to provide the liquid resources with which the various transfers can be made, then the "strains and frictions" are greatly reduced. The magnitude of taxes may increase for the general run of taxpayers, but then so would their income from various sources and they would, if anything, be more able to spare the larger amount of taxes now than they were able to spare a smaller amount before. This is because there is the possibility that the absolute amount of income left after payment of taxes would be greater than before in so far as the total amount of goods and services produced and thus the income distributed is increased through utilization of unemployed resources. When there are no unemployed resources, such a net gain will not occur. If there is no limit to a domestic debt in the narrow physical sense, there is a limit in the broader sense of "strains and frictions." Even this limit is flexible de-

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pending on how the public debt program in all its phases is managed. With its existing monetary powers and controls, the government may be able to reduce greatly the strains and frictions involved. With improper management the strains and frictions may be so great as to curtail production severely even with a relatively small debt program. The economic limits to the debt are set by the details of fiscal management in all its phases and are not determined by the size of the debt itself.

**Part V**  
**State and Local Finance**





## Fiscal Policies of the States

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The states, although lacking the power to coin money, have powers of spending and taxation which, subject to certain legal niceties, may be considered to be on a par with those of the Federal Government. Thus the states are in a position to pursue their own fiscal policies with considerable freedom. There is, of course, wide disparity in the wealth and income of the several states. Their taxable capacity and their borrowing power likewise vary. Practical limits are thus set on the extent to which any given state may pursue a full employment policy or a program of stimulating economic development. The analysis of this subject is complicated further by a number of factors: the overwhelming predominance of the Federal Government in the fields of spending, taxing, and borrowing; the ever-present threat of interstate rivalry; and the constant demands and requirements of the dependent units, the municipalities. The study of state finance thus has all the fascination of its federal counterpart plus an enticing additional factor, a plenitude of variety.

### Trends in State Revenues

**State Taxes in Relation to Total Tax Collections.** The relative importance of state taxes in the total of federal, state, and local taxes fell off during the war years with the tremendous growth of federal expenditures. Immediately prior to the war, however, in 1940 the figure stood at a peak of 25 per cent. The lowest it fell in the thirty-five year period 1911-45 is an average of about 7 per cent in the period 1918-20 again because of war. The complete list for the period is given in Table 24.

Total state tax collections in 1945 were about a tenth of the federal figure, excluding payroll taxes. Federal tax collections were \$42,477 million and state collections were \$4,255 million.<sup>1</sup>

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<sup>1</sup> Total Tax Collections in 1945, "*Tax Policy*," February, 1946, p. 1.

Table 24\*

STATE TAX COLLECTIONS AS A PERCENTAGE OF TOTAL  
FEDERAL, STATE, AND LOCAL TAX COLLECTIONS,  
1911-45  
(EXCLUSIVE OF PAYROLL TAXES FOR SOCIAL  
SECURITY)

<i>Year</i>	<i>Percentage</i>	<i>Year</i>	<i>Percentage</i>
1911.....	11.12	1929.....	16.67
1912.....	11.02	1930.....	17.30
1913.....	10.82	1931.....	20.46
1914.....	12.07	1932.....	21.89
1915.....	12.44	1933.....	20.72
1916.....	11.59	1934.....	20.01
1917.....	11.41	1935.....	19.67
1918.....	6.97	1936.....	22.67
1919.....	7.60	1937.....	23.36
1920.....	6.83	1938.....	23.77
1921.....	8.54	1939.....	24.26
1922.....	11.24	1940.....	25.31
1923.....	12.38	1941.....	23.52
1924.....	12.89	1942.....	19.15
1925.....	13.87	1943.....	13.21
1926.....	14.55	1944.....	8.31
1927.....	14.92	1945.....	8.27
1928.....	16.14		

\* Total Tax Collections in 1945, "Tax Policy," February, 1946, p. 4.

Table 25\*

TOTAL STATE TAX REVENUE:  
1937-45  
(BILLIONS)

<i>Fiscal Year</i>	<i>Revenue</i>
1937.....	\$3.11
1938.....	3.59
1939.....	3.62
1940.....	4.16
1941.....	4.51
1942.....	4.97
1943.....	5.09
1944.....	5.39
1945.....	5.51

\* U.S. Bureau of the Census, *State Finances, 1937 to 1945*.

**Growth in Total Tax Revenues.** Total state tax revenues, including unemployment compensation, rose steadily and without interruption from \$3.1 billion in fiscal 1937 to \$5.5 billion in fiscal 1945. The yearly figures are given in Table 25.

Total state tax collections (excluding unemployment insurance taxes) have increased steadily during the past thirty-five years. From an estimated figure of \$300 million in 1911 they rose to \$1017 million in 1924, \$2059 million in 1935, and \$4255 million (preliminary) in 1945. Table 26 gives the detailed trend:

*Table 26\**  
STATE TAX COLLECTIONS, 1911-45  
(EXCLUSIVE OF PAYROLL TAXES FOR SOCIAL  
SECURITY)  
(IN MILLIONS)

<i>Year</i>	<i>State Tax Collections</i>	<i>Year</i>	<i>State Tax Collections</i>
1911.....	300 <sup>a</sup>	1929.....	1,612
1912.....	300 <sup>a</sup>	1930.....	1,780
1913.....	300	1931.....	1,992
1914.....	350 <sup>a</sup>	1932.....	1,851
1915.....	366	1933.....	1,672
1916.....	364	1934.....	1,909
1917.....	410	1935.....	2,059
1918.....	460	1936.....	2,540
1919.....	528	1937.....	2,932
1920.....	600 <sup>a</sup>	1938.....	3,124
1921.....	700 <sup>a</sup>	1939.....	3,057
1922.....	858	1940.....	3,273
1923.....	917	1941.....	3,573
1924.....	1,017	1942.....	3,917
1925.....	1,107	1943.....	3,941
1926.....	1,264	1944.....	4,087
1927.....	1,355	1945.....	4,255 <sup>b</sup>
1928.....	1,507		

\* Total Tax Collections in 1945, "Tax Policy," February, 1946, p. 3.

<sup>a</sup> Estimated.

<sup>b</sup> Preliminary.

**Relative Importance of Various Taxes.** The states in the aggregate relied on a variety of taxes in 1945. Table 27, listing the various state taxes, indicates this:

STATE AND LOCAL FINANCE

Table 27\*

STATE TAX COLLECTIONS IN ORDER OF FISCAL IMPORTANCE: 1945  
(EXCLUSIVE OF PAYROLL TAXES)  
(IN MILLIONS)

Tax	State Collections
Income.....	\$ 810
General sales and use.....	775
Gasoline.....	701
Motor vehicle.....	405
Alcoholic beverage.....	365
Property.....	229
Tobacco.....	145
Inheritance, estate, and gift.....	132
Other.....	693
<b>Total.....</b>	<b>\$4,255</b>

\* Total Tax Collections in 1945, "Tar Policy," February, 1946, p. 2.

The complete percentage distribution of state tax revenues is given in Table 28:

Table 28\*

PERCENTAGE OF STATE TAX REVENUES FROM INDIVIDUAL SOURCES FISCAL YEARS 1937-1945

	1937	1938	1939	1940	1941	1942	1943	1944	1945 <sup>b</sup>
Total Tax Revenues.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Unemployment compensation.....	11.2	19.5	22.2	20.3	20.0	21.6	23.0	24.5	22.8
Income.....	7.9	9.2	7.9	8.7	9.4	10.5	12.4	14.2	14.7
Property.....	12.0	9.6	8.8	8.8	5.9	5.4	5.1	4.5	4.2
General sales.....	13.9	12.3	12.3	12.0	12.8	12.7	13.2	13.4	14.1
Motor fuel.....	20.9	19.9	20.2	20.2	20.3	18.9	15.3	12.8	12.7
Alcoholic beverage.....	..	..	..	4.7	4.8	5.1	5.5	5.0	5.6
Tobacco.....	..	..	..	2.3	2.4	2.6	2.8	2.9	2.6
Motor vehicle licenses.....	10.0 <sup>a</sup>	8.5 <sup>a</sup>	8.4 <sup>a</sup>	9.3 <sup>a</sup>	9.2	7.7	7.7	7.4	7.4
Other tax revenues.....	24.2	21.1	20.2	13.7	15.3	15.3	15.1	15.3	16.0

\* "Significant Trends in State Revenues," *The Tax Foundation*, Project No. 16, March, 1946, p. 8.

<sup>a</sup> Does not include operator licenses.

<sup>b</sup> Preliminary.

Note: Because of rounding, detail does not necessarily add to totals.

The increasing importance of taxes which have an income base, including both unemployment compensation and income taxes, is noteworthy. The great decline in relative importance of property tax revenues may also be emphasized. The behavior of motorists' taxes—motor fuel and vehicle

licenses—may be attributed to war conditions. The relative stability of the general sales tax in the total is a good reflection on the nature of revenues from that source. In all cases, however, changes in the number of states using a particular tax and changes in tax laws and rates would influence the trends discussed above.

### STATE SALES TAXES

The widespread adoption of state sales taxes dates largely to the depression of the '30's.<sup>2</sup> The coincidence of great demand for governmental services such as relief and the decline in normally stable revenues from other sources promoted a search for a tax which would be productive even in a depression. It was within the years 1933-36 that most of the state sales taxes were adopted. Some of the taxes date from earlier days. This is particularly true of West Virginia, which began the recent trend in the year 1921. In all, 31 states had general sales taxes at one time or another during this period. No state adopted a sales tax between 1937 and 1945. In the latter year there were 17 states and the District of Columbia which had never imposed general retail sales taxes. These were Connecticut, Delaware, Florida, Maine, Massachusetts, Minnesota, Montana, Nebraska, Nevada, New Hampshire, Oregon, Rhode Island, South Carolina, Tennessee, Texas, Virginia, and Wisconsin.

In a number of cases there was no intention to make the sales tax a permanent part of the revenue system. This was true in the case of Alabama, Georgia, Missouri, North Carolina, North Dakota, and Oklahoma. In most cases, however, the law was extended after a trial. By enactment in 1937 Alabama provided that its sales tax expire in 1939 but in that year the law was revised and no time limit was included. Arkansas had also provided for expiration in 1939 but that feature of the law was removed. North Carolina had the same type of experience. A similar expiration date was set by Missouri, but extensions were made every two years and finally the tax was made permanent in 1943. The taxes in North Dakota and Oklahoma were to expire in 1941 but they were extended.

In 1945 there were twenty-three states imposing general sales taxes. The main concentration was in the middle west, the central south, and the central and the south mountain divisions. There is no connection between the adoption of a sales tax and the adoption of an income tax. The following states had both types of taxes in 1945: Alabama, Arizona,

<sup>2</sup> See Roy G. and Gladys C. Blakey, *Sales Taxes and Other Excises* (Chicago: Public Administration Services, 1945).

Arkansas, California, Colorado, Iowa, Kansas, Louisiana, Mississippi, Missouri, New Mexico, North Carolina, North Dakota, Oklahoma, Utah. The following states have neither sales nor income taxes: Florida, Maine, Nebraska, Nevada, New Jersey and Texas. Most of the changes in rates which have taken place have been downward. Illinois reduced its rate from 3 per cent to 2 per cent in 1941; South Dakota and Indiana also reduced their rates. In 1943 California reduced its rate from 3 per cent to 2½ per cent. Washington, however, raised its rate from 2 per cent to 3 per cent.

**Relative Importance of the Sales Tax.** Even though there was a net decline in the number of states employing the sales tax between 1937 and 1945 (the number being 27 in the earlier year and 24 in the later), it is still an important component of the tax revenues in many states. In 1944 eighteen of them derived more than one-fourth of their revenue from this source.<sup>3</sup> Some states relied on it heavily. The range in 1936 was from 1.1 per cent of total state taxes in Louisiana to 50.2 per cent in West Virginia. In 1943 the range was from 7.0 per cent in Louisiana to 56.7 per cent in West Virginia.

The sales tax ranked second—next to the income tax—in the aggregate of state tax revenues in 1945. The total amount produced by the tax that year was \$775 million, which was 80 per cent greater than the amount collected in 1937. The *relative* importance of the tax has not changed. In 1937 it produced 13.9 per cent of total revenues while in 1945 it produced 14.1 per cent. In the intervening years the yield was within the range of 12.0 to 13.4 per cent. It also remained the second most important source of tax revenue throughout the period, being second to the motor fuel tax in the years 1937 to 1943, inclusive, and second to the income tax in 1944 and 1945.<sup>4</sup> The general sales tax and the motor fuel tax were the largest single sources of tax revenues (excluding unemployment insurance) in 1946 and the income tax was not far behind. The grand total almost doubled during the ten-year period 1937–46.

**Stability of the General Sales Tax.** It has been shown that the general sales tax is even more stable in yield than special excises such as the tobacco tax, the motor fuels tax, and liquor taxes.<sup>5</sup> The sales tax is essentially a tax on gross receipts and its yield might therefore be ex-

<sup>3</sup> "Significant Trends in State Revenues," *The Tax Foundation*, Project No. 16, March, 1946, p. 9.

<sup>4</sup> Based on data in U.S. Bureau of the Census, *State Finances*, 1937 to 1945.

<sup>5</sup> George D. Brabson, "Economic Aspects of State Sales and Use Taxes," *The Bulletin of the National Tax Association*, Vol. 32, No. 5 (February, 1947), pp. 154–55.

pected to be more stable than the tax on net income. Actual experience substantiates this. It has been shown, however, that in most states increases in the receipts from the general sales tax were almost proportionate to increases in state income payments.<sup>6</sup> This experience for a short period of rising *gross and net* incomes does not alter the relatively greater stability of the sales tax than the income tax in good times and bad.

**Abandonments of State Sales Taxes.** The record shows that nine states have either repealed their sales tax laws or allowed them to expire. It is interesting to examine the reasons for this action. Georgia had a gross receipts tax with differential rates which had large exemptions and proved difficult to administer. It was allowed to expire in 1931 and was succeeded by a net income tax. A sales tax in Idaho was rejected by referendum in 1937. Failure to collect the tax on items selling for less than fifty cents and the competition from neighboring states having no sales tax are given as the reasons for this action. Kentucky repealed its law in 1936 and adopted net income taxation. Maryland repealed the sales tax in 1936 except for a tax on the sale of automobiles. New Jersey after a trial of a few months repealed the sales tax in 1935 as a result of strong public pressure. New York state had a temporary tax which ended in 1934. Vermont's tax was declared unconstitutional in 1935. In Pennsylvania an emergency tax was in effect for only a short time in 1932 and met with opposition from both consumers and retailers, was not so productive as expected, and encountered administrative difficulties. The tax in Louisiana was allowed to expire in 1940 as a result of public pressure but was reenacted in 1942 as a war emergency tax.<sup>7</sup>

**Compensatory Use Taxes.** As a matter of equity, to say nothing of enforcement of the sales tax, a number of states have found it desirable to impose compensatory use taxes. Under these taxes goods bought outside and brought into the taxing jurisdiction for use or storage are subject to a tax of the same rate as the domestic sales tax. For some time these were under a legal cloud because of the commercial clause of the constitution, but recent decisions of the Supreme Court have validated such taxes. At the present time all but six of the states which have sales taxes impose use taxes as well. In view of the difficulty of enforcement for small purchases, some states permit exemptions up to a certain amount. That the taxes are being enforced is evidenced by the fact that some states are deriving substantial revenues from this source. For instance, Michigan

<sup>6</sup> "Significant Trends in State Revenues," *The Tax Foundation*, Project No. 16, March, 1946, p. 9.

<sup>7</sup> Blakey and Blakey, *op. cit.* pp. 3-4.



obtained over \$2 million and Alabama, Iowa, Ohio, and Washington obtained over \$1 million from this source in the year 1943.<sup>8</sup>

**Taxation of Sales to the Federal Government.** State sales taxes have encountered difficulties, as may be expected, in connection with sales to the Federal Government or its agencies. This became an important problem during the great increase in federal expenditures during the depression in the '30's and the war in the '40's. Sales made directly to the Federal Government were unquestionably exempt, but problems arose in connection with sales to government contractors and sales to private individuals on government property (e.g. post exchanges). The taxability of sales to contractors has been upheld in general. Post exchanges in federal territories are, however, apparently free from state, sales, or income taxes. There is still a considerable amount of confusion on these points, however.<sup>9</sup>

Table 29\*

## SALES TAX BURDEN PER CAPITA: 1940

<i>State</i>	<i>Rate</i>	<i>Per Capita</i>
California.....	3%	\$14.27
Michigan.....	3%	11.51
South Dakota.....	3%	7.03
Ohio.....	3%	6.69
North Carolina.....	3%	3.43
Average.....	..	\$ 8.58

\* Brabson, *op. cit.*, p. 157. Based on data which appeared in *The Bulletin of the National Tax Association*, May, 1941, p. 229.

**Administrative Aspects of State Sales Taxes.** In choosing between revenue sources there is always the question of whether one tax is more efficient than another from a purely fiscal point of view. In other words, might the aggregate tax burden be less per capita if one form of taxation is used rather than another? Theoretically speaking, there are a great many factors which might influence the result either way. As far as the sales tax is concerned, the available statistical evidence does not indicate any relative inefficiency for the sales tax as a revenue source. The cost of collecting a sales tax averages about 2 per cent although there are sub-

<sup>8</sup> Blakey and Blakey, *op. cit.*, p. 21.

<sup>9</sup> *Ibid.*, pp. 184-89.

stantial variations from this average in a number of instances. The average seems to be relatively stable in good times and in bad.<sup>10</sup>

**Burden of State Sales Taxes.** The available statistical evidence indicates that the sales taxes which exist impose a relatively small per capita tax burden. This has nothing to do with the question of the regressivity of the tax except in so far as it indicates the general unimportance of the sales tax and therefore of the question of regressivity. The amount of sales tax paid per capita in five cities which had 3 per cent sales taxes in 1940 is indicated in Table 29. In the other eighteen cities which had taxes ranging from 1 per cent to 2.5 per cent the average sales tax burden was only \$6.60.

### STATE INCOME TAXES

State revenues from the income tax more than tripled in the years 1937-45. The absolute increase was from \$245 million to \$810 million and the percentage of total state tax revenues rose from 7.9 per cent to 14.7 per cent. This applies to the aggregate of all states, of course. In three states the income tax revenues were more than 40 per cent of total revenues in 1945.<sup>11</sup> Income taxes seem to be cheaper to collect than the other major producers of revenue. The range is between 1.5 per cent and 2.5 per cent for the average of all states.

In interpreting the statistics of income tax revenues, it should be borne in mind that there were a large number of changes which impaired the comparability of the data. For one thing, four more states used the income tax in 1945 than in 1937, the number having risen from 31 to 35.<sup>12</sup> But apart from this there were changes in rates, both increases and reductions, and changes in various details of the respective laws. In the past few years rate reductions have predominated.

**Elasticity of Income Tax Revenues.** The main question mark regarding the income tax and its main potential defect as a source of state revenue is its elasticity with respect to changing business conditions. An extremely elastic tax promotes surpluses in good times and deficits in bad. This is good if the surpluses are saved to offset the deficits so that there is no encouragement of extravagance in good times or of curtailment of necessary expenditures in bad. If the income tax results in surpluses

<sup>10</sup> James W. Martin, "Costs of Tax Administration," *Bulletin of the National Tax Association*, February, 1944.

<sup>11</sup> "Significant Trends in State Revenues," *The Tax Foundation*, Project No. 16, March, 1946, p. 6.

<sup>12</sup> *Ibid.*

which promote spending in good times and deficits which force sharp reductions in spending in bad times, then the income tax is inferior to some more stable source of revenue.

Rigidity in revenue is not desirable either. What is needed is a tax whose yield fluctuates with prices and wages—representing roughly the cost of providing established governmental services. When a rise takes place in the prices and wages which the government must pay, the yield should rise in proportion. Correspondingly, the yield should drop roughly in proportion to a drop in the prices and wages involved in governmental services. The “trend” factor may best be taken care of through changes in rates. As governmental services change their scope, either expanding or contracting, rate increases or decreases may be made to allow for such changes.

In view of the changes in rates, and changes in deductions and exemptions—especially exemptions to service men—it is difficult to interpret fluctuations of state income tax yields in recent years. The statistics<sup>13</sup> show that state income tax yields increased 212 per cent from 1937–44 while income payments increased only 105 per cent; that some states had lower income payments in 1945 than in 1944; that total state income tax collections in 1945 were higher than at any time in the past but that the rate of increase was less than in previous years; and that sixteen states even had lower income tax collections in 1945 than in 1944. A detailed piece of research work would allow for changes in tax provisions. It is impossible to rely on the experience of the past few years for an evaluation of the fiscal desirability of the income tax as a source of state revenue.

#### MOTOR FUEL TAXES

Every state in the Union imposes taxes on motor fuel. The present trend began in 1919, when Oregon enacted its tax of 1¢ a gallon. It was the largest single revenue producer for the states in 1939, 1940, and 1941 and also in 1942 and 1943, if the payroll tax is excluded. The gasoline tax has the overwhelming advantage that its cost of collection is smaller than for any other tax. Somewhere between ½ of 1 per cent and 1 per cent seems to be the appropriate figure for the average of all states.<sup>14</sup>

**Yield.** The aggregate yield of the motor fuel tax in the fiscal year 1945 was \$701 million, which was 12.7 per cent of all state taxes. In 1937

<sup>13</sup> “Significant Trends in State Revenues,” *The Tax Foundation*, Project No. 16, March, 1946, p. 6.

<sup>14</sup> James W. Martin, *op. cit.*, *Bulletin of the National Tax Association*, February, 1944.

the motor fuel tax produced 20.9 per cent of state tax revenues. The prospects are that over the long period the motor fuel tax will continue to yield a large proportion of state tax revenues. The impact of wartime gasoline rationing in 1943, 1944, and 1945 undoubtedly was at the root of the temporary decline in absolute and relative yields which took place in those years.

The motor fuel tax is thus a mainstay of the state revenue structure. From 1937 through 1943 it produced more revenue than any other single tax.<sup>15</sup> This is, of course, partly a result of the fact that every state has such a tax. In the fiscal years 1944 and 1945 the motor fuel tax gave way to the income and sales taxes in aggregate yield.

**Earmarking of Revenues.** In considering the place of the motor fuel tax in the states' revenue structures, it should be borne in mind that revenues from this source frequently are earmarked for highway use. Such being the case, the productivity of the motor fuel tax has only an indirect effect on the budget as a whole. In so far as this tax is capable of financing highway expenditures, the rest of the tax structure is relieved of the burden of financing this particular expenditure and is therefore available for general purposes. The productivity of the tax has tempted some states to divert some of the revenue for nonhighway purposes. In the aggregate a total of approximately \$200 million was used for nonhighway purposes in 1942 out of net state and federal receipts of \$1,300,000,000.<sup>16</sup> An important current issue regarding the taxation of motor fuel, the question of taxation of gasoline for airplanes is related to this problem of earmarking. If the tax is imposed for highway purposes, aviation gasoline should logically be exempted. Five states exempted aviation gas and fifteen states refunded the tax on such gas in 1945. Maine refunded three-fourths of the tax and had other special provisions. Michigan, Mississippi, Oregon, and Virginia provided for partial refunds or exemptions.<sup>17</sup>

### ALCOHOLIC BEVERAGE TAXES

Taxes based on the sale of alcoholic beverages constitute only about 5 per cent of total state tax revenues. Every state levies some tax of this sort. While maintaining a fairly constant percentage of the total in recent years, the aggregate yield from this source rose in the years immediately after the war with the rise in incomes. Except for temporary disturb-

<sup>15</sup> U.S. Bureau of the Census, *State Finances, 1937 to 1945*.

<sup>16</sup> Blakey and Blakey, *op. cit.*, p. 83.

<sup>17</sup> *Ibid.*, p. 80.

ances, such as the conversion to industrial alcohol production during the war, this tax source may be considered relatively stable at prevailing non-prohibitive rates.

The growth of revenue from this source may be indicated by the fact that in the fiscal year 1944 the states collected more than ten times as much as they did in 1915. State revenues on alcoholic beverages are derived from excise taxes, licenses, and profits (where the state has a monopoly).<sup>18</sup> The cost of administration seems to be in the neighborhood of 3 per cent and is relatively stable.<sup>19</sup>

#### TOBACCO TAXES

A smaller, but potentially important, element in the state tax structure is the tobacco tax. In the year 1940 it was between only 2 and 3 per cent of total state revenues, but it could be made to contribute much more. It is imposed on what has apparently become a necessity to many people and yet there are not those qualms about taxing tobacco which exist in the case of food. The number of states using this tax grew from 26 in 1940 to 31 in 1945.<sup>20</sup> During the war increases in rates and the shortage of cigarettes—or the sale of them tax-free to the armed forces—had disturbing—but offsetting—effects on the yield from this source. The average cost of collection of the tobacco tax seems to fluctuate fairly widely. The range for the average for all states has been between 1.4 per cent and 3.3 per cent in the last decade or so.<sup>21</sup>

#### CHAIN STORE TAXES

The taxation of chain stores is clearly for regulatory rather than revenue purposes. The fear of the effects which chain stores may have on the small independent merchant prompted this type of punitive levy. In 1927 two states imposed taxes on chain drug stores and four states taxed chain stores in general. Prior to 1931 most such taxes were held invalid. In that year the United States Supreme Court approved an Indiana law and thereafter there was an increase in such taxation. In 1945 there were nineteen states which taxed retail chain stores and two more which had taxes with equivalent effects. Eight other states have abandoned them.

<sup>18</sup> Blakey and Blakey, *op. cit.*, pp. 90–93.

<sup>19</sup> James W. Martin, "Cost of Tax Administration," *Bulletin of the National Tax Association*, February, 1944.

<sup>20</sup> "Significant Trends in State Revenues," *The Tax Foundation*, Project No. 16, March, 1946, p. 12.

<sup>21</sup> James W. Martin, *op. cit.*, *Bulletin of the National Tax Association*, February, 1944.

There is no evidence to indicate that chain store taxation has effectively discouraged the growth of chains.<sup>22</sup>

### MOTOR VEHICLE LICENSES

A substantial source of state revenue is found in motor vehicle licenses. These are used by all states. Operators' licenses are required in all states but South Dakota, West Virginia, and Wyoming. Revenues from these sources range from approximately 7 to 10 per cent of total state revenues and are the fourth largest single tax source.<sup>23</sup>

### PROPERTY TAX

The property tax, usually regarded as a local tax, is relied on for state revenue in some cases but to a diminishing extent. In 1930 this tax constituted 20 per cent of all state tax revenues, but by 1945 the figure was closer to 4 per cent and the tax ranked sixth in state tax revenue. Many states have sharply reduced rates or scope or abandoned the tax completely. The declining—almost negligible—reliance of states on property taxes is a wholesome trend in view of the dominant place which this tax has in the local tax structure. The growth of other tax sources, such as income and sales, helps explain this tendency and it is extremely unlikely that a reversion to the old situation will ever take place.

**State Taxation of Interstate Air Commercial Transportation.** The problems which have arisen in connection with state taxation of interstate air commercial transportation may be considered as prime examples of multiple taxation. This fact was emphasized by the Committee on Intergovernmental Fiscal Relations to the Treasury Department which reported on January 1, 1943. It refers particularly to the attempt on the part of states to tax air transportation fleets in full in the state of the Company's home office and again, in part, in the states through which the company operates.

The United States Supreme Court seems to have confirmed the legality of such action in the case of *Northwest Airlines, Inc., v. State of Minnesota* which was decided on May 15, 1944. It promises to be an important case in state taxation. In this case the court decided that a state may tax its own corporations for all their property and estate during the year even if every item should be taken into another state

<sup>22</sup> Blakey and Blakey, *op. cit.*, pp. 154-56.

<sup>23</sup> U.S. Bureau of the Census, *State Finances, 1937 to 1945*, and "Significant Trends in State Revenues," *The Tax Foundation, Project No. 16*, March, 1946, pp. 7-11.

## STATE AND LOCAL FINANCE

for a period and then brought back. The court found in the Northwest Airlines case that none of the planes involved was "continuously without the state during the whole tax year."<sup>24</sup>

### FEDERAL AID

Total federal aid to the states rose steadily from \$565 million in 1937 to \$817 million in 1944. The year by year data are listed in Table 30:

*Table 30\**  
FEDERAL AID TO STATES:  
1937-45  
(MILLIONS)

<i>Fiscal Year</i>	<i>Federal Aid</i>
1937.... .	\$565
1938.....	628
1939.....	645
1940.....	663
1941.....	732
1942.... .	787
1943.... .	815
1944.... .	817

\* U.S. Bureau of the Census,  
State Finances, 1937 to 1945.

In 1944 federal aid to state and local governments, \$1,762,111,000, was approximately of the same magnitude as state aid to local governments, \$1,795,409,000.<sup>25</sup>

### PROBLEMS IN MAINTAINING STATE REVENUES

It is evident from the above analysis that the expenditures of many of the states are now being supported by relatively volatile revenues, particularly from various income taxes. What will happen when such revenues drop? A struggle to maintain yields by raising rates will take place in many states. Others will impose new taxes. Some effort will undoubtedly be made to cut expenditures, but this will be extremely difficult because of the fixity of many items and the possibility that others will even rise. Expenditures for education and health, for instance, will

<sup>24</sup> See Martin Saxe, "State Taxation of Interstate Air Commercial Transportation," *Bulletin of the National Tax Association*, Vol. 30, No. 1, October, 1944, pp. 20-23.

<sup>25</sup> "Total Government Expenditures in 1944," *Tax Policy*, June, 1946, p. 4.

be hard to cut. Civil service salaries are particularly resistant to downward pressures. Relief and welfare expenditures will rise. Commitments to veterans will stand. In so far as these items are taken care of locally through state aid, the rigidity of the expenditure would be enhanced under most state aid programs. Borrowing on "emergency" grounds will undoubtedly grow after accumulated surpluses are dissipated.

### Scope of State Expenditures

The scope of state expenditures including aid to local units has been broadened greatly by the depression of the 1930's and by the war in the following decade. The burden of relief costs went over to the states by default in many cases. The local governments found themselves powerless to cope with the suddenly enlarged costs. During the war, many expenditures, such as those for highways and buildings, were held in abeyance. Since the war, however, such items have again loomed large in state budgets. Moreover, there have been increased demands on account of education and veterans' benefits. The general rise in cost of living and prices generally has shown its effects in payrolls and other expenditure items.

### RELATIVE IMPORTANCE OF STATE EXPENDITURES

Total state expenditures in 1944 fell short of federal expenditures exclusive of war expenditures (in so far as the latter can be separated), and even fell short of estimated local expenditures. The state total was \$5.7 billion (or \$3.9 exclusive of state aid) while the federal total was \$8.5 billion (or \$6.7 exclusive of federal aid) and the local total was estimated at \$6.0 billion.<sup>26</sup>

### EXPENDITURES PER CAPITA

There is a wide difference in per capita expenditures by states. The smallest expenditure is in Mississippi, where the amount was \$25.94 in 1944. The largest is in the state of Washington, where the per capita figure was \$84.07. The complete list is given in Table 31.

In interpreting these figures several cautions are necessary. Since prices and wages vary from state to state, the differences in per capita dollar expenditures do not necessarily measure the differences in services provided for the citizens. Differences in efficiency and honesty in spending the money also make comparisons questionable. Another difficulty is

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<sup>26</sup> "Total Government Expenditures in 1944," *Tax Policy*, June, 1946, p. 3.



Table 31\*  
STATE EXPENDITURES PER CAPITA: 1944

<i>State</i>	<i>Per Capita</i>	<i>State</i>	<i>Per Capita</i>
Mississippi.....	\$25.94	New Hampshire.....	\$45.41
Alabama.....	28.45	Wyoming.....	46.08
Georgia.....	28.65	Ohio.....	46.76
Kentucky.....	29.21	Oklahoma.....	48.16
Arkansas.....	29.57	New Jersey.....	48.83
Tennessee.....	30.06	Massachusetts.....	48.87
Nebraska.....	31.73	Idaho.....	49.57
South Carolina.....	31.91	Montana.....	49.72
Virginia.....	32.22	Connecticut.....	49.83
Missouri.....	32.60	Maine.....	49.89
South Dakota.....	34.22	Louisiana.....	51.89
North Carolina.....	35.03	Rhode Island.....	51.98
Texas.....	36.32	Delaware.....	52.07
Vermont.....	38.10	New Mexico.....	52.11
Illinois.....	38.66	Michigan.....	53.46
Iowa.....	39.38	Colorado.....	53.72
North Dakota.....	40.18	New York.....	54.49
West Virginia.....	40.22	Wisconsin.....	58.66
Kansas.....	40.68	Oregon.....	59.13
Maryland.....	42.69	Arizona.....	59.97
Pennsylvania.....	43.45	California.....	67.51
Minnesota.....	43.54	Utah.....	68.80
Florida.....	43.73	Nevada.....	71.73
Indiana.....	45.05	Washington.....	84.07

\* "Total Government Expenditures in 1944," *Tax Policy*, June, 1946, p. 7.

that the density of population determines the amount of services per person which is represented by any given dollar of expenditure.

#### FUNCTIONAL DISTRIBUTION OF STATE EXPENDITURES

Education provided the major single purpose of state expenditures in 1944. Relief and general welfare came a close second, with highways not far behind. The complete list in order of fiscal importance is given in Table 32.<sup>27</sup>

**Interest Charges.** The largest amount paid for interest by any state in 1944 was that of \$20,459,000 by New York State.<sup>28</sup> New York also

<sup>27</sup> Adapted from "Total Government Expenditures in 1944," *Tax Policy*, June, 1946, p. 4.

<sup>28</sup> U.S. Bureau of the Census, *State Expenditure in 1944*, p. 6.

Table 32

STATE EXPENDITURES IN ORDER OF FISCAL IMPORTANCE, 1944  
(INCLUDING CAPITAL OUTLAYS AND INTEREST)  
(IN THOUSANDS)

<i>Function</i>	<i>Amount (Including State aid)</i>
Education.....	\$1,181,695
Relief and general welfare.....	947,056
Highways.....	853,600
Hospitals and other institutions.....	282,688
Police, fire, militia, etc.....	145,103
Natural resources.....	136,022
Interest.....	92,563
Health.....	81,659
Correction.....	80,660
Parks and museums.....	9,032
Libraries.....	3,762
Other.....	502,900
<b>SUB TOTAL.....</b>	<b>\$4,316,740</b>
Government corporations, trust funds, etc.....	1,417,375 <sup>a</sup>
<b>TOTAL.....</b>	<b>\$5,734,115</b>
(Less aid paid to other governments).....	1,795,409
	<b>\$3,938,706</b>

<sup>a</sup> Includes contributions to unemployment compensation, \$1,319,451,000 retirement, and other trust funds and to government enterprises.

had the largest budget, \$677,970,000 (total less provision for debt retirement). Although California's total budget was almost as large, \$532,-107,000, its interest payments were much smaller, \$4,500,000. Arkansas, Illinois, Louisiana, North Carolina, and Pennsylvania with smaller total budgets than California had larger interest payments, ranging between \$4 and \$6 million. Nevada had no interest item at all.

**Aid to Municipalities.** A major function of state governments nowadays seems to be that of succoring local governments. State aid and shared taxes have grown to be a major portion of the state budget in some cases.

The reason for the growth of this item lies in the fact that the states have preëmpted the most desirable and lucrative sources of revenue for themselves. The growing tendency of municipalities to diversify their tax structure may possibly arrest this trend. There are some advantages

in the centralized collection of taxes and in the tendency to equalize health, education, relief, and similar burdens on a state-wide basis. There are, however, some disadvantages from the point of view of the integrity and responsibility of local government. These aspects of the problem are discussed more fully in Chapter 22.

The total of state aid in 1944 was less than a third of total expenditures including state aid. The two figures were \$1,795,409,000 and \$5,734,-115,000, respectively (exclusive of \$224,830,000 of debt retirement).<sup>29</sup>

#### TENDENCY TO INCREASING STATE EXPENDITURES

The tendency toward rising state expenditures seems irresistible. There is a persistent upward trend in civil service salaries and pensions, education, and highways. There is no tendency for health and public assistance expenditures to decline. Debt service, however, in all likelihood will decline.

The high level of state expenditures cannot be adjusted downward very rapidly. The many hard-and-fast commitments which have been made will have first call on the state budget. These commitments have been in education, welfare, and health activities. In some cases a rigid formula has been adopted without regard to state revenues. New York's "Moore plan," for instance, sets state aid for general municipal purposes on a population basis in place of a variety of shared taxes. The municipalities gain by such an arrangement in the long run, of course, but the state's financial wizardry will have to meet a severe test when revenues drop.

#### State Debt and Budget Surpluses

An important wartime development was the growth of surpluses in state treasuries. The accumulated amounts of a few years grew to sizeable sums, particularly in those states with highly income-elastic revenue sources—items which responded rapidly to the rise in income. In many cases the sums were frozen into a fund to be saved for postwar highways and structures. In some cases the money was used to repay the debt. During the war opportunities of spending the money were limited. The three alternatives were then: reduce taxes; distribute the money to municipalities; or save the money for postwar purposes. Since high taxes in inflationary periods may be considered desirable, and municipalities themselves had restricted opportunities for spending money during the war, the last alternative seemed to be the only acceptable one.

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<sup>29</sup> U.S. Bureau of the Census, *State Expenditure in 1944*, p. 6.

The evergrowing postwar funds accumulated through repeated surpluses have provided a constant target for opposition parties who feared the political potentialities of such large "nest eggs." The pressure to spend the surplus, or reduce taxes, or both, has been very hard to resist and some concessions almost invariably have been made in one or more of these directions.

#### ACCUMULATION OF SURPLUS FUNDS

The growth in surplus funds may be indicated by a few figures.<sup>30</sup> All items are for fiscal years. A survey of thirty-six states showed General Fund balances totaling \$392 million in 1942, \$621 million in 1943, and \$1,014 million in 1944. Postwar reserve funds held \$89 million in 1943 and \$156 million in 1944 in thirteen states. The aggregate of state highway funds was \$380 million in 1943 and \$469 million in 1944. Not all states have surpluses, however. The states of Massachusetts, Mississippi, and South Carolina had deficits aggregating \$17 million. There was no year beginning with 1940 in which all states balanced their budgets. Deficits were recorded for five states in 1940, seventeen in 1941, nine in 1942, five in 1943, and three in 1944.<sup>31</sup>

As in private accounting, any item labeled "Surplus" requires close examination. Because of the use of various funds and differences in terminology and bookkeeping practices, it is difficult to make comparisons between states.

#### CHANGES IN STATE DEBT

Net long-term debt of the states declined substantially during the war years. By the end of the fiscal year 1945 the figure was \$872 million less than that for 1941.<sup>32</sup> The debt picture from 1937 to 1945 is shown in Table 33.

It will be noticed that in the last few years there has been a decline in both gross and net debt. The wide disparity in credit standing of the various states still remains, and with it, of course, the wide differences in interest rates charged.

#### ECONOMIC ASPECTS OF BUDGETARY SURPLUSES

The growth of state surpluses in good times and the practice of saving them for bad times is, of course, the most commendable policy of all

<sup>30</sup> U.S. Bureau of the Census, *State Finances 1937 to 1945*.

<sup>31</sup> "Rising State Expenditures," p. 3.

<sup>32</sup> U.S. Bureau of the Census, *State Finances, 1941, 1945*.

Table 33\*

## TOTAL STATE DEBT

	<i>Fiscal Years 1937-1945</i> (Millions)	
	<i>Gross Debt</i>	<i>Net Long Term Debt</i>
1937.....	\$3,276	\$2,425 <sup>a</sup>
1938.....	3,301	2,510 <sup>a</sup>
1939.....	3,449	2,502 <sup>a</sup>
1940.....	3,514	2,460 <sup>b</sup>
1941.....	3,462	2,711
1942.....	3,271	2,620
1943.....	2,939	2,318
1944.....	2,796	2,139
1945.....	2,425	..

\* U.S. Bureau of the Census, *State Finances 1937 to 1945*.

<sup>a</sup> Net debt.

<sup>b</sup> Net bonded debt.

from an economic point of view. This tends to remove the "fiscal perversity" of state finance. In the past the states spent during inflationary or boom times and refrained from spending during deflationary or bad times, thus aggravating the undesirable fluctuations of general business activity.<sup>33</sup> Until public opinion is educated to the desirability of the new policy, there is little likelihood that the party in control of the surplus will be able to resist pressure to spend it—especially near election time.

### Interstate Conflict: Tax Concessions

The wide variety of state tax structures and tax practices has resulted in a growth of interstate conflict. The conflict takes two forms: competition for industries through tax concessions; and tax barriers interfering with interstate commerce.

The most blatant tax concessions are found in the property tax, and these will be discussed fully. There are other more modern methods of tax competition between states. These will be mentioned briefly after a detailed discussion of the property tax devices. In some cases such property tax concessions are used in competition between municipalities,

<sup>33</sup> See Alvin H. Hansen and Harvey S. Perloff, *State and Local Finance in the National Economy* (New York: W. W. Norton & Co., 1944). Cf. Gerhard Colm, "Fiscal Policy," Chapter 34 in *The New Economics*, S. E. Harris, ed. (New York: Alfred A. Knopf, 1947).

but the entire subject is discussed here since formal authorization, if any, must come from the state.

The practice of granting tax concessions, though not new, was greatly extended during the depression of the '30's. It is fairly widespread in practice whether authorized by law or not.

From the best recent information available the following states have enacted legislation granting one type or other of tax concession to attract new industry:

Alabama	Maryland	South Carolina
Arkansas	Mississippi	Vermont
Delaware	Montana	Virginia
Florida	New Mexico (expired)	Washington
Georgia	New York	West Virginia
Kentucky	Oklahoma	Wisconsin
Louisiana (expired)	Rhode Island	Wyoming

#### EFFECTS OF PROPERTY TAX CONCESSIONS

In view of the large number of factors affecting industrial location, it is impossible to determine how effective tax concessions have been in attracting new business. There is some reason to believe that states and counties which have relied heavily on such inducements have not shown marked superiority over rival units. The relative unimportance of state and local taxes in the total tax and cost picture is undoubtedly at the basis of these results.

Any favorable effect which might accrue to new industry must be considered in relation to the increased taxes on taxpayers in general or the reduced public services which might result. It is common knowledge that tax exemption (of all sorts) has given rise to serious fiscal problems for some municipalities. It is possible, of course, that the new industry raises the general level of income and reacts favorably on property values so as to offset any initial unfavorable effects. The new industry must, of course, be provided with the usual municipal services. Another effect to be considered is the possibility of inviting retaliation by other states and municipalities. The effectiveness of the tax concession is thereby reduced while the local treasury suffers permanently. The widespread use of tax concessions might even put industry in so strong a bargaining position as to impair seriously the finances of local and even state government.

For reasons such as the above, authorities in the field of public finance have consistently condemned the practice of granting tax concessions for

new business. The Research Committee of the Committee for Economic Development has recently opposed all tax incentives in its proposed post-war federal tax plan:

In general, this Committee is opposed to the theory of so-called "incentive taxation," which attempts to stimulate enterprise by means of special tax differentials for different types of income. Such differentials raise a host of administrative problems and are likely to result in a vicious cycle of special subsidies which can be paid for only by added tax burdens on other types of income. Instead, we believe that moderate and equitable tax treatment for all groups in our economy will be more conducive to an expansion of production and employment.<sup>34</sup>

A "practical" man, Mr. Kenneth J. McCarren, Vice-President of the Detroit Board of Assessors, has also expressed his opposition to such inducements:

I submit, that tax exemption as the price of securing a new industry in any given locality is in conflict with all accepted principles of sound taxation. But, the most serious aspect of these subsidies rests in the fact that there is no logical end. The granting of subsidies by one community eventually impels other communities to grant similar or larger subsidies, almost as measures of self-protection. Such a policy, if continued over a long enough period of time, should logically end in complete exemption of all industrial enterprises, with disastrous effects on our whole national economy.<sup>35</sup>

A more moderate view is held by Professor Jens P. Jensen. He opposed exemptions but recommends safeguards in case the exemptions are granted:

Tax exemption for industrial encouragement, like a protective tariff, is a device of local, mercantilist commercial policy. It must be justified or opposed on the same grounds as a tariff. On economic grounds the presumption is against both. The principal claim for exemption must be the "infant industry" argument. In the industrially developing southern states, there are probably valid bases for exemption on that ground, despite the hazard that such a policy, adopted in one state, must tend to lead others in self-defense to adopt it also. In that respect, the industrial exemptions are like national tariffs, competitive armaments, and competitive advertising. In order to guard against abuses of exemptions of this type, if they must be granted, the following restrictions should be observed.

1. The exemption should not be perpetual. That is a part of the "infant industry" argument. Time limits are characteristic of the provisions of the industrial exemptions witnessed during the past decade in the states of the "Old South." Thus in 1930, the electors of Florida ratified a constitutional amendment sanctioning

<sup>34</sup> Committee for Economic Development, Research Committee, *Postwar Federal Tax Plan for High Employment*, August, 1944, p. 22.

<sup>35</sup> Kenneth J. McCarren, "Luring Industry Through Tax Exemption," *Tax Exemptions* (Tax Policy League), p. 47, New York, 1939.

an exemption for fifteen years for companies generating hydroelectric power, no exemption to continue beyond 1948. There is objection to incorporating even a temporary exemption in the inflexible fundamental law.

2. The exemption should be limited in area, should perhaps be a matter of local option, and should be confined to the taxes of the areas that are to benefit. The state and perhaps the county should not lose revenue on account of exemptions that may benefit only one small taxing district.

3. Exemptions should apply only to the operative property used by enterprises whose encouragement is economically justifiable. While this rule is difficult to observe, it is important if indiscriminate exemptions are to be avoided.<sup>36</sup>

A sober study by the National Industrial Conference Board points up the case against tax concessions:

As the taxable base becomes narrower and narrower through the fiat of legislative bodies, the state must reach further into the pockets of those whose property and incomes are subject to assessment and their burden is thus correspondingly enhanced. As a result, the whole fiscal system becomes unbalanced and irritation is constantly generated. Tax exemptions thus serve to bring the true principles of democracy into conflict with forms of privilege for which justification may be doubtful.<sup>37</sup>

#### OTHER TAX CONCESSIONS

The unemployment insurance laws of the various states have been used to lure industry from one state to another or to defend one state against the inducements offered by others. In particular, the "merit-rating" provisions, commendable in themselves, have been used for this purpose. Since the 3 per cent payroll tax is a substantial business expense and concessions along these lines must loom large in the decisions of businessmen, any inducement is certain to be effective. The merit-rating provisions give rebates or tax credits to firms which show a record of stable employment. Such provisions are desirable in that they encourage stability of employment. They are so desirable, in fact, that their universal use is to be recommended. But their use as a device of interstate competition for new business aggravates the present confused state of interstate fiscal relations.

Apart from the merit-rating provisions of the unemployment insurance law, virtually every tax decision of a state legislature has its effects on the attractiveness of the state for business firms. Legislative competition along these lines may have the favorable effect of minimizing tax

<sup>36</sup> Jens P. Jensen, *Property Taxation in the United States*, p. 158 (Chicago: The University of Chicago Press, 1931).

<sup>37</sup> National Industrial Conference Board, *Tax Burdens and Exemptions*, p. 58, New York, 1923.



burdens on business, but the same end could be achieved—and more uniformly and less laboriously—by greater uniformity in reducing tax burdens rather than continued tax competition.

### Interstate Conflict: Tax Barriers

In order to enforce some of their tax laws, the states have occasionally found it necessary to interfere with interstate trade. From a constitutional point of view such barriers have been declared permissible only where they have been found necessary to equalize tax burdens within the state. But they are barriers to interstate trade nevertheless.

The notorious case of such tax barriers arises, of course, in the case of sales taxes. In order to enforce the sales tax, the states have imposed "compensatory use" taxes whereby a tax must be paid on goods which have been bought outside the state for use within the state. No one can deny the fairness of such a tax, once the sales tax itself is in existence. But the effect of the use tax is the same as that of a tariff. Purchasers are thereby discouraged from buying outside the state. The taxability of interstate sales, although seemingly in violation of the Constitution, has been upheld on the grounds that no discrimination is involved where taxes are designed to equalize the burden on purchases made within and without the state.

An important recent decision shows, however, that the constitutionality of such taxes depends on the details and phraseology of the tax law. In view of the number and importance of dissenting opinions in many of the cases the legal questions involved cannot be considered settled.<sup>38</sup>

Other difficulties have arisen as a result of the attempt of each state to tax an interstate carrier as much as possible. In the case of the airlines, for instance, considerable duplication of taxation has resulted. Greater coordination of taxing practices would have eliminated much litigation and interference with business activity.

### Conclusions

An increasing pressure on state finance may be expected as part of the general rise in standard of living. State governments and their creatures, municipal governments, touch the individual citizen intimately in his everyday affairs. More and more state and local services will be expected and demanded. Yet there are a number of reasons why the favorable financial situation of the states must be considered short-lived.

<sup>38</sup> See Blakey and Blakey, *op. cit.*, pp. 189-93.

For one thing, many states had taxes, such as income and sales, which yielded larger revenues during the war but will not continue to do so unless an unusual degree of prosperity is maintained. Another factor is that of deferred maintenance and building which will use up surplus funds and absorb a large part of current revenues. Finally, and most important of all, the lush war years and ample surpluses have prompted financial commitments, in state aid and otherwise, which will be a heavy burden on the states when the surplus is eaten up and revenues drop. The inevitable result—if the commitments are kept—will be that the states will raise rates, adopt new revenue sources, or go into debt even further than they have already done.

The tendency to make binding commitments as to expenditures means loss of financial control by legislative bodies. Lump-sum commitments on the expenditure side or earmarking of revenues have the effect of introducing rigidity into the fiscal policies of the states. In some cases less than one-fourth of the total appropriations are under legislative control.<sup>39</sup>

The states will have to concentrate on the development of a diversified and productive revenue system. The aim of a diversified revenue structure is to ensure a stable and yet high yield. This requires the selection of taxes which will give increasing revenues in times of prosperity and high prices but will not fall very much when depression hits. The tax structure should contain a mixture of taxes fluctuating directly or indirectly with net income and those based on more stable items. The possible effects on business must also be considered. It has been demonstrated that state taxation is not a substantial factor in plant location. Numerous independent studies lead to the same conclusion. Taxation is well down on the list of locational factors. As Professor James W. Martin has pointed out, however, such taxation is an important factor in company *prosperity* although not in its location or expansion policies. In spite of anything that is done, however, the present pattern of state finance suggests that there will be: (1) Increasing interstate conflict, (2) increasing federal-state conflict, and (3) increasing intertwining of state and local finance.

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<sup>39</sup> "Rising State Expenditures," *The Tax Foundation*, Project No. 15, February, 1946, p. 18.

## Financial Problems of Local Governments

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Many municipal governments, especially cities, have encountered difficulties in obtaining sufficient funds to meet their needs. The almost sole reliance on the property tax has placed a limit on revenue-raising possibilities. At the same time the demands for municipal services have grown. During the depression of the '30's relief needs increased and during the war the expanded level of business activity put a strain on municipal services while increased government ownership of property removed sizeable items from the assessment rolls. The development of airport facilities has been another aggravating factor.

The total amount of taxes collected by local governmental units exceeds that of state governments. In 1945, states collected \$4,255 million, excluding payroll taxes, while the aggregate for all local governments was \$4,700 million. In earlier years the relatively greater magnitude of local tax collections was much more marked. There has been little change in local tax collections for the past twenty years.<sup>1</sup> Local expenditures also appear larger than state outlays. In 1944 local governments spent \$6.0 billion while state governments spent \$5.7 billion (or \$3.9 billion exclusive of state aid).<sup>2</sup>

### Problems of City Finances

Not all levels of municipal government have fared badly. Cities have been the hardest hit but counties have often gained at their expense. During the depression of the '30's highly centralized and organized communities like the cities could not fail to maintain at least a minimum

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<sup>1</sup> See "Total Tax Collections in 1945," *Tax Policy*, Vol. 13, No. 2 (February, 1946), p. 3. (New York: Tax Institute.)

<sup>2</sup> "Total Government Expenditures in 1944," *Tax Policy*, June, 1946, p. 3.

level of relief service. This put a tremendous burden on the cities with the result that state aid and the transfer of some functions to county governments had to be relied on. During the war the cities experienced an influx of population which increased the demands for city services. Property tax revenues improved too but not sufficiently to provide the needed funds.

#### INCREASING COSTS OF OPERATION

Since the war the demands for wage increases, the need for maintenance of public structures neglected during the war, the rise in the cost of materials, and the return of veterans tended to force increases in the budgets of city governments. With increased cost of labor and materials and large demand for city services, many city governments have found their budgets at a peak. To take a few examples, Dallas had a budget approximately twice as great as it was in prewar years. Milwaukee's budget was up more than two-thirds. Los Angeles in 1946 was over a third more than the previous year and San Francisco was up more than a quarter.

It is noteworthy that cities have run into financial difficulties at a time when state and federal governments are finding either surpluses or at least balanced budgets practicable. In the decade before the war the federal government increased its revenue fourfold while state revenues more than doubled. Cities, however, increased their revenues only 2.5 per cent. During the war the states were losing on such items as gasoline taxes but gaining heavily on income taxes. They built up large reserves largely because of their inability to spend money on capital projects and highways.

#### URBANIZATION AND SUBURBANIZATION

The greatest long-run threat to the fiscal stability of cities, however, lies in the trend to the suburbs. In the nineteenth century the growth of manufacturing was associated with the growth of cities. This was attributable to such factors as common transport facilities, pooled labor supplies, financial institutions, and other community facilities and services.<sup>3</sup> The extent of the urbanization is indicated by Table 34.

The development of electric power and the use of the electric-driven trolley car influenced the shape of the cities by favoring outward ex-

<sup>3</sup> See Edgar M. Hoover, "The Location of Economic Activity," Chapter 25 in Harold F. Williamson (ed.), *The Growth of the American Economy* (New York: Prentice-Hall, Inc., 1944).

tensions along main arteries of traffic, giving much the appearance of spreading tentacles.<sup>4</sup>

Table 34

NUMBER OF URBAN PLACES OF 8,000 INHABITANTS OR MORE,  
AND PERCENTAGE OF TOTAL U.S. POPULATION LIVING IN SUCH  
PLACES, 1790-1940\*

Census Year	Place of 8,000 Inhabitants or More		Increase in Per Cent of Total Population from Previous Census
	Number	Per Cent of Total Population	
1790.....	6	3.3	..
1800.....	6	4.0	0.7
1810.....	11	4.9	0.9
1820.....	13	4.9	..
1830.....	26	6.7	1.8
1840.....	44	8.5	1.8
1850.....	85	12.5	4.0
1860.....	141	16.1	3.6
1870.....	226	20.9	4.8
1880.....	285	22.7	1.8
1890.....	445	29.0	6.3
1900.....	547	32.9	3.9
1910.....	768	38.7	5.8
1920.....	924	43.8	5.1
1930.....	1,208	49.1	5.3
1940.....	1,323	49.3	0.2

\* U.S. Bureau of the Census, *Statistical Abstract of the United States, 1941*, Table 8, p. 6.

The automobile has changed all of this. Downtown mercantile areas have suffered and neighborhood or outlying areas have gained. City workers can live in suburbs off the beaten path without ready access to public transit facilities. With the growth of trucking in competition with railways industrial plants have spread over a wider area as well. They have been attracted to the suburbs by cheaper land and lower taxes, the latter made possible by the smaller number of general services—libraries, zoos, etc.—provided. A continuation in the exodus to the suburbs threatens the cities.<sup>5</sup> The suburbs have demonstrated their ability to

<sup>4</sup> Hoover, *op. cit.*, p. 597.

<sup>5</sup> See Philip H. Cornick, "New Exodus to Suburbs Near," *National Municipal Review*, January, 1946, pp. 4-8.

provide residential, commercial, and industrial space with low taxes and pleasant surroundings. The parasitical aspect of the relation between city and suburb remains since the suburbanites receive without cost many services of the city where they spend much or most of their time. They also spend much or most of their money in the cities but this money does not flow directly into the city treasury for the support of municipal services.

### RELIANCE ON THE PROPERTY TAX

The mainstay of local revenue, the property tax, cannot bear the burden of financing the increased cost of municipal services. This source of funds has been exploited more and more as needs have grown. The trend continues. The year 1946 showed "an accelerated increase in tax rates, the greatest in eight years."<sup>6</sup> There was also an increase of 5.3 per cent in assessments over the previous year. This was the greatest increase in assessments since comparisons of this sort were begun in 1932. The average city in the United States derives about 90 per cent of its tax revenue and 75 per cent of its total revenue from the property tax. The same study shows that 52 per cent of the cities increased their property tax rates.

**Differences in Assessment Procedure.** In making comparisons of tax rates, it is necessary to take account of differences in assessment procedure. The information that a tax rate is \$50 per \$1000 of assessed valuation is not, of itself, very informative since the assessment may be at only a fraction of full value. Suppose that the assessment is at two-thirds of full value. The average full value of property assessed at \$1000 is then \$1500. The "adjusted" rate is then said to be \$50 for \$1500 or \$33.33 per \$1000. This is the type of adjustment made in Table 35. The major defect of the adjustment lies in determining just what percentage of full value the assessment is. The so-called "equalization ratios" are often determined by political rather than economic considerations and are misleading on this point.

**Increases in Tax Rates.** The increases in tax rates from 1941 to 1946 are shown in Table 35. This table shows an increase of \$1.75 per \$1000 in the unadjusted rates and \$.75 per \$1000 in the adjusted rates.

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<sup>6</sup> "Tax Rates of American Cities," *National Municipal Review*, Vol. 35, No. 11 (December, 1946), p. 570.

Table 35

## FIVE-YEAR COMPARISON OF AVERAGE UNADJUSTED AND ADJUSTED TAX RATES OF 249 AMERICAN CITIES\*

Population Group†	Average Unadjusted Rates per \$1,000 Assessed Value			Average Adjusted Rates per \$1,000 Assessed Value		
	1946	1941	Increase	1946	1941	Increase
I‡	\$43.56	\$39.78	\$3.78	\$32.86	\$30.11	\$2.75
II	37.19	33.98	3.21	32.92	28.56	4.36
III	51.83	45.09	6.74	27.53	27.60	-.07
IV	41.04	40.64	.40	30.00	29.28	.72
V	40.19	38.33	1.86	28.06	27.04	1.02
VI§	40.08	30.04	1.04	26.55	26.25	.30
Totals	\$41.23	\$39.48	\$1.75	\$28.09	\$27.34	\$ .75

\* "Tax Rates of American Cities," *National Municipal Review*, December, 1946, p. 572.

† Population groups defined by the U.S. Bureau of Census.

‡ New York City and Chicago not included.

§ Group VI is defined by the Bureau of Census to include cities between 25,000 and 50,000 population, but in this study cities under 30,000 were not tabulated.

**Growth of Assessed Value.** The following table makes comparisons in assessed value from 1945-46 and from 1941-46.

Table 36

## CHANGES IN ASSESSED VALUE OVER ONE-YEAR AND FIVE-YEAR PERIODS\*

Population Group†	Average Per Capita Assessed Value		Per Cent Increase in Assessment 1945-46	Per Cent Increase in Assessment 1941-46
	1946	1945		
I‡	\$15.49	\$14.75	5.0%	10.9%
II	16.97	16.74	1.4	7.8
III	12.68	11.87	6.8	14.3
IV	12.83	12.55	2.2	9.7
V	13.53	13.05	3.7	9.2
VI§	12.45	12.06	3.2	11.6
Totals	\$14.26	\$13.54	5.3%	10.5%

\* "Tax Rates of American Cities," *National Municipal Review*, December, 1946, p. 572.

† Population groups defined by the U.S. Bureau of Census.

‡ New York City and Chicago not included.

§ Group VI is defined by the Bureau of Census to include cities between 25,000 and 50,000 population, but in this study cities under 30,000 were not tabulated.

It will be seen that increases took place during these periods. The average assessed value per capita rose from \$13.54 in 1945 to \$14.26 in 1946. Assessment as a whole increased 5.3 per cent from 1945 to 1946 and 10.5 per cent from 1941 to 1946. The greatest increase in total assessment took place in cities in the 250,000 to 500,000 population class.

**Predominance of Property Tax Revenues.** The predominance of property tax revenues in the local tax structure may be visualized from Table 37:

*Table 37\**  
**LOCAL TAXES: 1945**  
 (ESTIMATED; IN MILLIONS)

<i>Tax</i>	<i>Revenues</i>
Income.....	\$ 32
Property.....	4,322
Alcoholic beverage.....	19
Gasoline.....	7
General sales and use.....	70
Motor vehicle.....	11
Other.....	239
	\$4,700

\* Adapted from "Total Tax Collections in 1945,"  
*Tax Policy*, Vol. 13, No. 2 (February, 1946), p. 2  
 (New York: Tax Institute).

**Limitations of the Property Tax.** There are economic limits to the real estate tax imposed by any restricted jurisdiction such as a city. In some cases the rates are so high that people move to the suburbs. Moreover there are so many defects to the local property tax—inequalities of assessment, delinquencies in collection, growth of exemptions—that it is questionable whether further reliance on this type of tax should be encouraged. In addition to these economic factors there are often statutory limits to the property tax. The combination of economic and legal factors restricting further reliance on the property tax makes the search for other sources of funds imperative. In any case, improvement in administration is a "must" for the property tax.

#### RESTRICTIONS ON BORROWING POWER

Legal restrictions also hamper local borrowing in many cases. Quite apart from legal restrictions, however, the borrowing power of municipalities is limited in much the same way as is that of an individual. The



three C's of credit—Character, Capacity, and Capital—apply to a municipality just as much as they do to its citizens. The hard-headed investors in “municipals” look at the past debt record, efficiency and honesty of the officials, the fiscal capacity of the government, and numerous other items. Once a city loses its credit standing, it must fight a long uphill battle to regain it.<sup>7</sup> The price it pays for past indiscretions comes in the form of higher interest rates. Many municipalities, especially those remote from financial centers, pay dearly for the use of borrowed money.

Even cities which have good credit standing and are substantially within their legal borrowing limit are reluctant to increase their bonded indebtedness. A widespread recognition of the expensive nature of interest charges is growing. As a result of this attitude, a “pay-as-you-go” policy has taken hold and is spreading rapidly.<sup>8</sup> Since local borrowing merely postpones and aggravates the revenue problem, any departure from the “pay-as-you-go” policy cannot be considered a substitute for the search for revenue sources to supplement the property tax.

### Supplementary Revenue Sources

The inadequacy of the property tax and the growing sentiment in favor of stopping the growth in debt have driven some municipalities into a search for supplementary sources of revenue. City governments have been particularly affected. State governments have been called upon to supply more and more funds in the form of shared taxes and aids for specific purposes. But the states have had their own problems to face and, in particular, have been reluctant to use up their war-born surpluses. Many cities have, therefore, found it necessary to impose new taxes and extend their licensing system. Owing to the lag in comprehensive municipal statistics, the factual data used in the following discussion of “supplementary revenue sources” necessarily apply to two or three years ago for the most part.<sup>9</sup>

#### RELIANCE OF CITIES ON NON-PROPERTY SOURCES OF REVENUE

As yet only a small minority of cities is involved. A survey which was made of all cities over 10,000 in 1944 showed that only 10 per cent

<sup>7</sup> See George W. Wanamaker, “Buffalo Improves Its Credit,” *Municipal Finance*, November, 1946, pp. 6-9.

<sup>8</sup> See, for instance, “Debt-Free Cities and Pay-As-You-Go Financing; A Survey,” *Public Management*, Vol. 28, No. 9 (September, 1946), pp. 272-74.

<sup>9</sup> The factual data in the rest of this chapter are derived from the following source unless otherwise indicated: A. M. Hillhouse and Muriel Magelssen, *Where Cities Get Their Money* (Chicago: Municipal Finance Officers Association, 1945).

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of those that replied had resorted to new revenue sources in 1943. In some cases a large proportion of the total revenue is derived from non-property tax sources. A few examples may be cited. New Orleans derived 25.0 per cent of its revenue in 1942 from sales and gross receipts taxes. Fort Smith, Arkansas, derived 51.7 per cent from licenses and permits. Kokomo, Indiana, obtained 69.9 per cent as aid from other governments. Burbank, California, received 39.9 per cent as charges for current services. Rocky Mount, North Carolina, derived 72.9 per cent as contributions from public service enterprises. In a few instances the high

*Table 38*  
CITIES WITH LARGE NON-PROPERTY TAX REVENUES, 1944\*

<i>City</i>	<i>Property Tax Revenues (Per cent)</i>	<i>Other † Revenues (Per Cent)</i>
Riverside (Calif.) (Pop. 25-50,000) . . . . .	13.4	86.6
Roseville (Calif.) (Pop. 5-10,000) . . . . .	20.4	79.6
Birmingham (Ala.) (Pop. 200-500,000) . . . . .	22.7	77.3
Tacoma (Wash.) (Pop. 100-200,000) . . . . .	24.0	76.0
Waukesha (Wisc.) (Pop. 10-25,000) . . . . .	27.5	72.5
Milwaukee (Wisc.) (Pop. over 500,000) . . . . .	29.2	70.8
New Orleans (La.) (Pop. 200-500,000) . . . . .	30.8	69.2
Huntington (W. Va.) (Pop. 50-100,000) . . . . .	35.0	65.0
Jamestown (N. Y.) (Pop. 25-50,000) . . . . .	38.3	61.7
Fort Wayne (Ind.) (Pop. 100-200,000) . . . . .	47.8	52.2

\* Adapted from Hillhouse and Magelssen, *op. cit.*, p. 3. (Based on city reports and correspondence with cities.)

† Includes one or more of the following: non-property taxes, shared taxes, state aid, federal aid, licenses and permits, departmental receipts, commercial earnings, earnings of utilities, public utility franchise and gross earnings taxes, miscellaneous.

proportion of non-property tax revenues is merely a reflection of the fact that the general level of expenditures is low. Since the property tax rate is normally adjusted from year to year to take up the slack in revenue needs, the property tax revenues may be low *because* the other revenues are adequate.

**Cities with a High Proportion of Non-property Revenues.** The preceding table lists a number of cities which in 1944 derived a relatively high proportion of their total revenues from several non-property tax sources. The population grouping of the city is indicated in brackets after the name.

**Variety of Non-property Revenues.** The new or enlarged revenue sources include: amusement admissions tax; license taxes based on gross receipts; liquor, tobacco, and gasoline taxes; motor vehicle licenses; parking meters; special service charges for garbage and refuse collection and sewage disposal; public utility taxes based on gross earnings, putting publicly owned utilities on a profit-making basis; chain store tax; income tax; sales tax; tenants' and occupiers' tax; city shares in state-collected taxes; state and federal aids. As yet no city levies an inheritance or estate tax.

*Table 39*  
REVENUE RECEIPTS OF ALL CITIES OVER 100,000 POPULATION,  
1930 AND 1943  
(FIGURES IN THOUSANDS)\*

<i>Revenue Class</i>	<i>1930</i>	<i>1943</i>
Total revenue receipts † . . . . .	\$2,027,178	\$2,072,131
Total taxes collected . . . . .	1,588,320	1,586,746
Property taxes . . . . .	1,500,925	1,381,039
Other taxes . . . . .	87,395	205,707

\* Adapted from Hillhouse and Magelssen, *op. cit.*, p. 7. (Based on Bureau of the Census publications.)

† Excluding earnings from public service enterprises.

In spite of these new and enlarged sources of revenue, the main reliance of the cities is still on the property tax. The trend from 1930 to 1943 is shown in Table 39. Shared taxes and aids from federal, state, and county governments loom large in the revenues from sources other than taxation. A great increase in revenues from sales and gross receipts taxes took place. This was partly a result of the adoption of such taxes by New York City and New Orleans and partly a result of classification,

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the licenses based on gross receipts being included under gross receipts rather than under licenses by the Bureau of the Census.

Some of the supplementary revenue sources will be discussed in greater detail below. This is a problem which is likely to grow more rather than less acute. An awareness of the intricacies of these revenue sources is desirable in an evaluation of the fiscal problems of the cities.

**New York City Emergency Revenue.** New York City may be taken as an illustration of the use of non-property revenue. The wide variety of supplementary sources relied on by New York City is demonstrated in Table 40:

Table 40  
NEW YORK CITY EMERGENCY REVENUE  
(MILLIONS OF DOLLARS)\*

Type of Tax	Yield (Fiscal Year, July 1-June 30)				
	1939-40	1940-41	1941-42	1942-43	1943-44
Sales tax.....	\$ 55.14	\$ 58.85	\$ 52.07	\$ 32.95	\$ 37.03
Business tax.....	12.28	13.11	8.72	10.66	12.11
Utility tax.....	8.95	7.52	5.28	6.52	6.90
Conduit tax.....	.42	.48	.46	.46	.46
Personal property tax.....	1.72	1.01	.96	.55	.22
Cigarette tax.....	5.54	.16	..	..	..
Interest and penalties.....	1.32	1.05	1.52	.89	.18
Compensating use tax.....	..	.87	1.14	.63	.50
<b>TOTALS.....</b>	<b>\$ 85.37</b>	<b>\$ 83.05</b>	<b>\$ 70.15</b>	<b>\$ 52.66</b>	<b>\$ 57.40</b>
Total receipts.....	\$834.09	\$843.08	\$811.90	\$791.00	\$809.29

\* Adapted from Roy G. Blakey and Gladys C. Blakey, *Sales Taxes and Other Excises*, p. 26. (Chicago: Public Administration Service, 1945.) (Data were furnished by the office of the Comptroller.)

**Overlapping with Federal and State Taxes.** The financial plight of the cities, in particular, is so serious that in many cases a multiplicity of supplementary revenue sources has been adopted or will have to be adopted even though the property tax is still and will probably remain the mainstay of local revenue. The supplementary sources of revenue tapped by the cities have, however, frequently been rather adequately exploited by the state and federal governments. This may be seen from a list of the taxes adopted: income, business licenses, and gross receipts taxes. Thus the municipalities do not have a clear field in supplementing

their revenue. The attempt to solve the financial problems of the municipalities in this way aggravates the fiscal overlapping of governmental units.

### LICENSES

The practice of licensing certain occupations and businesses as a regulatory measure has been extended to perform revenue-raising functions as well. There are a great many terminological confusions surrounding such items as licenses, permits, fees, taxes, and franchises.<sup>10</sup> A *license* usually authorizes a specified type of activity for a given period. *Permits* are usually designed for more sporadic activities, particularly where established standards of health, building, or safety are to be maintained. The permit, aside from giving "permission," generally implies certification that established standards are met. Hence, the permit is sometimes a prerequisite to obtaining a license.

*Franchises* are contracts providing for the private use of public property for a specified period. Licenses, on the other hand, are outright grants of the privilege of doing business or carrying on an occupation. The distinction between *fees* and *taxes* must be made on the basis of the magnitude and primary purpose of the levy. If the purpose is a regulatory one and the amount charged is approximately the amount required for administrative purposes, the term "fee" is appropriate. If revenue is the main purpose the term "tax" should be used.

An example of a legal attempt to avoid complications on account of this distinction may be found in the license code of Grand Rapids, Michigan:<sup>11</sup>

In construing this ordinance the terms "license fee," "annual fee," or "specific tax" are to be deemed mutually interchangeable, and if any such fee cannot be sustained as a license fee, it shall be treated as a specific tax upon the occupation or business named, or vice versa.

There are three types of licenses which have revenue-producing possibilities: business licenses, vending machine licenses, and licenses for minor highway privileges.

**General Business Licenses.** Business licenses were required for mercantile establishments in 441 cities throughout the United States in 1943. Among the types of licenses are those for: commercial amusement

<sup>10</sup> See Hillhouse and Magelssen, *op. cit.*

<sup>11</sup> Edward W. Harding, *Municipal Revenues from Sources Other than Taxation*, p. 58, n. 11. (Albany, N. Y.: New York State Conference of Mayors and Other Municipal Officials, Bureau of Training and Research, 1935, Publication No. 35). (Derived from License Code, Grand Rapids, Michigan, Ordinance No. 904, Section 8.)

(as bowling alleys, dance halls, and shooting galleries); health and safety (as for barber shops, food handlers, and slaughterhouses); manufacturing (as bottling works, packing plants, and soap works); merchandising (as commission merchants, department stores, and newsdealers); professions and occupations (as accountants, hucksters, and nurses); and transportation (as bus drivers, taxicabs, and trucks). The examples in parentheses are only a few of the many that might be given. Exemptions from general municipal license taxes are often granted to those businesses or occupations which are affected by special state taxes. Businesses engaged solely in interstate commerce are also beyond the reach of municipal licensing provisions. Special exemptions may also be granted to sellers of religious articles, nonprofit organizations, produce growers, and war veterans. Transient merchants, on the other hand, may sometimes be required to pay a higher tax than a resident merchant.

There is a wide variety of bases for measuring the license tax. Among these are: type of occupation; value of inventory; rental value; street frontage; floor space; seating capacity; number of rooms, units, or pieces of equipment or vehicles; number of employees; number of salesmen; number of customers; number of companies represented by agent; admission price; volume of purchases; gross receipts; invested capacity; kind or size of equipment; volume of production or productive capacity. The rate structure also varies. The rate may be a fixed amount, a fixed percentage, a bracketed structure with either increasing or decreasing rates, or some combination of these.

A few examples of licenses based on gross receipts or number of employees may be mentioned as of 1945. New York City adopted a license tax applicable to financial and commercial businesses in 1934. The base is gross income in excess of \$15,000. Commercial businesses are taxed at a rate of one-twentieth of 1 per cent and financial businesses at a rate of one-tenth of 1 per cent. In 1944 the tax yielded nearly \$13 million. Los Angeles instituted a business license tax in 1936. The tax applied to both wholesalers and retailers and is based on gross receipts. Wholesalers pay a tax which varies from \$5 for gross receipts less than \$10,000 to \$2,670 for gross receipts of \$30 million or over. Retailers pay from \$5 for gross receipts less than \$5,000 to \$3,835 for \$30 million or over. The tax yielded nearly \$900,000 in 1944. San Diego adopted a business and occupation license tax in 1942. Manufacturers, wholesalers, retailers, and certain service establishments are covered. The base is the number of employees in the previous six months. The rate is \$10 plus \$1 for each employee.

**Vending Machine Licenses.** Vending machines which sell merchandise are frequently subject to license. The justification lies primarily in the fact that they compete with licensed businessmen. Moreover they operate all hours of the day and night, regardless of holidays or closing restrictions. Another point in justifying such licenses is the fact that they require inspection. Among the bases for the fees are: kind of article vended, size of coin inserted, use of the machine (public or private), number of vending machines, whether operator is a licensed merchant, gross receipts from the machines. The list of states which license vending machines includes Alabama, California, Colorado, Delaware, Florida, Kansas, Michigan, Minnesota, New Jersey, North Carolina, Texas, Virginia, and Washington.

**Licenses for Minor Highway Privileges.** The privilege of encroaching on, under, or over public streets is licensed in some municipalities. The justification for the tax lies in the fact that the municipality may be liable for injuries resulting from accidents. These are called "minor" highway privileges to distinguish them from the "major" privileges granted public utilities. The minor highway privileges include overhead privileges, such as advertising signs and barber poles; privileges on the street surface beyond property lines, such as news stands and gasoline pumps located beyond property lines; and privileges under the streets' surface, such as coal holes and tunnels. There are three main methods of determining the size of the fee: according to the zone or district in which the privilege is granted; according to the value of the land; and according to a combination of the two. In 1944 such fees yielded a total of \$1,385,240 in New York City. Table 41 lists cities which obtain a high percentage of their total revenues from licenses and permits.

**Appraisal of Business Licenses.** Business license taxes based on gross receipts have the advantage of greater stability of revenue than many other sources, particularly the net income tax. Although gross receipts may fall off substantially during a depression, they do not disappear or become negative, as frequently happens to net income. By the same token, a gross receipts tax must be paid by a firm even though it is losing money, hence such a tax has an aggravating effect during the downswing and depression. A flat-rate business license tax shows even greater stability of revenue but it tends to be more inequitable and burdensome than that based on gross receipts.

There can be little doubt that some of the tax would be shifted forward to the consumer, especially if the tax is based on gross receipts. The tax would have the effect of a general increase in cost per unit sold.

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*Table 41*

**CITIES WHICH OBTAINED A HIGH PERCENTAGE OF TOTAL  
REVENUE FROM LICENSES AND PERMITS IN 1942\***

<i>City</i>	<i>Percentage of Total Revenue</i>
Fort Smith (Ark.).....	51.7
Gadsden (Ala.).....	31.9
Montgomery (Ala.).....	29.1
Little Rock (Ark.).....	28.8
Mobile (Ala.).....	23.9
Joliet (Ill.).....	23.9
Joplin (Mo.).....	22.9
Berwyn (Ill.).....	22.7
Macon (Ga.).....	20.9
East St. Louis (Ill.).....	20.6
Clarksburg (W. Va.).....	20.6
Waukegan (Ill.).....	20.5

\* Adapted from Hillhouse and Magelssen, *op. cit.*, p. 2. (Based on U.S. Bureau of the Census, *City Finances*, 1942.)

Businessmen are almost certain to find it desirable to raise prices somewhat rather than absorb the tax in its entirety. Yet, unlike the sales tax, the shifting of the license tax will not be clearly evident to the consumer. The entire volume of sales, rather than each individual sale, is taxed.

**SALES AND USE TAXES**

Sales taxes have been adopted by a few cities: New York, Montreal, New Orleans, Atlantic City, San Bernardino (Calif.), Santa Barbara (Calif.), Quebec City (Que.), Charleston (W. Va.), and Huntington (W. Va.). In recent years Erie County in New York State has had a sales tax under a provision which requires most of the funds collected to be turned over to the City of Buffalo for educational purposes. St. Louis and Kansas City (Mo.) have gross receipts taxes which are sometimes classified as sales taxes. A sales tax closely resembles a business license tax based on gross receipts but there is an important difference when retail transactions are made. In the case of the sales tax the amount of the tax is clearly indicated for each sale. The gross receipts tax involves an over-all amount and the taxpayer derives the funds from whatever source he wishes.

In some cases the states as well as the municipalities impose sales taxes. For instance there are 19 cities in California which have local



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sales taxes in addition to the state sales tax of 2½ per cent. New Orleans imposed a 2 per cent sales tax while the State of Louisiana has a 1 per cent tax. On the other hand the city of New York has a 2 per cent sales tax while the state does not have any. Table 42 lists cities which obtain a high percentage of their total revenue from sales and gross receipts taxes:

Table 42

CITIES WHICH OBTAINED A HIGH PERCENTAGE OF TOTAL REVENUE FROM SALES AND GROSS RECEIPTS TAXES IN 1942\*

City	Percentage of Total Revenue
New Orleans (La.).....	25.0
Elyria (Ohio).....	22.7
Kearny (N. J.).....	20.6
Huntington (W. Va.).....	19.0
Tuscaloosa (Ala.).....	18.6
St. Louis (Mo.).....	17.3
West Orange (N. J.).....	17.3
Pensacola (Fla.).....	16.5
Washington (D.C.).....	15.0
Birmingham (Ala.).....	15.0

\* Adapted from Hillhouse and Magelssen, *op. cit.*, p. 2. (Based on U.S. Bureau of the Census, *City Finances, 1942.*)

**Yield.** Cities which have adopted the sales tax have found it a good revenue producer in good times. Nevertheless it remains only a small contributor to the total revenue in most cases. The experience of a few selected cities is given in Table 43. There is considerable disparity in the coverage of the tax, not shown in this table.

Table 43

SALES TAX REVENUES OF SELECTED CITIES\*

City	Rate	Yield	Percentage of City Revenue
New York City.....	1%	\$36,963,989 (1944)	3.1%
St. Louis.....	1/10 of 1%	1,621,000 (1943)	5.4%
Kansas City.....	1/2 of 1%	319,000 (1943)	2.8%
New Orleans.....	2%	5,357,000 (1944)	40.0%

\* Adapted from Hillhouse and Magelssen, *op. cit.*, p. 50.

**Exemptions.** An important social and economic problem which arises in connection with the sales tax is that of the exemptions per-

mitted. Great pressure is always brought to bear to exempt food and other necessities. Atlantic City makes extensive exemptions of this sort. New York City exempts certain food items. Other exemptions run in terms of flat cash amounts on specified commodities or services.

**Compensatory Use Taxes.** A necessary corollary to the sales tax is the use tax which is a levy on goods bought outside the city for use within the city. New York City and New Orleans levy such taxes.

**Appraisal of Municipal Sales Taxes.** There can be no doubt that a sales tax without exemptions is regressive and falls heavily on the low-income groups. The extent of the regressivity depends on the inclusiveness of the tax. If food and other necessities are excluded the tax may lose its regressive features. The sales tax is frequently referred to as the poor man's tax, as in the following verse which appeared at the time that Philadelphia first considered a sales tax:

Get the hatchet, get the ax,  
We won't pay the poor man's tax

For these reasons labor groups have generally and vigorously opposed the imposition of sales taxes. The answer to this lies in making the tax selective, exempting such items as food and drugs. Such action, however, may impair the revenue-yielding possibilities of the sales tax, especially at the low rates usually adopted.

The yield from such taxes is relatively stable. This is an important advantage for any municipal budget. Moreover, these taxes reach persons who use the metropolitan area for shopping services but pay no property taxes therein. Unless the metropolitan area covered by the tax is large, like New York City, or relatively isolated from major competing trading areas like New Orleans or Santa Barbara, or frequented by high-income groups who may overlook the tax like Atlantic City, there is serious danger of driving business away. Cities which have trading areas in suburbs on their periphery or are close to competing trading areas are particularly vulnerable.

#### INCOME TAXES

A source of revenue which is unusual for municipal governments, the income tax, has been adopted in three cities. By the end of 1946 it was reported to have been studied in at least another 25 cities. The three cities which now have an income tax are Toledo, Philadelphia, and St. Louis. Several other cities in United States and Canada have had income taxes but have abandoned them. Among these is New York City, which adopted the tax in 1934 but was required to drop its tax by state law,

and Montreal, which gave up its tax under an agreement between the Dominion and provincial governments in 1941 whereby the Dominion took over all income taxation.

**Philadelphia's Income Tax.** The city of Philadelphia first adopted an income tax in 1939. Its annual yield is approximately \$20 million. The tax rate is 1 per cent on gross earnings and is collected at the source on wages and salaries. Corporate income is excluded by state law because the state itself collects a tax on such income. There is no state tax on individual income. Residents of Philadelphia pay the tax on all salaries, wages, other compensation and net profits of businesses, professions, or other activities. Non-residents pay on that part of their income resulting from work done or services performed or rendered or activities conducted in Philadelphia.

That a municipal income tax may be a good revenue producer is indicated clearly by Philadelphia's experience, as shown in Table 44:

*Table 44*  
PRODUCTIVITY OF THE PHILADELPHIA  
INCOME TAX\*

<i>Year</i>	<i>Rate</i>	<i>Total Receipts</i>
1940.....	1½%	\$16,283,820.34
1941.....	1½%	18,377,901.44
1942.....	1½%	24,762,041.43
1943.....	1%	20,761,883.44
1944.....	1%	22,315,170.14
1945.....	1%	22,430,548.16

\* W. Frank Marshall, *The Philadelphia Income Tax*, p. 4 (Philadelphia, June 7, 1946).

A more detailed analysis shows that the withholding tax on payrolls forms the major source of revenue.<sup>12</sup>

**Toledo's Income Tax.** Toledo enacted an income tax for the first time in January, 1946. Its annual revenue is expected to be \$3½ to \$4½ million. The tax rate is 1 per cent. Unlike the income tax in Philadelphia, Toledo's tax applies to all earnings including corporate net profits since the state of Ohio has no tax on individual net income. Otherwise the provisions, including those for withholding, are similar to those in Philadelphia. A recent ruling excludes rental income aggregating less

<sup>12</sup> See Robert J. Patterson, "Philadelphia's Tax in Fifth Year," *National Municipal Review* (October, 1944), p. 457.

than one hundred dollars per month.<sup>13</sup> The adoption of this tax culminates fifteen consecutive years of annual deficits.<sup>14</sup>

**St. Louis's Income Tax.** The most recently adopted city income tax is that in St. Louis which dates from August 1, 1946. The tax rate is only one-fourth of 1 per cent imposed on individual and corporate earnings. The coverage is similar to Toledo's tax. Like taxes in both Philadelphia and Toledo, such income items as dividends and rents are excluded (unless they are part of the taxpayer's business activity). For this reason the tax is called an "earnings tax" rather than an "income tax."<sup>15</sup> The yield is expected to be \$4 million per year. The noteworthy aspect of the St. Louis tax is that the state government also taxes both corporate and individual incomes. The corporate levy is 2 per cent and the individual levy is graduated from 1 per cent to 4 per cent. Thus income recipients in the city of St. Louis pay income tax to three jurisdictions: local, state, and federal.

**Appraisal of Municipal Income Taxes.** The municipal income tax seems to be the most promising answer there is to the financial problems facing the cities. It is more equitable than a general sales tax but less equitable than a sales tax which is selective and exempts necessities. As a method of raising much-needed revenue it provides a method of diversification which is much preferable to increased reliance on the property tax. The revenue derived is large and even fairly stable because of the lack of any deductions or exemptions. Above all, since the tax applies to nonresidents as well as residents, it gets the so-called "daylight citizens" who earn their income in the city but live outside. Since one of the main advantages of living in the suburbs is thereby removed, the imposition of an income tax, especially at a rate of, say, 2 per cent, might even reduce suburban objections to the absorption by the cities.

The prevailing municipal income taxes in Philadelphia, Toledo, and St. Louis have some notable defects. They violate the principle of ability-to-pay in that they allow of no exemptions or deductions and they have a flat percentage rate regardless of size of income. The diverse treatment of corporate income and income from property is hard to justify. There is also some danger of being misled by the high yield in good times to placing too much reliance on this tax. A more stable source of revenue is

<sup>13</sup> "Income Tax Regulations," *The Toledo City Journal* (July 27, 1946), p. 414.

<sup>14</sup> See Ronald E. Gregg, "Toledo Adopts Payroll Tax," *National Municipal Review* (March, 1946), pp. 108-10, 120.

<sup>15</sup> See *City of St. Louis: Earnings Tax*, issued by Collector of Revenue, City of St. Louis, July 25, 1946.

needed to carry on at least the minimum of city services during depression years. Finally, there is a slight danger of driving firms into suburbs in those cases where competitive conditions as to industrial location exist between the city and suburbs. If suburban companies find it easier to obtain workers on account of the city tax the city firms may find it profitable to move rather than attempt to attract workers by sufficiently higher wages. These factors would probably not come into operation, however, at the low income tax rates that cities are likely to impose.

#### MISCELLANEOUS TAXES, CHARGES, AND REVENUES

A large variety of items have been taxed by various cities. Such commodities as tobacco, gasoline, liquor, and automobiles have been hit. Such services as amusements and utilities have also been taxed. In Florida, for instance, there are twenty-five cities which collect a 10 per cent tax on consumers' utility bills. Some of the taxes and charges are discussed in greater detail below.

**Cigarette and Tobacco Taxes.** In 1945 there were twenty-six cities which levied cigarette taxes. Most of them are in Alabama, Florida, and Missouri. Denver (Colo.) and Atlantic City (N. J.) also levy such taxes. It has been a good revenue producer. The tax has all the defects and merits of an ordinary sales tax except that the commodity taxed may possibly be considered a luxury and thus its regressivity, although equally marked, is not so objectionable as that of the general sales tax.

**Alcoholic Beverage Taxes.** Municipal taxes on alcoholic beverages may take the form of licenses, consumption or excise taxes, or taxes on liquor store profits. In 1942, 52 out of 92 cities with populations exceeding 100,000 licensed the sale of alcoholic beverages. Among them were Chicago, Boston, Newark, and Worcester. Three cities in this category (Washington, D.C., New Orleans, La., and Birmingham, Ala.) have consumption or excise taxes. There are four states (North Dakota, South Dakota, Minnesota, and Wisconsin) in which municipal liquor stores are found. These taxes are good revenue producers and are justifiable on the same basis as are the cigarette taxes.

**Municipal Chain Store Taxes.** Although a number of cities have levied taxes on chain stores and self-service markets the fiscal effects are negligible. The largest amount reported collected in recent years was \$20,000 by Wheeling, West Virginia.<sup>16</sup> The other economic effects are harder to determine on the basis of the scanty evidence available. Since

<sup>16</sup> Blakey and Blakey, *op. cit.*, p. 163.

the purposes of such taxes are primarily regulatory and discriminatory they cannot be appraised on their revenue-producing characteristics alone.

**Motorists' Taxes.** A number of cities have resorted to various motorists' taxes in order to supplement their revenues. As listed by Hillhouse and Magelssen these include: gasoline and other motor fuel taxes, motor vehicle licenses, commercial vehicle franchise fees or taxes, operators' licenses, vehicle inspection fees, parking meters, municipally owned parking lots, special trailer taxes, personal property taxes on motor vehicles, bridge tolls, and vehicular tunnel tolls.

The gasoline tax was used by four cities over 100,000 population in 1945: St. Louis, Washington, Kansas City (Mo.), and Birmingham. A great many other cities in some ten states had adopted this type of tax. Motor vehicle license taxes have been authorized for cities in twelve states. Both the fuel and vehicle taxes have been good revenue producers. Local operators' licenses are required in approximately twenty-six states. A few cities require vehicle inspection, primarily for safety purposes. Parking meters, used by 430 cities in 1944, are a decidedly lucrative source of revenue, especially considering their low cost of operation. Some forty cities have, however, abandoned their meters since 1935 either because of unfavorable court action or unpopularity with motorists and merchants. Of the other types of motorists' taxes only tolls have any substantial revenue effect. An automobile stamp tax, like the now defunct federal tax, has also been recommended for cities.

Except for the motor fuel taxes the various levies described above involve no economic dangers to the municipality. Some of them may seem to have a high "nuisance" content but this usually does not have any significant economic effects. The motor fuel taxes are subject to the same difficulties as any other purely localized sales taxes, but to an even more marked degree. Since a gasoline tax is imposed only on those who have motor vehicles the probability that there will be avoidance by buying at a nearby non-taxed suburb is greater than for sales taxes in general.

**Amusement Taxes.** A likely source of revenue for cities and other centers of population may be found in amusement taxes. The great advantage of this source of funds lies in the fact that suburban and rural residents are thereby made to bear part of the burden of city services. The person working in the city or coming into the city of an evening avails himself of police and fire protection and benefits from street-cleaning and similar services. It might be thought that the ordinary admission price to any place of amusement includes all costs, including

property tax costs. This is undoubtedly true to some extent. Yet if the choice is between increasing property tax rates as a whole, or imposing amusement taxes, the latter would seem to be preferable on the grounds of taxing ability to pay. All persons, whether resident or non-resident, frequenting places of amusement pay the amusement taxes.

Several cities have found amusement taxes a lucrative source of revenue. In particular, the following cities have obtained a substantial part of their revenue in this way: Chicago, Philadelphia, Seattle, San Diego, Bellingham (Wash.), San Bernardino (Calif.), and Richmond (Calif.). The amusement taxes take three forms: admissions taxes, taxes on mechanical amusement devices, and amusement licenses.

Admissions taxes have been used most widely by cities in the State of Washington since the state vacated the field on May 1, 1943. The rates used vary from city to city. Seattle charges a graduated rate based on the amount paid for admission. Some of the other cities in Washington charge flat rates. Philadelphia has an admissions tax which is graduated. A few cities in Alabama, California, and West Virginia have adopted admissions taxes. A number of Canadian cities such as Montreal (Que.), Verdun (Que.), Sherbrooke (Que.), Regina (Sask.), and Saskatoon (Sask.) have also imposed levies of this sort.

Another form of amusement tax, that imposed on mechanical amusement devices, is receiving widespread adoption. The justification for taxes of this sort extends beyond the fact that the devices are luxuries. The discouragement of gambling is one aspect. Another is the fact that the machines are personal property, which escapes the property tax in most cities. Among the cities which have adopted such levies are: Milwaukee, Vancouver (Wash.), Portland, Milwaukee, Northampton (Mass.), Seattle, Akron, Bellingham (Wash.), Los Angeles, Wilkes-Barre (Pa.), Miami, and Toledo. The imposts touch various levels of distribution and operation of the machines, including "master operator's licenses," "operator's licenses," and fees "per machine per year," "per machine per quarter," or "per machine per month."

Licensing of places of amusement is practiced widely as a revenue as well as a regulatory device in both the United States and Canada. The bases for the licenses include: seating capacity, admission fee, units of equipment, number of amusement events, size of the establishment, type of amusement service, gross receipts, or some combination of these. Fort Myers (Fla.) and Chicago, for instance, use a combination of seating capacity and admission price to determine the license rate.

**Tenants' and Occupiers' Taxes.** Taxes imposed on tenants and occupiers are very widely used in Canadian cities where they are sometimes called "business taxes." There was only one example of this type of tax in the United States in 1945—that in New York City. The tax in New York City was imposed on everyone occupying rented premises for gainful purposes. The rate was low, \$1 per \$1000, and the yield is correspondingly low. It was less than half-a-million dollars in 1944. The Canadian cities generally have higher rates, often the general property tax rate. Montreal raised over nine million dollars this way in 1944 and Toronto raised nearly four million. A tax of this sort provides a ready source of revenue for hard-pressed cities.

**Public Utility Taxes and Contributions.** There has been growing reliance on municipal taxes on public utilities as a source of revenue to supplement the property tax. Among the cities which have such taxes are: Los Angeles, Montreal, Washington (D.C.), San Antonio, Pasadena, Wichita Falls (Tex.), West Palm Beach (Fla.), Newburgh (N. Y.), Cape Girardeau (Mo.), Hornell (N. Y.), Denison (Tex.), Richmond Heights (Mo.), and DeLand (Fla.). There are various forms of the tax, among which may be included licenses for the privilege of doing business, franchises for the privilege of using streets and alleys, taxes on the sales of utility services, production tax per unit of service (e.g., kilowatt, mile, etc.), licenses per item of equipment (e.g., meter, telephone, etc.), and pole or conduit rentals. Because such taxes are largely imposed on necessary services which have no near substitutes it is reasonable to expect their revenues to be relatively stable and their incidence to be regressive.

Where the utilities are municipally owned the "tax" takes the form of a contribution. For the most part, this is not a large part of the cities' revenue but could presumably be made such by raising service rates or cutting costs. Among the cities which have derived substantial revenues from this source are: Los Angeles, Boston, Louisville, Milwaukee, Cincinnati, Seattle, St. Louis, Columbus (Ohio), Jersey City, Kansas City (Mo.), and Memphis. In Canada, the following are a few of the cities in this category: Regina, Saskatoon, Edmonton, and Calgary. Comparisons between tax revenues derived from privately owned utilities and contributions received from publicly owned utilities would require a detailed study of accounting methods and services performed and cannot be considered here.

Table 45 lists cities which obtain a high percentage of their total revenue from public service enterprises:



Table 45

CITIES WHICH OBTAINED A HIGH PERCENTAGE OF TOTAL  
REVENUE FROM CONTRIBUTIONS FROM PUBLIC SERVICE  
ENTERPRISES IN 1942\*

City	Percentage of Total Revenues
Rocky Mount (N. C.).....	72.9
Richmond (Ind.).....	54.2
Jacksonville (Fla.).....	53.6
Mishawaka (Ind.).....	50.0
Alexandria (La.).....	47.7
Danville (Va.).....	37.6
Colorado Springs (Colo.).....	36.1
Muskogee (Okla.).....	32.6
Owensboro (Ky.).....	30.7
Austin (Tex.).....	29.5

\* Adapted from Hillhouse and Magelssen, *op. cit.*, p. 2.

**Other Taxes.** Among the other taxes that have been levied or shared by some cities may be included: gross premiums of fire insurance companies (e.g., Chicago, New York, Philadelphia, Washington, Atlanta, Louisville, Montreal); gross earnings of banks (Washington, D.C.); dock, wharfage, and tonnage taxes (Missouri cities, Boston, Wisconsin municipalities); gross production tax (Oklahoma communities); local poll tax (general in Canada, authorized in thirty-five states in United States and prohibited in five); street tax (Atlanta). These taxes indicate the degree of ingenuity which has been used in some states in diversifying local revenue sources.

**Service Charges.** An obvious and lucrative source of revenue has been found in charges for municipal services. Among these are sewer rental (e.g., Detroit and Cleveland) and garbage collection (e.g., Atlanta and Canton), street sprinkling and cleaning, protection of trees, snow removal, wheat cutting, street lighting, and special public services. Charges are also made for fire protection and other city services performed outside the city limits.

Table 46 lists cities which obtain a high percentage of their total revenue from charges for current services.

The argument for charging for special police services was stated succinctly by a police chief in 1935:<sup>17</sup>

<sup>17</sup> Edward W. Harding, *op. cit.*, p. 32.

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I have, for a number of years, felt that on police details at certain exhibitions, weddings, funerals, dances, and other private functions there should be a charge to cover such service, it being in my opinion out of the bounds of general police work, and with municipalities finding themselves in such financial straits they must resort to most any means to receive revenue.

An important advantage of service charges is that they are likely to provide a stable source of revenue. Services for which charges are made are usually in the category of necessities and are not likely to decline during a depression.

*Table 46*  
CITIES WHICH OBTAINED A HIGH PERCENTAGE OF TOTAL  
REVENUE FROM CHARGES FOR CURRENT SERVICES  
IN 1942\*

<i>City</i>	<i>Percentage of Total Revenues</i>
Burbank (Calif.).....	39.9
Burlington (Iowa).....	37.3
Wyandotte (Mich.).....	36.0
Moline (Ill.).....	36.0
Parkersburg (W. Va.).....	30.7
Pontiac (Mich.).....	29.9
Marion (Ohio).....	28.3
Riverside (Calif.).....	26.3
Highland Park (Mich.).....	26.1
Springfield (Ohio).....	25.5

\* Adapted from Hillhouse and Magelssen, *op. cit.*, p. 2.

**Other Local Revenues.** Municipalities also derive revenues from commercial activities including: public markets and warehouses, stadiums and auditoriums, cemeteries and crematories, off-street parking lots, bus terminals, sewage disposal farm and airport ranch, sale of electric water heaters and ranges, and grist mill. St. Hyacinthe (Que.) also provides an example of a municipal dairy. Revenues have also come from: legal services and charges; money, property, and gifts and departmental earnings. Legal services and charges include: courts costs, fees and charges, recording of legal documents and fines and forfeits. Income from money, property, and gifts includes: rents and royalties, interest, public subscriptions and bequests and public domain. Departmental earnings may come from: libraries, hospitals, correction institutions, other public safety services, highways, health, building structure and equipment, protective inspection, and recreation fees.

### Federal and State Aids

If the municipalities are to maintain essential services and are unable to raise the necessary funds themselves, other governmental units must step in to their aid. The states, in particular, have evolved elaborate formulas of shared taxes and grants to succor the municipalities. These devices form part of the general framework of intergovernmental finance which is discussed in the next chapter.

### Conclusions

It is evident that no municipality need lack funds if it is willing to diversify its sources of revenue and the state permits it to do so. Such supplementary taxes as those on income, sales, or admissions, to mention only a few, have been imposed by cities without catastrophe and have yielded large revenues. The recognized limitations of the property tax need not restrict the performance of necessary municipal services.

Despite the many supplementary sources of revenue and the increased reliance on state aid or shared taxes, the financial problems of municipalities, especially cities, are still far from solution. More cities will have to adopt a variety of taxes, which, for political reasons, they are usually reluctant to do. The search for new revenue sources nevertheless continues.<sup>18</sup> The major difficulty is that the state and federal governments have preëmpted the most productive sources of revenue. The tendency has been toward central finance—an unfortunate tendency in terms of local responsibility and local self-government. It has been suggested, "The swing has gone too far—in some instances, much too far—and a redress of the balance is in order."<sup>19</sup> Surcharges on such state and federal taxes seem to be the best method of retaining the efficiency of central collection without abandoning local independence. This and other intergovernmental devices are discussed more fully in the next chapter, "Intergovernmental Finance."

No small and persistent barrier is the archaic organization of municipal areas which prevails. Modernizing local government, as suggested by Hansen and Perloff<sup>20</sup> may be considered a prerequisite to an adequate

<sup>18</sup> See, for instance, "More Cities Develop New Sources of Municipal Revenue," *Public Management*, Vol. 28, No. 9 (September, 1946), pp. 275-76; and David H. McKinney, "Facing the City Finance 'Squeeze,'" *Bulletin of the National Tax Association* (January, 1947), pp. 114-15.

<sup>19</sup> John F. Sly, "Tax Supplements for Municipalities," *The Tax Review* (February, 1947), p. 7.

<sup>20</sup> Hansen and Perloff, *op. cit.*, Chapter 5.

solution of the financial problem. In particular, the fact that local governments often cover uneconomical areas for the performance of particular services continues to hamper attempts to mend the financial fences. In some respects it may be said that treatment of the financial aspect deals with the symptom rather than the cause. Nevertheless, revision of governmental service areas is a long process which will require a considerable amount of time. The same may be said of slum clearance. Broadening the local tax base can act as a necessary palliative if not a cure and can ensure the maintenance of adequate municipal services.

## Intergovernmental Finance

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The financial problems which state governments encounter stem partly from competition of the federal government in the field of taxation. Local units face the superior force of both state and federal governments. The taxpayer, in turn, is confronted with a bewildering and embarrassing array of overlapping levies, conflicting regulations, uneven enforcement procedures, and serious gaps in public services. Palliatives have taken the form of intergovernmental grants; and cures have been proposed in the form of fiscal coördination among the respective governmental units.

### Federal Grants to State and Local Governments<sup>1</sup>

Federal grants-in-aid have made it possible for state and local governments to continue to perform necessary services in their respective jurisdictions without forgoing their independent control. Although some grants have carried with them stipulations of one sort or another, the final over-all control has nevertheless been in state or local hands. Certainly the degree of control is greater than would have occurred if the federal government had actually taken over functions completely. The necessity for such grants arises from the fact that "Our system assigns to the state and local units the administration of more functions than they are able to finance."<sup>2</sup>

### MAGNITUDE OF FEDERAL GRANTS IN UNITED STATES<sup>3</sup>

Recent years have witnessed a great increase in the scope and the magnitude of federal grants. Prior to 1930 they were just a little over

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<sup>1</sup> This discussion of federal grants-in-aid draws heavily on the following excellent article: Louis Shere, "Some General Comments on Federal Grants," *Bulletin of the National Tax Association*, Vol. 32, No. 3 (December, 1946).

<sup>2</sup> *Ibid.*, p. 81.

<sup>3</sup> *Ibid.*, pp. 81-82.

\$100 million. Four-fifths of this amount was for highway aid. Aside from this one purpose the federal grants did not substantially contribute to any state service. The main beneficiaries in addition to highways were agricultural education and research, vocational education and rehabilitation, forest fire prevention and other forestry aids, public health, and maternal and child health. Since fiscal need and fiscal capacity do not necessarily go together, the amount of federal grants varies greatly from one part of the country to another. A glance at the per capita figures confirms the variation in grants. The country as a whole averaged \$5.45 per capita in federal grants in 1945. The range was from \$2.83 in New Jersey to \$14.07 in Nevada.<sup>4</sup>

**Expansion Since 1935.** The major expansion in federal grants dates from 1935. The Social Security Act made provision for federal contributions for seven programs: old age assistance, aid to dependent children, aid to the blind, maternal and child health service, service for crippled children, child welfare service, and the administration of state unemployment compensation. The grants made under this Act constituted a large part of the increase in federal grants occurring during the subsequent decade.

Grants for Social Security and related health and welfare functions constituted approximately 75 per cent of total regular grants in the fiscal year 1945 and 65 per cent in the fiscal year 1946. Total regular grants in this year were approximately \$640 million and \$800 million, respectively. From their high levels in earlier years of federal grants, highway grants fell drastically during the war and in 1945 they were only 14 per cent and 22 per cent in 1946. In the fiscal year 1947 appropriations for regular grants to state and local governments were approximately one billion dollars. This was ten times as large as the actual expenditures for such grants in 1930.

Signs of continued increases in federal grants exist. The Federal-Aid Highway Act of 1944 authorized an appropriation of \$500 million for each of the fiscal years 1946 to 1948. The prewar average annual expenditure was only about \$120 million for this purpose. The act provided for the extension of the federal highway aid program for the first time to roads in urban areas. The sum of \$125 million in fact was to be devoted to this purpose. The regular highway aid was \$225 million and there was a sum of \$150 million for secondary or feeder roads, thus making up the full \$500 million. The Social Security amendments of 1946 also provided

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<sup>4</sup> *Social Security Bulletin*, June, 1946, p. 43.

for temporary increases in the ceilings on federal contributions for public assistance. The estimated cost was \$150 million for the period to which it applied, October 1, 1946 through December, 1947.

Certain new aid programs were also put into effect by the 79th Congress. The sum of \$75 million was annually authorized for a five-year program for hospital survey and construction and a similar sum was appropriated for the ensuing fiscal year for the permanent national school lunch program. Grants of \$500 million were provided for a seven-year period for airport development and construction. Such grants would go directly to the cities and not by way of the states. The system of regular federal grants is now an integral part of our financial structure. Essential services are dependent on these grants. For instance, the Social Security program would collapse without federal contributions. Nor is it likely that the highway aid program will be dropped because certainly the tendency is in the direction of greater and greater use of such facilities. By the same token the airport program is indispensable, especially if military considerations are also taken into account. Moreover, hospital programs are integrally related to veterans' aid so in that direction too there would seem to be an inevitable tendency for sustained federal grants.

**Federal Emergency Grants.** The distinction between emergency grants and regular grants rests on the question whether the states are required to contribute to the cost of the service for which the grant is made. In the case of emergency grants the federal government may finance the entire cost of the service, whereas, in the case of regular grants, the states are generally required to match the federal contribution. There have been years in which federal emergency grants have exceeded the regular grants. During the depression years in the '30's the federal government took over the responsibility for the financing of direct and work relief. In 1939 a sum of \$2.3 billion was paid by the federal government in the form of emergency grants to state and local governments for public works and work relief. Regular grants that year were only \$600 million. During the war emergency grants, no longer needed for public works programs, were used for education and training of defense workers and for maternity and infant care for wives of enlisted men. In 1945 total federal grants for war purposes were approximately \$270 million and in 1946 they were approximately \$165 million.

The existence of large emergency grants is evidence of the lack of resilience in the state and local financial structure. The state and local governments find it difficult to maintain ordinary services expected of

them. They are completely incapable of coping with any emergency. At any rate this has been the experience of the past few decades. The large surpluses which the states accumulated during the war may conceivably change this picture, but it is not very likely that any change will be for very long or that the states even now could withstand a serious depression without emergency federal aid. A coördination program which gives the states greater tax powers with freedom from federal interference would transfer to the state some of the resilience of the federal fiscal structure. It must be recognized, however, that in case of a nation-wide depression the possibility of making any substantial contribution toward improvement through tax-financed expenditures alone are not very bright. If a coördinating fiscal set-up makes any substantial contribution to economic stability it will be expected that emergencies of all sorts will be reduced and with that of course we can expect a reduction in federal emergency grants to the State.

State governments have come to rely on federal grants for certain essential services but it cannot be said that many states are dependent on such grants in any substantial way. In the fiscal years 1945 and 1946 the regular federal grants constituted approximately 15 per cent of total state revenues excluding collections from the unemployment compensation tax.<sup>5</sup> This is an over-all figure, of course. In the fiscal year 1945 the percentages varied from 5.4 per cent in New York to 35.2 per cent in Nevada. Thus for some states the federal grants do have quite a life-or-death effect on state services.

#### ALLOCATION FACTORS IN FEDERAL GRANTS<sup>6</sup>

The distribution of regular federal grants among the states is based on a number of allocation factors and is not confined merely to population. This variety of factors explains why it is that the per capita figures show wide disparity from state to state.

The methods used are the following: (1) *matching*, (2) *population*, (3) *expenditures*, and (4) *fiscal capacity*. Each of these allocation factors will be discussed briefly.

**Matching Base.** Practically all regular federal grants require matched contributions by the state. The effect of this is to avoid extravagance and at the same time to encourage the promotion of financial responsibility by the state for services which are considered, by the federal govern-

<sup>5</sup> *Social Security Bulletin*, June, 1946, p. 43.

<sup>6</sup> See Shere, *op. cit.*



ment, to be in the national interest. There can be no doubt that the matching requirement has a salutary influence on the expenditure of funds. The major defect of this requirement is of course that it assumes a certain level of fiscal capacity in the states involved. In so far as federal grants are designed to remove disparities in services resulting from variations in fiscal capacity, the matching requirement of course defeats the purpose of federal grants. We may perhaps say that this is an example of the conflict which frequently arises between equity and efficiency in government finance. The matching requirement promotes efficiency but at the expense of equity. Moreover it must be evident that the needs of the various states may bear no relation whatever to their fiscal capacity. Some very poor state which has some peculiar problems requiring large expenditures in the national interest may find it impossible to deal with its problems adequately on account of its low taxable capacity.

**Population Base.** Another allocation factor which is used frequently is that of population. In a rough way, of course, this takes account of need but there are a great many factors which will alter the per capita need. These may be a generally low economic status of the population requiring a large amount of governmental assistance.

Variations of the population measure have been introduced in particular federal grants. For instance, the grant may be measured by that part of the population using the service for which the grant is made. A few examples of such variations of the population measure may be mentioned. The grants for agriculture, education, and research are based on rural population. The grants for vocational education make use of three factors—rural, urban, and total population. The introduction of auxiliary factors is used in some instances. Highway grants make use of three factors: population, area, and post-road mileage, all equally weighted. The highway program developed under the Federal Aid Highway Act of 1944 provided for the use of rural population as the allocating factor in distributing funds for secondary or feeder roads and for urban population as the base for road grants in urban areas.

**Expenditures Base.** The Social Security Act provides for the use of expenditures as a method of determining the amount of federal grants. The distribution of funds to the states is based on the amount of state and local expenditures for the services covered by the Act. There is a limitation, however, in that the federal grant is limited to a percentage of a fixed maximum payment per person. Before the amendments of 1946 the federal government would pay 50 per cent of expenditures but would not exceed \$20 monthly to the aged and blind and \$9 monthly for one

dependent child and \$6 monthly for each additional dependent child. Amendments were made to these provisions in 1946. These amendments increased the \$20 maximum to \$25 and the \$9 and \$6 figures to \$13.50 and \$9 respectively, for the period October 1, 1946 through December, 1947. The federal share was also increased from 50 per cent to a varying percentage. The government would pay  $66\frac{2}{3}$  per cent of the first \$15 of monthly payments to the aged and blind and 50 per cent of the remainder up to the maximum specified. The same type of provision applied in the case of aid for a dependent child.

The expenditures base has many of the characteristics of the *matching* base in that the government merely meets a certain percentage of the amount spent. In a sense, therefore, the federal government is matching the state payments in a certain ratio. The expenditures base takes account of need only in so far as the state expenditures may be assumed to be responsive to need. But this base is really quite inadequate because many states have the need without the capacity. Therefore the expenditures for these purposes will not truly reflect the needs. In some states the old age assistance payments have averaged approximately \$5 per month compared with the maximum grants of \$20 per month which were permitted under the old law. In cases of states which make payments larger than the maximum which the federal government will contribute, the state bears the additional burden by itself. In this way there is some correction for the fiscal capacity in that the wealthier states may look after their own needs entirely by themselves, after a certain level of payments is reached. Nevertheless the poorer states may not be able to raise their levels of public assistance to approach that of the wealthier states under the prevailing expenditures base for payments. In the fiscal year 1945 the statistics showed that the twelve states which had the lowest per capita income had 21 per cent of the population and received only 15 per cent of the total amount granted by the federal government for public assistance.

**Fiscal Capacity Base.** Fiscal capacity is neglected except in a very incidental way in federal allocation bases. Two of the grants established under the original Social Security Act provided for full recognition of variation in fiscal capacity. These grants were for public health and for maternal and child health. The Act provided that the grants for public health would be distributed at the discretion of the Surgeon General with consideration to the needs of the population, special health problems, and relative financial needs of the states. In interpreting this formula the procedure largely has been to distribute the funds in inverse relation to per

capita income. The grants made for maternal and child health are in three parts: (1) A uniform lump sum per state, (2) an amount distributed according to the number of live births, and (3) an amount distributed on the basis of financial need. Nearly a third of the total appropriation of 1935 for this particular purpose was on the basis of financial need. Grants for these purposes are relatively unimportant and in the entire federal grant structure there is relatively little explicit recognition of the variations in fiscal capacity among the states.

The amendments to the Social Security Act which took place in 1946 provided for fiscal need as one of the factors to be taken into account in the distribution of federal grants. Under the Act the federal share was increased from 50 per cent to  $66\frac{2}{3}$  per cent of the first \$15 of monthly payments to the aged and blind and 50 per cent of the remainder up to a maximum of \$25. Aid to dependent children was treated similarly. In this way the poorer states were given substantial recognition.

Grants for hospitals, highways, and construction take account of fiscal capacity under the Act. Population is weighted by per capita income. In the case of national school lunch grants, school population (children from 5 to 17 years old) is also weighted by per capita income. An additional provision in the case of the school lunch grants is very interesting. Those states whose per capita income is less than the per capita income of the United States as a whole do not have to match the federal grants fully. The matching requirement is decreased by the percentage which the state per capita income is below the per capita income of the United States as a whole. In this way the matching requirement is modified to take account of fiscal capacity.

#### CHOICE BETWEEN LUMP-SUM AND SPECIFIC GRANTS

Federal grants in the United States have been for specific purposes. The underlying theory has been that the federal government has wished to stimulate certain services or activities on the part of the states. It has used the device of offering to contribute all or part of the money in order to insure the performance of those services. Professor Maxwell favors conditional grants on a variable-ratio basis, the variation being according to per capita income payments, with a limitation on the range of possible ratios.<sup>7</sup>

This system of grants may be criticized on the grounds that it inter-

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<sup>7</sup> J. A. Maxwell, *The Fiscal Impact of Federalism in the United States*, Chapter 17 (Cambridge, Mass.: Harvard University Press, 1946).

feres with the right of the state to decide by itself what service it shall perform. The receipt of the federal grant does of course relieve the state of the necessity of providing funds from other sources. To that extent it may be thought that the federal grant does provide general fiscal relief for the states. Federal grants may, however, stimulate a service which would not otherwise have been performed and for which money would not otherwise have been raised by the states. To that extent the federal government is channeling state expenditures in directions which they would not have taken. We can assume that in most cases that channeling is in the interests of the state as well as the nation. Nevertheless it is not difficult to conceive of peculiar conditions in some states where some other form of expenditure may have been much more beneficial both to the state and to the nation. The lump-sum grant would, of course, solve this problem by providing general relief to the states. The states could use the funds for whatever purposes they desired. Such grants have been used in Australia, Canada, and England.

**British Block Grants.** Under the Local Government Act of 1929 block grants were provided for the general adjustment of national and local revenues and in particular for the reduction of the local property tax burden in Great Britain.<sup>8</sup> The national government derives its revenues largely from the taxation of incomes and inheritances and the plan of the Act was to distribute such funds to the local governmental units. Provision was made for the exemption of agricultural lands and the reduction of the property tax rate upon industrial and railroad property. A lump-sum grant was to be distributed according to needs and reserves. The basic factor was population which was to be weighted by: (1) Number of children under five years of age, (2) rateable value per capita, (3) proportion of unemployment, and (4) sparsity of population in relation to road mileage.

The Act provided for a transition period during which the localities would receive not less than the amount of revenue received under the old system.

**Federal-State Grants in Australia.** A far-reaching system of grants by the central to the state governments has been adopted in Australia. Here we have a major example of lump-sum grants combined with the integration of tax powers through a uniform income tax plan. Under this plan the federal government took over all income taxation and reimburses the states through grants. This step was taken during the war when the

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<sup>8</sup> See Shere, *op. cit.*, pp. 86-87.

need for heavy federal taxation became evident. At the time, in 1942, there was a great diversity of rates in the various states. The imposition of a heavy federal tax would have aggravated the inequality which existed from state to state. The imposition of varying federal taxes to fit into state tax structures would have been discriminatory and therefore unconstitutional. This procedure was adopted as a permanent plan in 1946. The major change in principle between the war and the postwar plan is that the grants under the former were based on the amounts previously collected by the states whereas the new plan looks forward to distribution on an adjusted population basis.<sup>9</sup>

The federal government has traditionally given regular unconditional grants to all six state units. In addition to these grants, special supplementary amounts went to three so-called "marginal" states but not on any consistent principle. In 1933 the Commonwealth Grants Commission was appointed to pass on applications for special grants. The principle on which the grants are made is interesting. The Commission has stated that "Special grants are justified when a state through financial stress from any cause is unable efficiently to discharge its functions as a member of the federation and should be determined by the amount of help found necessary to make it possible for that state by reasonable effort to function at a standard not appreciably below that of other states."<sup>10</sup> In applying this principle the Commission makes a thoroughgoing examination of each applicant's budget, using as a guide the record of the financially better-situated states. Expansion of revenues and curtailment of expenditures have therefore resulted.

**Federal-Provincial Grants in Canada.** Canada has taken an important step in federal grants as a result of tax centralization. The situation is comparable in many ways to that in Australia. Since Confederation in 1867 it has been customary for the federal government to pay unconditional subsidies to various provincial governments, particularly western provinces, but no consistent policy was followed. Numerous commissions have studied the problem. In 1940 the celebrated Royal Commission on Dominion-Provincial Relations, which had been appointed in 1937, recommended that the federal government take over all personal income, corporation, and inheritance taxes, and that it also assume the provincial debt. A new system of unconditional grants was to be used

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<sup>9</sup> See James A. Maxwell, "Recent Intergovernmental Fiscal Relations in Australia and Canada," *The Bulletin of the National Tax Association*, Vol. 32, No. 5 (February, 1947), pp. 139-41.

<sup>10</sup> Maxwell, *op. cit.*, p. 139.

along lines comparable to the Australian. These proposals were never fully adopted because of the opposition of a number of the provinces.

During the war the federal government did actually take over personal and corporate income taxation and the provinces were offered their choice of either (a) the revenues actually collected from these sources in 1940 or (b) the net cost of debt services in 1940 (less the revenue from succession duties) plus a subsidy based on fiscal need. All of the provinces accepted one or the other of these two options. Since the war, after some discussion and considerable disagreement among the provinces, the plan in effect calls for negotiation with individual provinces. Five-year agreements would be made under which the province would levy no personal income tax but would levy a 5 per cent federally collected tax on net corporate income. Any succession duties levied would be charged against subsidies received. The subsidies were to be substantially those previously agreed to. Most of the provinces were expected to enter into agreements along these lines with the federal government. Ontario, because of its relatively greater wealth and income, and Quebec, because of its cultural independence, were expected to remain outside these agreements.<sup>11</sup>

**Evaluation of Lump-sum Grants.** The decision as to whether lump-sum or special grants should be employed is largely in the field of political science. The questions involved are those of states' control over their own expenditures and the degree to which the federal government has the right to specify the way in which the local units spent the money granted by the federal government. If a lump-sum grant is used, there is no telling what purpose it may serve. If the lump-sum grant is to be distributed on the basis of needs and capacities, a very complicated formula may be necessary. A few examples have been indicated above. If the grants are made for specific purposes the formula is much more simple and the same over-all result may be achieved. For instance, if the grants are for rural roads, rural population may be used. If the grants are for school lunches, school population may be used. In this way the specific grants may be determined in a direct fashion. If an over-all grant were to be given it would be difficult to decide on an equitable weighted formula. In neither Canada nor Australia nor Great Britain did lump-sum grants replace all other grants. In Canada and Australia the lump-sum grant merely reimbursed the provinces or states for the loss of revenue from the income tax. In England the block grant took the place

<sup>11</sup> See James A. Maxwell, *op. cit.*, pp. 141-42, and *Recent Developments in Dominion-Provincial Fiscal Relations in Canada* (New York: National Bureau of Economic Research, Occasional Paper 25, March, 1948).

of a large number of grants but the total of these was only a small part of the whole. Grants made for specific purposes such as schools, police, housing, and part of the road grants account for between 80 and 90 per cent of the revenue distributed by the central government in 1928-29.<sup>12</sup>

A compromise proposal has been that grants be made for broad categories of services rather than for general fiscal purposes on the one hand or for fiscal functions on the other. Instead of specifying some particular public health activity the grant may be for public health as a whole. The same is true of grants for public assistance, education, and so on. This offers some of the advantages of specific grants without losing all of the advantages of lump-sum grants. But, as pointed out above, the basic question is not to be solved in the field of economics. It is a matter of state independence and states' rights. If we leave aside such issues, there can be no doubt that the attainment of certain minimum standards throughout the nation with respect to public assistance for health, etc., demand specific rather than lump-sum unconditional grants.

### Federal-State Tax Coördination

The prevalence of conflicting and overlapping federal, state, and local tax structures has become an important subject of students of government finance. State governments have also shown their concern in the matter from time to time. Many state legislatures, for instance, have adopted resolutions calling for a constitutional limitation on federal income and inheritance taxes. The view has been well expressed by Rollin Browne, formerly president of the New York State Tax Commission. He said, "The national government has long had supreme power in almost every field of taxation. The danger is that this power is now being used to such an extent as to threaten the financial, and therefore the political, independence of the states and their local communities."<sup>13</sup> Browne goes on to say, "No government can survive unless it has the sovereign and independent power to raise adequate revenues to support its functions. Therefore, if we want to preserve local control and responsibility over local affairs, we must protect the taxing powers of the states against undue encroachments by Washington."

Critics of the federal government have pointed to the large variety of taxes which it has imposed on bases which are suitable for taxation by state and local governments. Among the many that may be mentioned

<sup>12</sup> See Shere, *op. cit.*, p. 87.

<sup>13</sup> Rollin Browne, "Postwar Taxes: Federal State Tax Coordination," *Bulletin of the National Tax Association*, Vol. 30, No. 8 (May, 1945), p. 226.

are the gasoline tax, taxes on amusements and admissions, the stock transfer tax, and inheritance taxes, to mention only the major examples. For instance, there may be a local sales tax and a state tax on top of numerous federal excises. The last, of course, cannot be called a sales tax in the strict sense but they do have the same fiscal effects on the states' tax potentialities. The federal luxury taxes when stated separately and passed on to the consumer are like any ordinary retail sales tax. Another complication is the fact that there has been a growing amount of tax-exempt property arising from real property either owned by the government or owned by corporations created by the government. All in all, the effect has been that the national government has made it extremely difficult for state and local governments to derive adequate revenues without adding to an already heavy burden of federal taxes.

#### AIMS OF A COÖRDINATION PROGRAM

Before working out a coördinated program it is necessary to state simply what the purpose of such a program is. The purpose may be said to be the removal of the present confusion which exists in federal, state, and local taxation. More positively and constructively, we may outline the following three aims: (1) To assign to each level of government definite sources of tax revenues. These sources should not be such as to involve overlapping among the various levels of government. They should not permit one level of government to interfere with the collection of revenue by another nor should they permit one level of government to determine the magnitude of the tax imposed by any other. (2) To protect taxpayers from the necessity of filing duplicatory and overlapping tax returns and from the danger of being required to pay multiple taxes on one source of income or one type of property. (3) To protect the economy from the danger of discriminating excessively against any particular type of economic activity and thus curtailing or disrupting that activity. These aims point to either a division of tax sources or a joint collection of taxes.

#### PRINCIPLES OF FEDERAL-STATE TAX COÖRDINATION

In setting up any tax program, due regard must be given to the principles of taxation. These were discussed in Chapter 7. Of course these principles cannot be adhered to in all cases. It is sometimes necessary to effect some compromise because the tax principles may not be capable of simultaneous achievement. When it comes to federal-state tax coördination there are some special points that must be observed. The following may perhaps be suggested as warranting special emphasis:



**1. Administrative Efficiency.** Certain types of taxes are most adaptable to state or local collection. Other taxes, particularly where there are interstate questions involved, are collected most readily by the federal government. Since it is always desirable to keep the cost of administration down to a minimum, provided that enforcement and equity are not sacrificed, it must be evident that this principle should be followed as far as possible.

**2. Economic Incentives.** In the division of tax powers the state should be allowed a sufficient variety so that it need not impose any tax which is particularly unadaptable to its own economy. This is not quite the same thing as saying that the cost of collection should be low. The cost of collecting a sales tax in Rhode Island may perhaps be very low, but it may be true that the economy of Rhode Island is such that the imposition of a sales tax would have serious detrimental effects. This is just a hypothetical possibility and is used merely to illustrate the distinction between the first principle mentioned above and the principle being discussed here.

**3. Minimum Interference with Interstate Commerce.** In setting up the division of tax powers due regard must be given to the fact that each state, apparently pursuing its own advantage, may find it desirable to set up taxes which are undesirable from the national point of view. This is particularly true where interference with interstate commerce arises. According to the principles of interregional trade, the economy of the country as a whole may suffer if the free flow of goods and services throughout the country is interfered with.

It should be emphasized that the above principles are those which should be followed in the early stages when decisions are being made on the division of taxing powers. After the division is actually made the problem of the exact nature of the rate structure for each type of tax is still to be determined. With respect to that, the ordinary principles of equity, ability-to-pay, etc., should be applied.

#### A COÖRDINATED TAX STRUCTURE

A major barrier to any substantial progress in the direction of federal-state tax coördination lies in the wide fiscal differences which exist from one state to another. One state may have an income tax, another a sales tax, another neither. Any suggestion to provide uniformity would be rejected on constitutional if not other grounds. The individual states are not free from responsibility in the present confusion regarding federal and state taxation. State income taxes result in a great many difficulties,

particularly concerning interstate allocation of income. The taxation of the income of nonresidents is an added complication. Multiple taxation of property, especially intangible property such as stocks and bonds, is rampant. Similar confusion exists in connection with trust funds and estates. The various interstate tax barriers which have been built up—undoubtedly for very sound fiscal or equitable reasons—do not ease the problems of tax coördination. Some progress has been made in removing this interstate confusion, particularly through the adoption of uniform laws, auditing arrangements, and similar devices. But there is no doubt that a more thoroughgoing improvement would be necessary before large-scale tax coördination could be achieved. In spite of these difficulties it seems useful to consider the possibilities of setting up a coördinated fiscal system.

**Individual Income Taxes.** Individual income taxes constitute the largest single source of federal revenue. In the fiscal years 1941–45 these taxes constituted an average of 36.2 per cent of total receipts.<sup>14</sup> It is sometimes suggested that the individual income tax be taken over by the federal government completely and that no state be permitted to impose this type of levy.<sup>15</sup> Before deciding finally on the merits of this particular proposal it is desirable to consider the various alternative possibilities. It is impossible to make a decision regarding a particular tax source merely by considering that source alone unless of course very drastic effects harmful to one or the other level of government may be noted immediately. At this stage of our analysis it is possible only to indicate the major advantages and disadvantages of the suggestion that the federal government take over completely the function of imposing taxes on individual incomes.

The fact that the federal government depends so heavily on this tax is, in itself, an argument in favor of allowing the government to retain it. Moreover, there can be no doubt that individual income taxes are relatively difficult to administer on a state-wide basis because of the problems of allocation of income. Another argument in favor of this particular allocation of revenue sources is that the proper administration of an individual income tax requires a great amount of attention to details such as the issuance of rules and regulations and various other administrative matters. When the tax rates are high it seems worthwhile to use this type of tax. In the case of state taxation the rates would be relatively low and it is hardly worth while for each state to develop a body

<sup>14</sup> "Annual Report of the Secretary of the Treasury, 1945," p. 15.

<sup>15</sup> See Browne, *op. cit.*, p. 227.

of legal doctrine and interpretation appropriate to its own taxpayers. It is not likely that interstate cooperation would be carried to the point where much of the inevitable duplication would be eliminated.

A final argument which is sometimes proposed in favor of this allocation is that the states do not really have independent control over their individual income taxes. At the present time the federal internal revenue authorities permit individuals to deduct state and local income taxes paid. In view of the high federal rates any modification of this privilege might result in a very serious burden on the taxpayer amounting in some cases to confiscation. Thus the states which levy income taxes could be put in a very embarrassing position by federal action. Since the states do not have independent control of the income tax, they may as well give up this particular tax to the federal government entirely.

The device of giving credit for state taxes paid (perhaps up to a certain specified limit) may be used to achieve uniformity on a voluntary basis. For instance, the federal government may credit state income taxes paid against the federal tax liability. At present the state tax paid is merely a deduction so that the federal tax saved is only a fraction of the state tax paid. An example may be used to emphasize the importance of the difference.

*Example:* Suppose a taxpayer is in a 30 per cent federal income tax bracket and has paid \$100 in state income taxes. Assume that the total federal tax liability would be \$1500 if state income taxes were not deductible in any sense.

*Present Practice:* According to present practice the \$100 paid as state income tax would be a deduction in arriving at taxable net income. Assuming that there is no change in the bracket the saving to the taxpayer would be 30 per cent of \$100 or \$30, leaving him with a Federal tax liability of \$1470.

*Proposed Practice:* The proposal is to deduct the \$100 directly from the \$1500 Federal tax liability, thus leaving the latter at \$1400.

The effect of the proposed method would be for all states to enact income tax laws since the taxpayer loses nothing thereby as long as the rates are below the federal. A reasonable limit would have to be set on the direct deductibility of state income taxes to avoid abuses. This would enable the states to give up other taxes, especially those which interfere with the freedom of interstate commerce. Professor Groves has also advocated the use of the income tax for state and local purposes. His reasoning is that these units may thereby reach income-earning assets other than tangible property.<sup>16</sup> Professor Maxwell, on the other hand, favors the

<sup>16</sup> See Harold M. Groves, *Trouble Spots in Taxation*, Chapter 4 (Princeton: Princeton University Press, 1948).

transfer of the income tax to the federal government as part of a larger plan of federal-state readjustment.<sup>17</sup>

**Corporate Income Taxation.** In proposals for federal-state tax coöperation, the suggestion is sometimes made that corporate income taxation should be left entirely to the states.<sup>18</sup> The states which have tried corporate income taxes naturally would like to keep them because of their high yield and relatively minor political effects. The federal government obtained a large portion of its revenue from this source during the war years. From fiscal 1941 to 1945, fully 34.2 per cent of all internal revenue receipts came from this source.<sup>19</sup> Since this includes excess profits taxes which were repealed after the war, the percentage is certain to remain much lower than this hereafter. The federal government could therefore conceivably give up this particular revenue source without drastic consequences.

The corporation income tax is, however, one of those taxes which states do find it difficult to administer. It has forced the states to adopt extremely complicated allocation formulas. The result of the application of such formulas is never entirely satisfactory because the problem of deciding just in which state any particular item of income arose is basically insoluble. The corporation income taxes which the states levy at the present time do not have any very important effects on the location of business firms but they do constitute nuisances in business operations.

**Inheritance Taxes.** Inheritance taxes do not form any large part of federal revenue and from that point of view this particular source could be allocated to the state governments. The tax is readily adaptable to state taxation with the exception that difficulties arise when an individual has spent a substantial amount of time in more than one state. The question of domicile is a very difficult one legally in some instances. This problem would be an argument in favor of federal taxation. An alternative, though, would be a greater amount of interstate coöperation and the adoption of uniform laws. Should such improvements be made, the inheritance tax would be a likely candidate for transfer to the states.

The prevailing practice concerning inheritance taxes constitutes an agreeable sign of improvement in federal-state revenue relationships. Here the federal government gives credit for state taxes paid up to 80 per cent of the federal basic tax to avoid double taxation. In the case

<sup>17</sup> J. A. Maxwell, *The Fiscal Impact of Federalism in the United States*, Chapter 13, especially pp. 290-94 (Cambridge, Mass.; Harvard University Press, 1946).

<sup>18</sup> See Browne, *N.T.A. Bulletin* (May, 1945), p. 227.

<sup>19</sup> "Annual Report of the Secretary of the Treasury, 1945," p. 15.

of unemployment compensation, a somewhat similar arrangement is made. The tax is nominally a federal one but credit is given for the payment to the state. An extension of this type of arrangement to other taxes will go far to improving the present uneconomic and irritating situation.

**Sales and Use Taxes.** The decision as to where to allocate the sales tax is a very difficult one to make. There might seem to be no difficulty in allocating a retail sales tax to state or local units. Serious complications arise, however, where differences exist in the taxes between one area and another. There is always a danger of loss to the community with the higher tax or, to put it in broader terms, there is always danger of an uneconomic reallocation of resources. The adoption of compensatory use taxes, however, greatly reduces the likelihood of undesirable economic effects. The use tax is not a discriminatory tax but rather a device for avoiding discrimination against domestic sales. It is thus a necessary complement to a sales tax in a restricted jurisdiction.

The apparent necessity of the adoption of use taxes where sales taxes are imposed on a state or local basis may perhaps be considered as strong an argument as is needed against allowing the states to monopolize this field. A federal sales tax would not result in the complications discussed above. Of course a great many federal excise taxes exist but most of them are imposed at other than the consumer level. The closest to a federal sales tax at the moment would be the luxury tax which, although nominally on the retailer, is added to the consumer bill as a separate item in most cases. Although, as indicated previously, the final decision must depend on a detailed analysis of the productiveness of the respective taxes and the extent to which they adhere to desirable principles, the indications are that the sales tax can best be handled by the federal government.

**Admissions Taxes.** Admissions and entertainment taxes are almost ideally suited for state and local administration. The items taxed are not likely to move from one taxing jurisdiction to another merely on account of the tax. The differential levy would have to be very large before any significant economic effect would be shown. Thus the main reason why this particular levy is adaptable to state or local administration is the fact that there are no questions of interstate commerce or of allocation of income involved. The item taxed is a service and the service is rendered on the spot.

**Motor Vehicle Taxes.** The tax on gasoline and other motor fuel is relatively well adapted to state control. The amount of gasoline which an individual buys at any one time is not large enough generally to make

it worth his while to try to evade the tax by going to another jurisdiction. In any case there is no assurance that there would be any marked differences in tax rates sufficient to prompt any attempt to evade the tax in any one state. There is little to be said against the transfer of such taxes to the states.

**Governmental Tax Exemption.** The immunity of federal agencies and property from state and local taxation introduces many complications, particularly at the local level. In many instances, in view of the straitened circumstances in which the community has found itself, the federal agency has given a lump-sum payment to the community in lieu of taxes. It would be far more equitable and less open to individual caprice to make federal property fully taxable for local purposes. There are, of course, serious constitutional problems involved here, but the desirability of the change seems indicated.

The same treatment should be accorded the exemption of state and local bond interest from federal income taxation. The use of this exemption for, shall we say, "avoidance" of income taxation is well established. The wisdom of the provision against taxation of federal, state, or local property or bond interest is manifest when one considers the possibility that the federal government could seriously interfere with the activities of state and local governments by excessive taxation of the latter's bonds. Any constitutional amendments should include safeguards to prevent the use of taxing powers for such purposes. The problem is by no means simple and the more one studies it the greater the apparent merit of the exemption provisions which now exist even though abuses have developed.

**Limitation of Federal Taxes.** One proposal which must be considered in this context is that which calls for a constitutional amendment limiting federal income, estate, and gift taxes. The movement in this direction began near the end of the decade of the '30's. It was originally sponsored by the American Tax Payers Association and later received the support of many organizations, including the National Association of Real Estate Boards and the Committee for Constitutional Government. By the end of 1946 more than a third of the state legislatures had passed a resolution petitioning Congress to take action on the amendment. During the prosperous war years the pressure in favor of the amendment was relaxed but the issue did not die.<sup>20</sup>

<sup>20</sup> See J. O. McClintic, "The Proposal to Limit Federal Income, Estate and Gift Taxes by Means of a Constitutional Amendment," *Bulletin of the National Tax Association*, Vol. 32, No. 3 (December, 1946), pp. 73-81.

This would hardly be an improvement on the prevailing tax confusion and would not constitute coordination in any real sense. There would still be federal and state income and inheritance taxes, so that the complications which faced the tax payer would be, qualitatively, the same as ever. The duplication in administration and the various inequities which result from multiple taxation would still remain. The states would, of course, have opened up for them a great source of additional revenue if the federal government were actually limited to tax rates of 25 per cent on these bases. It is not likely, however, that they would drop the other types of tax such as gasoline and sales taxes. The federal government would have to expand in those directions and that would mean that the overlapping and confusion would be increased in one set of taxes even though it is not substantially reduced in the other. Certainly from the point of view of the problems of coordination there does not seem to be anything to be said for the proposed constitutional amendment.

**Centralized Collection.** Even if the various taxes are allocated to the respective levels of government without any overlapping, there would be a considerable amount of efficiency involved in centralized collection. For instance, even if the states alone handle sales taxes, it may be desirable to have a single agency to collect the tax for all the states, turning the proceeds over to the respective states. The federal government is the logical administrative device for this purpose. If it should happen that complete separation of taxing powers is not achieved and overlapping does remain, then there is all the more reason for centralized collection.

Objections are voiced very loudly against centralized collection, however, by those who fear this as a step in the loss of the states' rights. There can be no doubt that the danger exists. Nevertheless it should not be difficult to set up a collection agency which does not carry with it such unfavorable consequences. There cannot be the slightest doubt that a great reduction in cost of administration would occur. The employer is now a collecting agent for the government with respect to the social security tax and the income tax. No one claims that the employer obtains any power thereby. As long as the act of collection does not mean that the collecting agent is actually entitled to the total amount received and that he decides who shall get the proceeds and how much each recipient should get, there seems to be no really sound basis for objecting to this purely administrative improvement.

**Concentration of Tax Levy and Collection in the Federal Government.** It is conceivable that all taxes could be levied and collected by the Federal Government. The Federal Government would then dis-

tribute its receipts to the various state governments (who presumably would then distribute part to the local governments) on some basis of need or source or a combination of these. A step like that does actually mean a substantial loss of financial power by the states themselves. If the step were taken merely by mutual agreement the states could of course withdraw if their loss of power became actual. If the change were made by constitutional amendment then the states would not have any easy remedy except another constitutional amendment. Putting the reform into effect this way would be a very serious step to take.

### State-Local Fiscal Coöperation

The confusion in federal-state relations is reflected to some extent at the state-local level. The duplication in administrative costs in such cases is an economic waste and the nuisance to the taxpayer may exceed the benefits derived from the tax revenues. Moreover, there is the problem of fiscal incapacity on the part of many local governments, particularly cities.

Financial assistance from other governments represents the major single source of funds for cities next to the property tax. Such assistance takes two forms: grants-in-aid and shared taxes. The Bureau of the Census defines the shared state tax as "a specific state-imposed tax shared with local governments in proportion to the amount of tax collected or produced in each local unit." The grant-in-aid is defined as "an amount other than a receipt from a shared tax received by the cities from another civil division—as the federal government or the state—to aid in the support of a specified function or for purposes in general."

According to these definitions the shared tax is distributed according to source of the revenue while the grant-in-aid is distributed according to need. There is a third type which may perhaps be referred to as a "grant-shared" tax. A certain proportion of the state-collected tax is distributed to municipalities (as in the case of shared taxes) but the distribution is according to need (as in the case of grants-in-aid). The sales tax in Michigan is of this sort: one-sixth of the sales tax is distributed on a population basis and one-sixth on a school census basis. The details of this plan are discussed more fully below.<sup>21</sup>

### EXTENT OF STATE AID

In recent years some signs of state liberality have been manifest. Minnesota increased its state aid 130 per cent in a ten-year period. Most

<sup>21</sup> See Robert S. Ford, "Michigan Splits the Sales Tax," *Bulletin of the National Tax Association* (December, 1946), pp. 65-72.



## STATE AND LOCAL FINANCE

of the other states have had a similar experience. On the average, states granted over 42 per cent of their revenue receipts to municipalities. Some of the funds were provided by the federal government. Among the highest states were Wisconsin with 67.6 per cent of state revenues distributed to local units in 1943, Colorado with 62.1 per cent, New York with 61.4 per cent, Massachusetts with 60.1 per cent, Indiana with 55.8 per cent, North Carolina with 53.1 per cent, and Ohio with 52.2 per cent. States lower down the scale include Minnesota with 48.3 per cent, New Jersey with 46.5 per cent, Michigan with 43.0 per cent, Iowa with 38.5 per cent, and Illinois with 32.4 per cent.<sup>22</sup> An indication of the relative importance of aids from other governments may be obtained from the fact that in 1943 this item stood at \$362,240,000 for all cities over 100,000, which is approximately one-fourth the size of property tax revenues, which were \$1,381,039,000.<sup>23</sup>

States vary widely in the extent to which their cities' revenue comes from aids from other governments. Colorado shows the highest percentage of city revenue from aids, 34.1 per cent. North Dakota shows the smallest, 0.3 per cent. Massachusetts and New York show the largest per capita aid, \$16.10 and \$16.08, respectively. The lowest per capita figures are in North Dakota, \$0.03.<sup>24</sup> The Moore Plan recently adopted in New York provides for fixed payments to municipalities based on population, the annual per capita payment to be \$6.75 to cities, \$3.55 to towns, and \$3.00 to villages.

Table 47 indicates how important aid from other governments is in some cities.

### MICHIGAN'S SHARING OF THE SALES TAX

A recent example of a state-aid program may be considered in detail. As a result of a vigorous campaign on the part of the mayors in Michigan, an amendment to the state constitution was adopted to provide for one-sixth of the state sales tax to be earmarked for the schools and another sixth for cities, towns, and villages. In 1944 a constitutional amendment requiring an allocation of one-third of the sales tax to local units was sponsored by certain municipalities and real estate boards but was opposed by the Michigan Educational Association.<sup>25</sup>

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<sup>22</sup> Harold L. Henderson, "State Aids as a Possible Revenue Source for Cities," *Bulletin of the National Tax Association* (November, 1946), p. 44.

<sup>23</sup> Hillhouse and Magelssen, *op. cit.*, p. 7.

<sup>24</sup> *Ibid.*, p. 162.

<sup>25</sup> Blakey and Blakey, *op. cit.*, p. 27, n. 51.

Table 47

## CITIES WHICH OBTAINED A HIGH PERCENTAGE OF TOTAL REVENUE AS AID FROM OTHER GOVERNMENTS IN 1942\*

<i>City</i>	<i>Percentage of Total Revenue</i>
Kokomo (Ind.).....	69.9
Canton (Ohio).....	58.3
Superior (Wis.).....	46.9
Appleton (Wis.).....	46.2
Denver (Colo.).....	44.6
La Crosse (Wis.).....	44.4
Eau Claire (Wis.).....	40.9
Zanesville (Ohio).....	40.6
New Bedford (Mass.).....	38.3
Fall River (Mass.).....	37.7
West Allis (Wis.).....	37.2
Wilmington (N. C.).....	36.8
Newark (Ohio).....	36.2

\* Adapted from Hillhouse and Magelssen, *op. cit.*, p. 2. (Based on U.S. Bureau of the Census, *City Finances*, 1942.)

The chief provisions of the amendment splitting the sales tax have been summarized as follows:<sup>26</sup>

1. One-sixth of the present 3 cent sales tax shall be returned to cities, villages, and townships on a county population basis.

2. Another one-sixth (making a total of one-third or 1 cent of the sales tax) shall be apportioned to school districts on the basis of the school census, which is the same method followed in distributing the primary school interest fund.

3. In addition, the amendment sets a minimum appropriation for the public schools through the provision that the general fund appropriation for schools in any year shall not be less than that percentage of sales tax collection in the preceding year which (a) the general fund appropriation for public schools in the fiscal year 1945-46 was of (b) sales tax revenues in the fiscal year 1944-45.

This provision means that in any year the legislative appropriation from the state general fund for the public schools cannot be less than 42.64 per cent of sales tax collections in the preceding year.

4. Thus, the state is compelled to give up one-third of the current yield of the sales tax plus 42.64 per cent of the yield in the preceding year, which would amount to approximately 75 per cent of annual sales tax collections.

This most recent case of tax sharing is extremely interesting as an illustration of some of the problems of municipal government and state-

<sup>26</sup> Robert S. Ford, "Michigan Splits the Sales Tax," *Bulletin of the National Tax Association* (December, 1946), p. 66.

local relations. The funds distributed are primarily for educational purposes and partly for general purposes. Approximately 60 per cent of the sales tax revenue is earmarked for education. By this measure education in Michigan is tied to the sales tax in an apparently dangerous way. If sales tax revenues drop off there will be a shortage of funds for distribution to municipalities on account of education. Such grants are not, however, limited to the sales tax source and the state's freedom to use its funds for educational purposes is not actually curtailed by this measure.

Although the municipalities cannot lose, and may gain, by this measure, the state's financial problems are enhanced by the strictures imposed. The earmarking of so large a part as 75 per cent of the sales tax revenue for local use by the Constitution removes a large element of discretion and control from the legislature. As Professor Ford points out,<sup>27</sup> Michigan's Constitution already prohibits a graduated income tax or a classified property tax, sets an upper limit of 15 mills on the property tax rate, restricts the use of revenues from the automobile weight and gasoline taxes to highway purposes, and requires that at least 1 per cent of the aggregate annual payroll of the state service in the preceding year be appropriated for the Civil Service Commission. This means that, to a large extent, the state's expenditures are determined not by changing needs or conditions but by the Constitution. The new sales tax split aggravates this situation further.

In order to avoid a curtailment of essential services, the state would have to increase taxes, reduce aid and share taxes, or cut the cost of operation, presumably by returning some service, such as relief, to localities or some combination of these alternatives.

#### EVALUATION OF STATE AID PROGRAM

Increased state aid for local government has its justification in several factors. The financial plight of these units, particularly the cities, warrants consideration from the governmental authority whose creatures they are. State limitations on property tax rates aggravate the situation and place an insuperable barrier on local efforts at a solution to the problem. Even in the absence of such limitations it is doubtful whether property owners should be asked to bear an even greater share of the municipal financial burden than they do at present. For reasons such as this, Hansen and Perloff favor "the absorption by the federal and state governments of a larger share of the evergrowing financial responsibilities

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<sup>27</sup> Ford, *op. cit.*, p. 72.

of local communities. . . ."<sup>28</sup> Although the cities have benefited indirectly through school and county aid, it cannot be said that the states have ever treated the cities themselves with generosity.<sup>29</sup> Nevertheless, state aids have undoubtedly saved many a municipality from financial insolvency. They have also enabled local units to expand or maintain necessary services. Included among these are social services, education, and highways. They have also helped reduce discrimination against the property owner.<sup>30</sup>

**Threat to Local Self-government and Promotion of Extravagance.** An important limitation to state aids lies in the threat to local self-government and the encouragement of wasteful expenditures. This is a potent argument for broadening local taxing powers as opposed to increasing local reliance on the state.<sup>31</sup>

State aid strikes strongly at the principle of local self-government. The taxpayer, who pays federal, state, county, and city or town taxes, cannot relate his various tax bills to the services performed by the respective units of government. This ignorance regarding the source of local expenditures weakens the control which citizens have over their respective governments. On the part of the municipal officials there is a loss of responsibility for the financial soundness of the municipality. This cannot fail to result in increased spending and even extravagance. There can be no doubt that state aid tends to perpetuate local inefficiency. Where aids are restricted to specified purposes there is the danger of feast and famine existing side by side. Nor can it be denied that diversification of local revenue will not take place as long as grants come freely from higher units of government. Increased state and federal control over the spending of such money is a logical consequence. Yet this means that local government officials become little more than puppets and local self-determination is lost.

**Difficulties of Equitable Allocation.** A serious objection to the enlargement of state aid lies in the virtual impossibility of effecting an equitable allocation of state aid. Some aids are distributed in inverse proportion to wealth or income but it is extremely difficult to obtain reliable local measures of such economic factors. Very often property tax

<sup>28</sup> Alvin H. Hansen and Harvey S. Perloff, *State and Local Finance in the Local Economy*, p. 276 (New York: W. W. Norton and Company, 1944).

<sup>29</sup> See Harold L. Henderson, "State Aids as a Possible Revenue Source for Cities," *Bulletin of the National Tax Association* (November, 1946), p. 43.

<sup>30</sup> Henderson, *op. cit.*, p. 45.

<sup>31</sup> See Paul Studenski, "How Will Cities Get the Money?" *National Municipal Review* (January, 1946), p. 19.

assessments are used but the disparity in assessment procedure argues against this. The use of equalized assessment scarcely improves the situation in view of the well-known inequities in equalization practices. State aid to a particular locality becomes a matter of special pressures or, to avoid such pressures, a matter of rigid formula by which state aid rains on the needy and affluent alike.

#### SHARED TAXES AS A COÖRDINATION DEVICE

Some of the disadvantages of outright grants-in-aid may be eliminated by the device of shared taxes—but new problems are created thereby. In the case of shared taxes the tax law provides for distribution to municipalities of a specified part, or all, of the revenues. The method of distribution may be based on the geographic origin of the revenue. This means, however, that “unto those that have shall be given.” The rich communities receive more than the poor ones. Since local needs of state funds are usually in inverse proportion to local wealth and income, pressures arise to share the taxes on some other basis. The result is that the shared taxes become, in effect, grants-in-aid. The aggregate amount of funds distributed may be specified as a certain part of the revenue derived from one or more taxes, but the amount given to each locality is determined by local need.

#### SURCHARGES AS A COÖRDINATION DEVICE

Another device that has many attractions is the surcharge on state taxes. Instead of imposing new taxes, the municipality merely receives an addition to one or more state taxes.<sup>32</sup> For instance, where a state income tax of 5 per cent exists, an additional 1 per cent tax may be imposed and the revenue turned over to the municipality. The entire 6 per cent is collected by the state and the state's revenue staff does all of the paper work required.

The system of surcharges is different from that of shared taxes in that the surcharge would be local in nature. The municipality would request the state to impose and collect the additional tax. Local option would prevail. Of course enabling legislation would be necessary. State authorities are likely to object to this system because the taxpaying public is certain to associate the tax with the state rather than the municipal government. The usual difficulties of evasion and avoidance connected with taxing a limited area also apply. On the other hand,

<sup>32</sup> See John F. Sly, “Tax Supplements for Municipalities,” *The Tax Review* (February, 1947), pp. 5–8.

administrative costs are kept to a minimum by the surcharge device. The state machinery for collection and auditing is already set up. The municipality does not have to bear the burden of creating a staff and a body of law and opinion pertaining to its new revenue sources.

Where the system of surcharges with local option is adopted, the state's revenue staff must take on one added burden. That is the determination of whether and to what extent any particular taxpayer is subject to the local tax. An individual living outside the taxing municipality may, for instance, be required to pay the surcharge on that part of his income which he derives within the municipality. The state tax return form would have to provide this information or a short supplementary return would have to be submitted. This information would, of course, have to be sought even if the tax were entirely a local tax, locally administered.

#### CENTRALIZATION OF FUNCTIONS

State aid may be considered to be a method of enabling a municipality to continue a function which would otherwise have to be taken over by the state for financial reasons. Some states have actually taken over or otherwise centralized typically local functions.<sup>33</sup> Delaware now has almost complete financial and operating control of the state's educational system. North Carolina and Virginia run the local highway systems. Pennsylvania and Illinois financed the entire relief program of the depression. Twenty-seven states have complete financial and operating control of old age assistance. Twenty-one states administer aid to dependent children in the same way. Other changes in the same direction include: city-county consolidation, creation of metropolitan governments for special functions, transfer of such functions as parks, libraries, zoning, welfare, health to county governments; and state or county rather than city or town operation of various functions.

Whether centralization is to be preferred to state aid depends on one's attitude toward local self-government. Centralization has been justified on the grounds that "modern science has made it not only possible but necessary to operate with larger and broader units."<sup>34</sup> Improvements in the fields of transportation and communication are suggested in support of this view. It is claimed that "Students of this problem feel that local governmental independence has served its useful-

<sup>33</sup> See Henderson, *op. cit.*, p. 46.

<sup>34</sup> *Ibid.*

ness in many fields and is no longer compatible with modern economic facts."<sup>35</sup> The non-economic advantages of municipal independence should not, however, be ignored. State and federal aid merely weaken local self-government—centralization of services destroys it. Broader grounds than those of efficiency and practicability must be advanced in support of so drastic a solution to the financial problems of municipalities.

A closely related solution is that of shifting functions from one municipality to another—from a hard-pressed municipality to a more fortunate one. Since the lowest level of municipality, such as the city, seems to be in the most-straitened financial situation, the shift is usually to a higher level such as a county. This does not involve any appreciable degree of centralization and must therefore be evaluated according to the merits of the individual case.

### Centralized Control of Borrowing

The possibility of centralized control of borrowing is not seriously under consideration in the United States at the present time. An interesting attempt to remove abuses of state borrowing and default, to reduce the disparity of interest rates and to improve the federal as well as the states' credit, has been taken in Australia. In 1927 the federal government took over existing state debts and a Loan Council was established.<sup>36</sup> The Loan Council was to handle all borrowing by the federal and state governments, with the exception of borrowing for temporary purposes or for defense purposes by the federal government. With the strict control exercised by the Loan Council, major improvements took place in state finance. By 1936-37 government deficits had been eliminated. A National Works Council has been set up to plan a counter-cyclical public investment program and to advise the Loan Council accordingly. Coördination of financial activities is thus developing into centralization of fiscal policies.

### Conclusions: Improvement in Intergovernmental Financial Relations

The problem of intergovernmental finance must be faced squarely and dealt with immediately if virtual chaos is to be avoided.<sup>37</sup> Greater

<sup>35</sup> *Ibid.*, p. 46.

<sup>36</sup> James A. Maxwell, "Recent Intergovernmental Fiscal Relations in Australia and Canada," *Bulletin of the National Tax Association*, Vol. 32, No. 5 (February, 1947), pp. 138-41.

<sup>37</sup> See Alfred G. Buehler, "Problems in Federal, State and City Tax Coordination," *Commercial and Financial Chronicle*, July 15, 1948, p. 1.

uniformity of state tax laws, greater coördination of federal and state tax policies and a closer integration of state and local finance are imperative.

#### FEDERAL-STATE GRANTS IN A COÖRDINATED SYSTEM

The existence of federal grants may be taken as evidence of the inadequacy of state and local tax revenues. Even a rich state may, however, require federal grants of a specific nature in order to be induced to undertake some activity which it does not consider important but which the national government for one reason or another does consider important. In a few cases the state government may consider the activity important but feels that it cannot undertake it unless all other states do so. In this case some federal inducement may be necessary. But in so far as the federal grants merely reflect general fiscal incapacity of the state governments, the grants may be considered as a method of relieving such incapacity. It should be noted that by fiscal incapacity of the state governments we do not mean the fiscal incapacity of the state economies as such. Of course the federal government must get its revenues from the economic system as a whole and the grants essentially involve a transfer from the richer state economies to the poorer state economies. The point is that the state governments are not able fully to exploit their own economies—that is, not able in a feasible way without serious detrimental effects.

It is not unreasonable to say that federal grants are in the nature of a palliative rather than a cure. They provide a medicine which reduces the ill effects of state and local incapacity. Since the medicine has some toxic effects such as the possible extravagance that the grants may promote or political pressures which are encouraged in the allocation of the grants, it would seem to be preferable to try to cure the disease through tax coördination rather than to develop more and more refined headache powders in the form of grants.

Even at best, however, it should be noted that the federal government may still want to make grants for certain very special purposes or to redistribute the wealth and income from the richer to the poorer states. In so far as grants are made to states which are economically well off and which do perform the services desired, such grants are an evidence of the confusion and overlapping which exist in state and federal taxation. The solution lies in tax coördination through a division of tax powers or, barring that, through an integrated system of tax collection via the surcharge method explained earlier in this chapter. In the absence of such tax coördination, grants are necessities and it is a worthwhile



enterprise to devise methods to increase their effectiveness without at the same time aggravating their toxic effects.

#### NECESSITY OF FEDERAL-STATE TAX COÖRDINATION

The possibility of a substantial saving in both money and annoyance to the taxpaying public by means of a throughgoing system of federal, state, and local tax collection warrants a thorough study of the problem. The present tax structures of the respective levels of government have grown up, as most parts of any economic structure have grown up, on a piecemeal basis in response to urgent needs. The branching out of the states into general sales taxes and into income taxes is certainly explainable in large part this way. The widespread and the growing tendency of local government to do the same thing means that the confusion grows greater and greater. Making out tax returns and forms and collecting numerous taxes cannot be considered economical or desirable occupations on the part of taxpaying individuals or business firms yet that is becoming a serious time-consuming function. If the cost of tax collection were reallocated fully so that the time spent by government employees, business employees, and individuals in connection with taxes were fully computed, it would come to a much larger sum than anyone is at present aware. The reduction of the amount of time so spent is a worthwhile task and should be rated in importance with other major reforms in government finance.

The trend toward federal-state coördination of financial powers has gone much farther in Australia and Canada than it has in the United States. In those two countries certain tax fields have been vacated completely by some or all of the states or provinces. The force of circumstances in the United States seems to be in the same direction but the much stronger recognition of state sovereignty which prevails here will probably remain as an insuperable barrier to any large degree of coördination.

#### STATE-LOCAL RELATIONSHIPS

Improvements are also necessary in state-local financial relations. One possibility is for the states to confine themselves to certain specified taxes, which can best be handled on a statewide basis and leave the other taxes to the municipalities. Another possibility is for the state to superimpose a local tax on its own taxes thus acting as a collecting agency for the municipality. Either of these alternatives would be preferable to present-day practice in many cases where the state and some local governments independently impose, collect, and administer taxes on the same bases such as income, sales, motor vehicle, or the like.

**Part VI**  
**Fiscal Policy and Economic Activity**



## The Fiscal Impact on the National Income

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Ever since the depression of the '30's there has been a growing recognition of the *economic* effects of government finance. Government expenditures and revenues, government borrowing and debt repayment are studied, not for their impact on the Treasury, but for their impact on the economy. It is recognized now more than ever before that each aspect of government finance may be used as an instrument of economic policy to influence the size of the nation's income or alter the character of the nation's output. At first the problems of the depression and then the necessities of the war have converted "government finance" into "fiscal policy." The theory of fiscal policy, reborn in the depression, nurtured during the recovery, and matured in the war, has become the handmaiden of the government official and the political economist.

In spite of the great amount of attention it has received, the theory of fiscal policy still lacks complete coördination of its various faculties and still suffers from frequent reversion to its childhood days. During the time of deep depression, when the multiplier theory was developed, it was taken for granted by many economists that deficits were the appropriate instrument for raising the level of national income. Since widespread unemployment and underemployment existed there was little need for differentiating real from money income, because a general rise in prices was not very likely and, in any case, was desirable. During a war, however, we wish to raise only the *real* income or the physical output, and then only the output of war materials, and keep down as much as possible the money national income and the price level. How must the theory of fiscal policy be changed as a result of these new objectives and altered conditions? And when the war is over, do we have to resort to deficit-spending to prevent a depression? Are deficits, which were required to *raise* the level of national income, appropriate for *maintaining* a high level of national income? We must exercise the greatest care in answering these questions and we must guard against glibly applying some ready

formula which we ourselves have carried over from the prewar days of business depression. It is necessary first of all to examine the structure of fiscal policy and consider the interrelations among expenditures, taxation, borrowing, lending, debt repayment, and national income. Then we can see how fiscal policy may be used to achieve desired ends and avoid dangerous pitfalls during a war and in a postwar period.

### Structure of Fiscal Policy

Most of the individual instruments of fiscal policy—expenditures, taxation, borrowing, and debt repayment<sup>1</sup>—have been subjected to meticulous examination by economists. The multiplier theorist has explored the effects of expenditures, and the tax theorist has built up an enormous literature dealing with every nook and cranny of tax incidence and effects. Borrowing and debt repayment have not been studied quite so widely but there is a substantial literature even on these subjects. Although the individual instruments of fiscal policy have been studied carefully, the theory of fiscal policy as a whole lacks integration. The terminology and interests of the tax theorist have not been the same as those of the multiplier theorist while the borrowing and debt repayment expert has busied himself with matters monetary and capital to which the others have, in the main, paid only passing attention. As a result, it is difficult to make adequate allowance for the effects of taxation, borrowing, and debt repayment in trying to determine the consequences of any particular volume of government expenditures. Instead of being an integral part of the analysis, these effects usually take the unsatisfactory form of “modifications” or “qualifications.”

The immediate task is to study each instrument of fiscal policy on some comparable basis and then construct a comprehensive picture of the fiscal impact as a whole. In undertaking this analysis it is necessary, in the first instance, to consider each element of government finance separately, even though the aim is one of integration. Thus it is necessary to study the effects of taxation by itself, without regard to the consequences of spending the funds received; and to study the effects of expenditures by themselves, without regard to the results of the various methods employed to obtain the funds required. A similar procedure is followed in studying the effects of borrowing and debt retirement. In every case the same broad types of effects are considered. Printing of new money has economic effects only in so far as the money

<sup>1</sup> The *sale* of goods and services is not considered to be a fiscal aspect of government activity.

is spent, hence printing of new money is not considered separately. Credit creation for government expenditures forms part of borrowing, in this case from the banking system. Since we wish to see how fiscal policy influences consumption, investment, and national income as a whole, we must consider the extent to which each instrument of fiscal policy involves some impact on the nation's supply of consumption funds and the extent to which it involves some impact on the nation's supply of loanable funds. The impact on consumption funds serves as a starting point for the study of subsequent effects on consumer spending and the impact on loanable funds serves as a starting point for the study of subsequent effects on investment.

### EXPENDITURES

Through the medium of expenditures the government *releases* both consumption and loanable funds. For the most part, a release of consumption funds is involved, as in the case of administrative expenses, relief, public works, and most national defense items. By purchasing goods or services the government directly transfers consumption funds to the firms and individuals concerned. But there has recently grown up another type of government disbursement of funds whereby the government merely lends its money (nominally, at least) and does not give it away or purchase outright any goods or services. This has been true of a number of credit corporations set up by the government. The extension of credit tends to have the same sort of ultimate effects on national income as the outright purchase of goods and services by the government, but the path taken by these effects is different. Government expenditures associated with lending activities augment the supply of loanable funds and thus tend to increase the availability of capital and ease the terms of private borrowing. The effects of this depend on the nature of the inducement to invest and on the possibility of obtaining funds from other sources, for instance, the banks. On the other hand, the direct purchase of goods and services by the government means, in and of itself, that the community's supply of consumption funds in hand is augmented. Thus we may carry over into our later discussion the two categories of government disbursement of funds—those which involve a *release of consumption funds* and those which involve a *release of loanable funds*.

### TAXATION

In the case of tax revenues we have an *absorption* of funds by the government; and here again we may consider the funds involved to be

of two types. To some extent, the process of taxation transfers to the Treasury funds which would have been spent on consumers' goods. This is true in some degree of sales taxes and of income taxes on low-income groups. But some taxes impinge on savings, which may have augmented the supply of loanable funds. These two parts of taxation have different effects on the national income. The first part directly reduces consumers' expenditures and national income while the second has only an indirect effect operating through the availability of capital supplied by individual income recipients. As a result of this type of taxation the terms of borrowing for private investment may be less favorable than they would otherwise have been. Where bank credit is freely available the restrictive effects arising from the absorption of loanable funds through taxation may be negligible. Taxation, then, involves both an *absorption of consumption funds* and an *absorption of loanable funds*.

### BORROWING

When we turn to borrowing we again find an instance of government *absorption* of funds. It might seem that since the money is borrowed the funds involved must necessarily be loanable funds. But if we are concerned with the use to which the funds would have been put if they had not been lent to the government, then we can see, paradoxically perhaps, that not all funds lent to the government need be loanable funds. In the case of some bonds issued during the war and more clearly in the case of compulsory savings, the money lent to the government would, to some extent at least, have been spent on consumption goods. If the borrowed money comes from a restriction of consumption as a result of public pressure accompanying the borrowing campaign, the effects are different from those which result when the borrowed money comes from credit expansion or from savings which would have taken place anyway. The ordinary multiplier analysis usually takes it for granted that the borrowing of the money in itself is completely innocent of any effects as far as expansion and contraction are concerned. But government borrowing might reduce private consumption and, depending on the state of the banking system, might discourage private investment. Hence, in the case of borrowing as in the case of taxation we should consider separately the *absorption of consumption funds* and the *absorption of loanable funds*.

### DEBT REPAYMENT

We should not leave out of account the *release* of funds through debt repayment, which goes on even when a net increase in the debt is taking

place. The repayment of the debt (interest payments being considered part of expenditures) might seem to involve solely a release of loanable funds. For the most part, this is true, since the funds paid out by the government in retiring debt will probably be put on the capital market for the purchase of securities. But in some cases, the government bonds represent a definite savings program on the part of the individual, with the retirement of the bonds marking the culmination of the program and the spending of the money involved. The repayment of bonds sold in wartime through the use of public pressure or compulsion will also have the effect of stimulating consumer spending. On the whole, the repayment of debt tends to stimulate consumption to the same extent that the borrowing of the money tended to curtail it. Debt repayment may then be considered to involve a *release of consumption funds* as well as a *release of loanable funds*.

### Operation of the Fiscal Mechanism

The several instruments of fiscal policy operate as a unit. Their respective releases and absorptions of consumption and loanable funds combine to achieve the total fiscal impact on the national income. It is useful to sum the various consumption and loanable funds elements separately and then analyze the relation between the two.

#### NET GOVERNMENT RELEASE OF CONSUMPTION FUNDS

With this isolated examination of each instrument of fiscal policy we can obtain an estimate of the extent to which the government adds directly to the community's consumption funds. It is generally considered a mistake to regard the whole of government expenditures as a net addition to consumption funds because there are offsetting effects in the form of taxation. Hence the magnitude of the deficit, sometimes modified to take account of capital items within expenditures and taxation,<sup>2</sup> is generally regarded as the appropriate indicator of the government's net contribution to the community's purchasing power. The deficit (or some

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<sup>2</sup> As in the measures known as "the net contribution of the Federal Government to national buying power" or "the net income-increasing expenditure of the Federal Government." For a description of the measures see H. H. Villard, *Deficit Spending and the National Income* (New York, 1941), Part III. For a criticism of the treatment of taxation see A. H. Hansen, *Fiscal Policy and Business Cycles* (New York, 1941), p. 190 n.; and for a further discussion of this question see C. O. Hardy, "Fiscal Policy and the National Income" (*American Economic Review*, vol. XXXII, March, 1942, pp. 103-10) and J. W. Angell, *Investment and Business Cycles* (New York and London, 1941), Chapter XII and p. 325 n.



variant of the deficit) has been generally used as the appropriate multiplicand of the multiplier principle. But if the foregoing dissection of fiscal policy has any validity, the deficit (that is, the extent to which expenditures are financed out of borrowing) gives a misleading picture of the government's contribution to the community's consumption funds. Moreover, the borrowed money may even represent some reduction in the community's consumption funds. Nor should we regard the whole of taxation as being an item to offset expenditures; some taxes are completely innocent of any detrimental effects operating directly on consumption. Finally, we should take account of the debt repayment activities of the government. In short, we should add together those parts of expenditures and debt repayment which involve a *release* of consumption funds; and deduct those parts of taxation and borrowing which involve an *absorption* of consumption funds. In this way we can take account of the consumption effects of each instrument of fiscal policy and obtain a measure of the *net government release of consumption funds*. This, not the expenditures nor the deficit, is the appropriate measure of the government's direct contribution to the nation's purchasing power and is the appropriate multiplicand of the multiplier principle. It may conceivably be negative in some circumstances, that is, there may be a net government absorption of consumption funds.

#### NET GOVERNMENT ABSORPTION OF LOANABLE FUNDS

The other effects of each instrument of fiscal policy must not be ignored. Government borrowing involves mainly (and, in ordinary times, entirely) an absorption of loanable funds. Likewise taxation almost invariably absorbs some loanable funds. These elements which involve an *absorption* of loanable funds should be added together; and from them should be deducted those parts of expenditures and debt retirement which constitute a *release* of loanable funds. In this way we obtain a measure of the *net government absorption of loanable funds*. In other words, we obtain a measure of the net amount of funds the government withdraws from the money and capital markets. To take only the amount of government borrowing, as is usually done, is incorrect because taxes also involve a withdrawal of loanable funds to some extent; and at the same time the government puts some of these funds back into the capital market through its expenditures and repayment of debt. There may be a net release rather than absorption of loanable funds on the part of the government in some circumstances.

In deriving the over-all measure representing the net absorption or

release of loanable funds we should not lose sight of the individual segments making up this over-all measure. The over-all measure must be treated with the care required wherever we deal with broad concepts and ignore qualitative considerations. In the case of loanable funds, in particular, quality is a vital consideration: a plenitude of funds in the call money market is of no use to a family desiring to build a house; nor need a scarcity of funds in the long-term capital market have a detrimental effect on a business seeking to renew a thirty-day note.

#### CONVERSION OF LOANABLE FUNDS INTO CONSUMPTION FUNDS

Each instrument of fiscal policy may then be considered to have a consumption-funds element and a loanable-funds element. Borrowing and taxation *absorb* both consumption funds and loanable funds while expenditures and debt repayment *release* both consumption funds and loanable funds. We may say that expenditures and debt repayment have *expansive* effects while borrowing and taxation have *restrictive* effects.<sup>3</sup> We have broken up each of the expansive and restrictive effects into two parts: the effect on consumption funds and the effect on loanable funds. There is usually a net absorption of loanable funds and a net release of consumption funds. Where there is no change in the government's cash balance and no government printing of money to finance expenditures, the net government absorption of loanable funds is identically *equal* to the net government release of consumption funds. The fisc is essentially a mechanism which converts loanable funds into consumption funds. In determining the extent of this conversion we must not confine our attention to deficit spending as is so often done. Each instrument of fiscal policy—expenditures, taxation, borrowing, and debt repayment—affects the availability of both loanable funds and consumption funds and plays a part in the government's conversion of loanable funds into consumption funds.

<sup>3</sup> See A. F. W. Plumptre, "An Approach to War Finance," *Canadian Journal of Economics and Political Science*, vol. VII (February, 1941), pp. 1-12.

## Balanced and Unbalanced Budgets

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The balanced budget has always been an aim of fiscal officers whereas economists have frequently advocated deliberate unbalancing of the budget. Some claim that the budget may be unbalanced temporarily during depression periods but that over the course of a business cycle the budget should be balanced. Some are willing to allow the budget to be unbalanced over a longer period. Some have even gone so far as to question the desirability of budget balancing as an aim of government finance. Most economists at least recognize that budget balancing is generally desirable but they are willing to condone temporary or permanent deficits where economic considerations warrant. One economist, however, goes so far as to say that budget balancing is not even a desirable aim, that there is no reason whatever why an attempt should ever be made to balance the budget, that if it ever is balanced it should be merely an accident or a coincidence.

During the depression of the '30's and again during the war period the budget was deliberately unbalanced. The budget handed down for the fiscal year 1947-48 foresaw a balanced budget for the first time since 1930, when there was a surplus (excluding debt retirements) of approximately \$738 million. In the following year, 1931, there was a deficit of approximately \$462 million. Thereafter the deficits exceeded a billion dollars and rose as high as \$5 billion in the fiscal year 1941. In the subsequent war years the peak of nearly \$56 billion was reached in the fiscal year 1943. The deficit dropped sharply thereafter and in the President's proposed budget for the fiscal year 1947-48 the possibility of a budget surplus of some \$200 million was foreseen. A surplus of over five billion dollars actually developed for the year.<sup>1</sup>

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<sup>1</sup> See "Annual Report of the Secretary of the Treasury, 1945," p. 449; *Treasury Bulletin*, March, 1947, p. 2; and *Treasury Bulletin*, September, 1948, p. 1.

What is the significance of the balanced budget? What does it mean for national income and employment? Is it possible to have a balanced budget and yet have the government exert an expansive influence on the private sector of the economy? A published review of the proposed budget for 1947-48 suggested cautiously, "Thus 1947-48 would be the first fiscal year since 1929-30 without a deficit and without expansionary effects on government finance on liquid asset holdings of the public."<sup>2</sup> This survey went on to note that under the budget there would be a net withdrawal of cash from the economy into the Treasury. The amount of such net withdrawal was estimated at \$3 billion. The opinion was expressed that a "continuation of the cash surplus during conditions of a high level of employment and output *will be an important factor in restricting further inflationary forces.*"<sup>3</sup> The possibility that the balanced budget will have no inflationary or deflationary effects on the economy and the threat that a budget which results in a net inflow of several billions of dollars worth of cash into the Treasury must have a restrictive effect is something that requires the closest attention. Now that the balanced budget seems to be a matter of national policy, the question whether it actually means that the government has become "neutral" in some sense must be explored. The even more serious question whether budget surpluses may mean that the government has a net restrictive effect on the economy must likewise be explored.

Before we undertake the analysis of the effects of a balanced budget there are several precautionary remarks that must be made. We are not considering here the question whether the budget *should* be balanced; nor are we attempting to show that a budget *can* be balanced, because everyone knows that it can; nor are we particularly interested in showing that a balanced budget may have an expansive impact; but rather we are trying to discover the economic considerations that are involved in balancing a budget. Just what expansive impact or restrictive impact can we expect at various balanced budgets? What are the factors which determine the extent to which we have such an impact? To what extent in balancing the budget do we compromise the attainment of other desirable ends? How can we devise a skillful tax and spending policy so as to maximize the effects of a balanced budget and minimize the resulting conflict with the achievement of other aims, such as a high level of employment, considerations of equality, and so forth?

<sup>2</sup> "New Budget," *Federal Reserve Bulletin*, Vol. 33, No. 2 (February, 1947), p. 115.

<sup>3</sup> *Ibid.*, p. 121. [Italics mine.]

### The Double Budget: Capital and Current

One plan of budget balancing is to distinguish "capital" from "current" items and treat them in separate budgets.<sup>4</sup> The intention is that the current budget should be balanced but the capital budget may be unbalanced with impunity. Difficulties arise primarily in connection with the classification of individual items of expenditures. There is much room for manipulations to avoid unbalancing the current budget. There is also a problem of determining the period over which the current budget should be balanced, e.g., yearly, cyclically, etc. In the following discussion we assume that there is only a single budget encompassing all governmental expenditures and revenues.

### Expansive Effects of a Balanced Budget

It has been suggested in the previous chapter that the *net government release of consumption funds* rather than the *deficit* is an over-all indicator of the direct expansive impact of fiscal policy. This emphasis on the net government release of consumption funds directs attention to the expansive effects of expenditures financed through certain types of taxes. Since it is possible to have a net government release of consumption funds when the budget is balanced it is possible to have an expansive effect on consumption, and thus national income, when the budget is balanced. For instance, if expenditures are \$100 billion, made up of \$95 billion release of consumption funds and \$5 billion release of loanable funds, and if tax revenues are also \$100 billion (thus balancing the budget), made up of \$80 billion absorption of consumption funds and \$20 billion absorption of loanable funds, the net government release of consumption funds is \$15 billion (\$95 billion release through expenditures minus \$80 billion absorption through taxation). At the same time, the indirect restrictive impact is potentially \$15 billion in the form of a net absorption of loanable funds (\$20 billion absorption through taxation minus \$5 billion release through expenditures). Whether this indirect restrictive influence is actually felt depends on the state of the banking system and the general availability of capital. In any case there is a direct expansive impact of \$15 billion even though the budget is balanced.

The direct expansive impact of fiscal policy may be greater than that indicated by the size of the deficit. For instance, if tax revenues were only \$20 billion in the above example, and borrowing were \$80 billion, both involving solely an absorption of loanable funds, the net govern-

<sup>4</sup> See Alvin H. Hansen, *Fiscal Policy and Business Cycles*, Chapter 10, especially pp. 189-207 (New York, W. W. Norton & Co., 1941).

ment release of consumption funds would be \$95 billion (\$95 billion release through expenditures with no absorption through taxes and borrowing). Thus there would be a direct expansive impact of \$95 billion with a deficit of \$80 billion.

There may be a direct expansive effect even with a budget surplus. For instance, if expenditures are only \$50 billion, constituting solely a release of consumption funds, and tax revenues are \$80 billion (making a budget surplus of \$30 billion), constituting \$40 billion absorption of loanable funds and \$40 billion absorption of consumption funds, the net government release of consumption funds is \$10 billion (\$50 billion release through expenditures minus \$40 billion absorption through taxation). In this case there is a direct expansive effect of \$10 billion even though there is a budget surplus of \$30 billion.

On the other hand, the direct expansive effect may be less than that indicated by the size of the deficit and there may even be a direct restrictive effect when there is a balanced budget or when there is a deficit. If expenditures are \$100 billion, releasing \$80 billion consumption funds and \$20 billion loanable funds, if tax revenues are \$90 billion, absorbing \$75 billion consumption funds and \$15 billion loanable funds, and if borrowing is \$10 billion, absorbing loanable funds of the same amount, the net government release of consumption funds is only \$5 billion (\$80 billion release through expenditures minus \$75 billion absorption through taxation). Thus we have a direct expansive impact of only \$5 billion when there is a deficit of \$10 billion. If expenditures are the same as above and tax revenues are also \$100 billion, absorbing \$90 billion consumption funds and \$10 billion loanable funds, there is a net absorption of \$10 billion consumption funds, (\$90 billion absorption through taxation minus \$80 billion release through expenditures). Thus there is a direct restrictive effect of \$10 billion even though there is a balanced budget. If expenditures are again the same but tax revenues are \$90 billion, absorbing \$85 billion consumption funds and \$5 billion loanable funds, and borrowing is \$10 billion, absorbing only loanable funds, then the net absorption of consumption funds is \$5 billion (\$85 billion absorption through taxation minus \$80 billion release through expenditures). Thus we have a restrictive effect of \$5 billion even though there is a deficit of \$10 billion.

### **Multiplier Analysis of Balanced and Unbalanced Budgets**

The situation where the expansive impact is greater than that indicated by the deficit, including the limiting case where there is an expansive impact with no deficit at all, is of particular interest for the

discussion in Chapter 25. The multiplier principle operates on the net release of consumption funds in the usual way so that we can have the multiplier principle operating with a balanced budget. Where there is a multiplier effect, the total expansion of national income is greater than that indicated by the net government release of consumption funds. For instance, where the budget is balanced and the net government release of consumption funds is \$10 billion, the total increase in national income is \$50 billion if the marginal propensity to consume is four-fifths and we assume induced investment to be nil. Since we are interested in all aspects of fiscal policy we must also consider the possibility that the increased income resulting from the operation of the multiplier will increase tax revenues. In case we begin with a deficit, the increased tax revenues will reduce the deficit. To what extent does this, in turn, reduce the multiplier effect? And is there any possibility of increasing tax revenues sufficiently to balance the budget without reducing the multiplier effect? If the latter question can be answered in the affirmative the likelihood of having an expansive effect on national income with a balanced budget is greatly increased. As a result of our earlier analysis we can say that we may have an expansive impact even when we begin with a balanced budget. Can we also say that if we begin with a deficit the increased national income resulting from the operation of the multiplier will increase tax revenues sufficiently to remove the initial deficit and balance the budget? In other words, can the multiplier make expenditures pay for themselves? If so, we can have an expansive effect with a balanced budget even if we begin with expenditures financed through borrowing, for the increased income will yield tax revenues sufficient to pay off the debt initially incurred to finance the expenditures. Although it has always been recognized that the operation of the multiplier will automatically result in some increase in tax revenues,<sup>5</sup> it has been denied most emphatically that the budget can be balanced in this way.<sup>6</sup>

<sup>5</sup> See, for instance, R. F. Kahn, "The Relation of Home Investment to Unemployment" (*Economic Journal*, vol. XLI, June, 1931, pp. 173-98); M. Mitnitzky, "The Effects of a Public Works Policy on Business Activity and Employment" (*International Labour Review*, vol. XXX, October, 1934, pp. 435-56); and J. M. Clark, *Economics of Planning Public Works* (Washington, 1935), Chapter IX.

<sup>6</sup> See Paul A. Samuelson, "Theory of Pump-priming Re-examined" (*American Economic Review*, vol. XXX, September, 1940), pp. 492-506. More recently, Professor Samuelson has set forth the conditions under which the budget may be balanced. See his article, "The Simple Mathematics of Income Determination," in *Income, Employment and Public Policy: Essays in Honor of Alvin H. Hansen*, especially pp. 140-46 (New York: W. W. Norton & Co., 1948). See also Oscar Lange, "The Theory of the Multiplier," *Econometrica*, vol. 11, July-October, 1943, especially pp. 232 ff.

Three types of taxes are considered here: taxes coming out of income as a whole, such that both consumption and savings are affected; taxes affecting consumption alone; and taxes involving a transfer of savings and not affecting consumption at all. The terms "taxes on income," "taxes on consumption," and "taxes on savings" are used below in these respective senses. The actual form of the tax is not intended to be specified by the descriptive terms employed. An income tax, for instance, may be so devised as to have any one of these three effects, depending on exemptions, progressiveness, etc. Each type of tax will be studied under conditions where there is only induced consumption and no induced investment. Consideration will also be given to the situation where there is a positive or a negative amount of induced investment. A closed system is assumed. The possible effects of time lags are not considered at this stage of the analysis. It is assumed the operation of the multiplier is rapid enough and the period of time is long enough for substantially the full multiplier effects to have worked themselves out. The significance of this assumption is discussed in the section on "Reality and Unreality of the Assumptions."

#### TAXES AFFECTING CONSUMPTION AND SAVINGS PROPORTIONATELY

We may first consider the case where the tax structure is such that taxes come out of income as a whole, affecting consumption and savings proportionately. Where the marginal propensity to consume is four-fifths, then this fraction of income net of taxation will be consumed. If the tax structure is such that 50 per cent of any *increased* income is collected by the Treasury, it can be shown that expenditures of \$10 billion will result in tax revenues of more than \$8.3 billion and an increased national income of more than \$16.6 billion. Thus with a deficit of less than \$1.7 billion we have an increase of \$16.6 billion in income, a multiplication of 10.<sup>7</sup> Without taxation, and with the same marginal propensity to con-

<sup>7</sup> With expenditures of 10, a marginal propensity to consume equal to four-fifths, and a tax structure such that 50 per cent of increased income is diverted to the Treasury, we have the following:

$$\begin{aligned}
 \text{Increased income} &= 10\{1 + (\frac{4}{5} \cdot \frac{1}{2}) + (\frac{4}{5} \cdot \frac{1}{2})^2 + \dots \infty\} \\
 &= 10 \cdot \frac{5}{3} = 16.666^+ \\
 \text{Tax revenues} &= 10\{\frac{1}{2} + \frac{1}{2}(\frac{4}{5} \cdot \frac{1}{2}) + \frac{1}{2}(\frac{4}{5} \cdot \frac{1}{2})^2 + \dots \infty\} \\
 &= 10 \cdot \frac{5}{3} \cdot \frac{1}{2} = 8.333^+ \\
 \text{Deficit} &= 10 - 8.333^+ = 1.666^+ \\
 \text{Deficit multiplier} &= \frac{16.666^+}{1.666^+} = 10.
 \end{aligned}$$



sume, the increase in income would be \$50 billion and a deficit of \$10 billion, hence a multiplication of only 5. We can obtain an increase in income of \$50 billion by incurring a deficit of only \$5 billion, provided we are willing to spend \$30 billion to begin with and remove 50 per cent of all increased income through taxation.<sup>8</sup> Otherwise, we would require a deficit of \$10 billion in order to obtain an increase in income of \$50 billion. It is evident that taxation results in a considerable efficiency in terms of the deficit required to achieve any given increase in income.

The results obtained when the tax structure affects income as a whole can be generalized for any percentage of increased income diverted to the Treasury through taxation, for any marginal propensity to consume, and for any desired increase in income. Formulas can be derived to represent the interrelationship involved. Where the marginal propensity to consume out of income net of income taxes is four-fifths and the desired increase in income is \$5 billion, the effect of various percentages of increased income diverted to the Treasury through taxation is shown in Fig. 17. Here we can see that the initial expenditures required to achieve the desired increase in income are greater the higher the rate of taxation. Tax revenues increase more than the required expenditures, however, with the result that the deficit falls as the tax rate rises. Where none of the increased income is taxed away, \$1 billion of expenditures and deficit are required to increase income the desired amount. Where the whole of increased income is taxed away, \$5 billion of expenditures are required but since there are tax revenues of an equal amount there is no deficit. The budget can be balanced in this way but the multiplier process itself is nipped in the bud since the income initially created by the government is drawn back into the Treasury.<sup>9</sup> Between these two extremes there is

<sup>8</sup> Replacing expenditures of 10 with expenditures of 30 in the above, we have:

$$\begin{aligned} \text{Increased income} &= 30 \cdot \frac{5}{3} = 50 \\ \text{Tax revenues} &= 30 \cdot \frac{5}{3} \cdot \frac{1}{2} = 25 \\ \text{Deficit} &= 30 - 25 = 5 \\ \text{Deficit multiplier} &= \frac{5}{1} = 5 \end{aligned}$$

<sup>9</sup> For the mathematical formulation of this analysis see Harold M. Somers, "The Impact of Fiscal Policy on National Income," *Canadian Journal of Economics and Political Science*, Vol. 8, August, 1942, pp. 364-85. The fact that a balanced budget may have a multiplier effect (of unity) even without a change in the public's marginal propensity to spend has recently been re-asserted by Haavelmo. See Trygve Haavelmo, "Multiplier Effects of a Balanced Budget," *Econometrica*, Vol. 13, October, 1945, pp. 311-18, and comments on this study, G. Haberler, "Some Monetary Implications of Mr. Haavelmo's Paper," Vol. 14, April, 1946, pp. 148-149; R. M. Goodwin, "The Implication of a Lag for Mr. Haavelmo's Analysis," pp. 150-51; Everett E. Hagen, "Further Analysis," pp. 152-55; Trygve Haavelmo, "Reply," pp. 156-58. See also

an evident efficiency in terms of the deficit required to yield the desired increase in income. The deficit multiplier is greater the higher the percentage of increased income diverted to the Treasury.

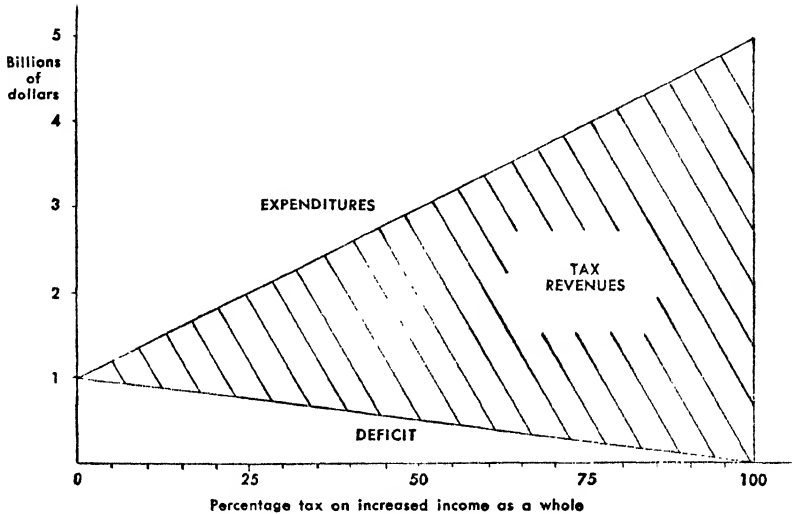


FIG. 17. Government expenditures and deficit required to increase income \$5 billion: taxes on increased income as a whole. (Four-fifths of increased income spent before taxes.)

### TAXES AFFECTING CONSUMPTION ONLY

In the foregoing discussion we dealt with taxes which are paid out of income as a whole. The reduced income, at each turnover, resulted in both reduced consumption and reduced saving, since the same marginal propensity to consume was applied to the reduced income. We may now consider the case of taxes (however imposed) which have the effect solely of reducing consumption. After the government spends its funds, income of an equivalent amount is created. Part of this is spent on consumption, but some of the consumption funds are diverted to the Treasury through taxation. In the previous case the tax was first applied to the income

Arthur Smithies, "The Multiplier," *American Economic Review*, Supplement, May, 1948. For additional references for recent years see Fritz Machlup, "Summary and Analysis," *Financing American Prosperity* (P. T. Homan and F. Machlup, eds.), p. 442, n. 32. (New York: Twentieth Century Fund, 1945). A recent comprehensive treatment of the subject is presented in Paul A. Samuelson, "The Simple Mathematics of Income Determination," in *Income, Employment and Public Policy: Essays in Honor of Alvin H. Hansen*, especially pp. 140-46 (New York: W. W. Norton & Co., 1948.)

## FISCAL POLICY AND ECONOMIC ACTIVITY

as a whole created by the government spending. As a result of this difference in the nature of the taxation involved there are some important differences in the results. As we can see from Fig. 18, the deficit required to obtain any desired increase in income is the same no matter what the percentage of increased consumer outlay diverted to the Treasury. The higher the tax rate the higher the required initial expenditures; but the deficit remains unchanged because the tax revenues

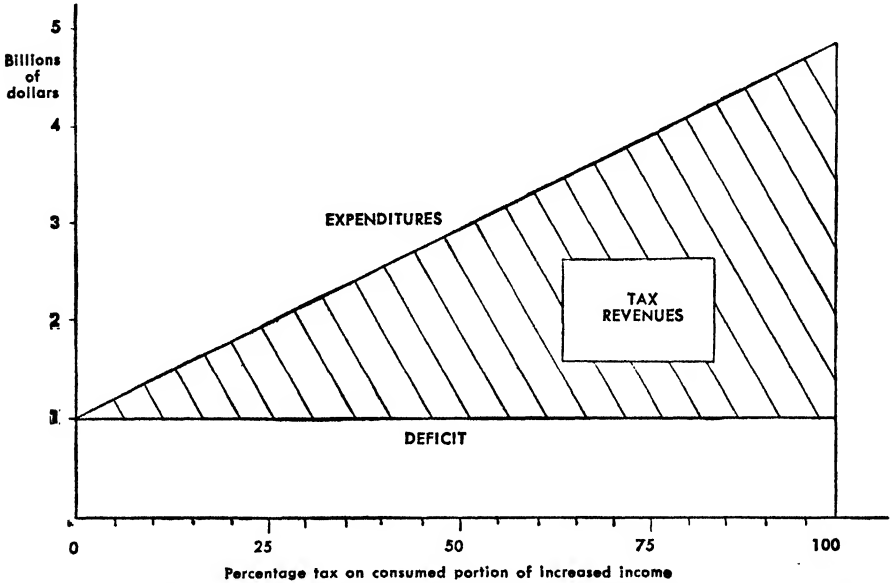


FIG. 18. Government expenditures and deficit required to increase income \$5 billion: taxes on consumed portion of increased income. (Four-fifths of increased income spent before taxes.)

increase by exactly the same amount as the expenditures. The sole determinant of the deficit required is the marginal propensity to consume. There is no point whatever in resorting to this type of taxation in trying to balance the budget. Not only is it impossible to balance the budget but no reduction whatever can be achieved in the deficit required to obtain any desired increase in income.

### TAXES AFFECTING SAVINGS ONLY

It is when we come to taxes which fall only on savings and do not reduce the amount of consumption that the most striking results are obtained. The specific form of the tax may vary—it may be an ordinary

income tax on increased income or a tax on the non-consumed portion of increased income—so long as there is no detrimental effect on consumption. Here we may expect that the multiplier would not be affected; that is true, but what is more important is that the amount of taxable savings is precisely equal to the initial expenditures.<sup>10</sup> Hence it is possible to balance the budget in this way. In other words, we can have a balanced budget and a multiplier effect at the same time, the extent of the multiplier effect being determined solely by the marginal propensity to consume and not being diminished at all by the fact that we are balancing the budget. Here, above all, it becomes evident that the emphasis placed on deficits by the multiplier theory has obscured an important characteristic of fiscal policy.

The expenditures and deficit required to obtain an increase of \$5 billion in income are shown in Fig. 19, where the marginal propensity to consume is four-fifths and the taxes imposed are assumed to have no detrimental effects on consumption.

The total effect on income is the same without and with the tax and the expenditures required to achieve any increase in income are independent of the tax. The deficit required to achieve any increase in income is, however, affected by the tax, the deficit falling as the tax rate rises. If a tax rate of 100 per cent is levied on the increased saving, then the multiplier can operate as usual with no net deficit whatever. The government begins with some deficit spending, income is increased and the non-consumed portion of the income is taxed away. The tax revenue derived in this way is exactly equal to the initial expenditures, hence the deficit is nil. This result superficially resembles but is actually radically different from that obtained in the case of income taxes. There it was possible to have income formation with a balanced budget only if the whole income initially created by the government is taxed away. Here we are taxing away only the non-consumed portions of the increased income as it is created. No new leakage results; we are merely piping the

<sup>10</sup> This may be seen by reference to the tables contained in Fritz Machlup, "Period Analysis and Multiplier Theory," *Quarterly Journal of Economics*, vol. LIV, November, 1939, pp. 1-27. If the initial expenditure is unity and the marginal propensity to consume is four-fifths, then the total increase in income will be 5. During the process of increasing the income, one-fifth of this amount, i.e. unity, will have "leaked out." Just as the total increase in income is the sum of the infinite series,  $1 + \frac{4}{5} + (\frac{4}{5})^2 + \dots$ , so the total leakage is the sum of the infinite series,  $\frac{1}{5} + \frac{1}{5}(\frac{4}{5}) + \frac{1}{5}(\frac{4}{5})^2 + \dots$ , or,  $\frac{1}{5}\{1 + \frac{4}{5} + (\frac{4}{5})^2 + \dots\}$ . This has a value of unity. Cf. Benjamin Higgins, "Keynesian Economics and Public Investment Policy," Chapter 35 in *The New Economics*, S. E. Harris, ed. (New York: Alfred A. Knopf, 1947), especially p. 478:

existing leak to the Treasury while in the case of consumption taxes the whole tax constitutes an additional leakage, hence the multiplier effect is reduced with the increase in taxation.

In balancing the budget in this manner at no time do we tax all or even the major portion of the increase in income. We tax only savings and then only the *increased* savings resulting from the operation of the multiplier. Thus we tax only a part of the increased income and only a part of the saved portion of the whole of income (using the term "saved" here in the sense of money income not spent on consumption). In other

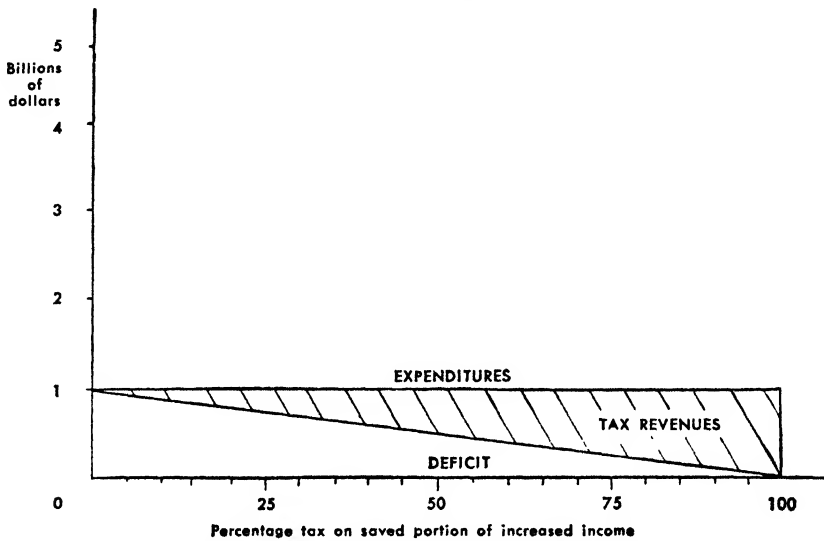


FIG. 19. Government expenditures and deficit required to increase income \$5 billion: taxes on saved portion of increased income. (Four-fifths of increased income spent before taxes.)

words, as income is created, only part of it is spent and goes to create more income. The unspent portion leaks out; and it is necessary only to pipe the leak into the Treasury in order to have a balanced budget and an active multiplier at the same time. Hence, we would expect no detrimental effects on the income rate which existed before the government spending program was instituted. In short, the government can have a multiplier program of any magnitude with a balanced budget. The greater the initial expenditures the greater the effect on income; and, at the same time, the greater the tax revenues. These tax revenues do not interfere at all with the operation of the multiplier. They can be made equal to the initial expenditures, thus balancing the budget, without interfering

with income formation. The trick is, of course, to set up a tax system which affects savings only and not consumption.

Regarding the possibility of balancing the budget, it is not necessary that the tax remove induced savings and nothing else. That would be impossible. What is necessary is that, to the extent that consumption or investment is curtailed by the policy, the expenditures would have to be raised accordingly. This must always be the case since taxation would always have some effect, however slight, of discouraging consumption or investment. But, depending on the type of tax, \$100 of taxes may cut down consumption and investment by only \$5. Should we (i.e., the Government) avoid the \$100 taxes just because of the \$5 detrimental effect? Obviously not. If we spend the whole \$100, then \$5 would be compensating for the \$5 reduction in consumption and investment, and the rest, \$95 would be expansive. Thus there would be expansion with a balanced budget even though the tax was not such as to remove-savings-without-having-any-detrimental-effects. The possibilities of an expansive balanced budget are greater than is generally believed. It is certainly not necessary to have a tax—an impossible tax—which has no detrimental effects; all we have to do is offset the detrimental effects. The operation of the multiplier with a balanced budget is therefore practicable without necessarily having an ideal (and impossible) tax which has no detrimental effects.

### INDUCED INVESTMENT

The discussion of taxation presented above has been confined to the multiplier principle in the narrow sense, which deals with induced consumption alone. There would ordinarily be some induced investment as well, either positive or negative. Moreover, there is a strong possibility that the tax program adopted will affect the propensity to consume and the inducement to invest.

We may consider the last point for a moment. If there is some positive induced investment as a result of the operation of the multiplier, then the ease with which the budget can be balanced is increased, since the income created at each turnover of the multiplier is greater than it otherwise would be. To some extent, however, the tax involves a diversion to the Treasury of income which might otherwise have been made available to the private capital market, thereby easing the terms of borrowing. The inducement to invest might therefore be less than it would have been if none of the income had been diverted to the government. But this must not be interpreted to mean that investment is reduced below

the level it would have attained without the government spending program. The tax applies only to the income created by the government spending program. If a fraction of the saved part of that increased income is diverted to the Treasury, the supply of loanable funds which had previously existed would not be impaired at all—at least not by the tax program.

The government's borrowing program might conceivably tighten the capital market, but the monetary policy pursued by some countries during the past decade or two makes it evident that such a problem need not arise—at least not in a rich and mature economy. The monetary policy adopted may be such as to increase the supply of loanable funds and thus ease the terms of borrowing. The government's borrowing program need have no detrimental effect on investment, and the tax program considered here can, at most, have only a detrimental effect on increases in the rate of investment. Increased investment might be curtailed because of a reduction in business savings through high taxes on increased income. Even here, assuming that an easy money policy is maintained, it is doubtful whether the advantages of internal over outside financing are so great that firms will resist additional investment in spite of favorable profit expectations resulting from the induced consumption. If it happens that profit expectations are unfavorable despite the government's spending program and the resulting induced consumption, so that induced investment would be nil or negligible anyway, no reduction in income results from any effects which a high income tax on increased income might have on the supply of loanable funds, the terms of additional private borrowing, and the inducement to increase investment.

The complicated nature of the inducement to invest makes it difficult to formulate precisely the magnitude of induced investment. The simple functional relation between induced investment and induced consumption as expressed in the acceleration principle is open to question, as has been shown in earlier chapters of this book. Whatever the relation is, however, the existence of any positive induced investment reduces the deficit required to achieve any given increase in income.

#### REALITY AND UNREALITY OF THE ASSUMPTIONS

The above analysis is based on a number of assumptions which are not fully consistent with reality. Is there anything to be learned from an analysis based on unreal (i.e., not completely realistic) assumptions? Critics of this type of analysis claim quite rightly that the marginal propensity to consume is actually variable, that different types of ex-

penditures have different multiplier effects, that time lags of indeterminate length exist and that it would be virtually impossible to devise a tax system which removes induced savings and nothing else. Can one say that there is nothing to be learned unless the analysis takes all variables and their variations into account? The theoretical analysis can indicate the direction in which we are going and the limit that can be reached under given alternative sets of conditions. For instance, the conclusion that taxable savings equal initial spending holds regardless of the size of the Multiplier. If we think the marginal propensity to consume is four-fifths, then we can use that; if not, we can use some other estimate. If we do not know what the marginal propensity to consume is, then the general conclusion holds qualitatively and helps determine how far we can go in trying to balance the budget and yet have an expansive effect. In short, if we do not have the figures then we might still learn something qualitative about direction and limits; if we do have the figures, then by all means we should include them into the analysis, revising the latter, if necessary, and get a quantitative answer. The analysis can be worked out with a variable marginal propensity to consume and conclusions may then be drawn regarding the effects which different types of variations have on the results. Then, if we have some idea of the relevant type of variation, we can pick out the corresponding conclusion; if we have no such idea then the analysis might be put aside, to be used when a basis exists for, at least, eliminating some of the possibilities. In most cases it is possible to make an informed guess about the direction over, say, the next year. That would give us a substantial part of the multiplier effect on a somewhat realistic level. Broad limits anyway would be determined.

Time lags introduce additional complications. Unless a thorough-going system of tax withholding exists, the government expenditures may precede the induced tax revenues by a year or so. Moreover, even under a withholding system, the full multiplier effects on income and tax revenues will take an indefinite period of time to work themselves out. The "dose" of expenditures may not be matched by resulting tax revenues in any limited calendar period. In a continuously functioning economy there will, however, be a carry-over of tax revenues from the preceding calendar period just as there will be a carry-over to the succeeding period. If expenditures have been uniform for some time, the so-called "equilibrium" values will have been reached and the results obtained above will apply.

There is one point in this connection on which there might be some



misunderstanding. Different types of expenditures will have different multiplier effects in the first "round" or two but then it is likely that the general marginal propensity to consume will apply. For instance, after the first spending, the money ordinarily reaches the usual channels, e.g. through stores, hence the various multipliers might be:

$$1 + \frac{1}{2} + \frac{1}{2} \cdot \frac{4}{5} + \frac{1}{2}(\frac{4}{5})^2 \text{ for one kind of expenditure.}$$

$$1 + \frac{9}{10} + \frac{9}{10} \cdot \frac{4}{5} + \frac{9}{10}(\frac{4}{5})^2 \text{ for another kind,}$$

and so on. The general propensity to consume of, say, four-fifths applies after the first "round."

### CONCLUSIONS

The multiplier formulas considered above can by no means be employed as quantitative guides to practical policy. The analysis is designed merely to suggest the nature of the effects which various types of taxes may have on national income and on the budget. Although the amounts of induced consumption and induced investment cannot be forecast accurately, we need not refrain from making estimates (perhaps "guesses") regarding at least the order of magnitude of these items. Then the foregoing analysis may be employed to give a rough idea of the consequences to be expected from various tax policies. There is unquestionably the possibility of obtaining a relatively large multiplier effect with a relatively small deficit; or even of eliminating the deficit entirely. Where we consider the multiplier effect operating through induced consumption alone, then, clearly, tax revenues involving merely a diversion of savings to the Treasury—that is, tax revenues which do not involve a reduction of consumption—do not hamper the operation of the multiplier principle. To the extent that the tax is of this sort, the multiplier effect can be obtained with a balanced budget. Ordinarily a tax will involve a reduction in consumption as well as a diversion to the Treasury of funds which would not, in any case, have been spent on consumption. The reduction in consumption reduces the multiplier effect; and in order to obtain any given multiplier effect the consumption taxes must be offset by greater expenditures, with the result that, to obtain any multiplier effect, a given deficit is necessary regardless of the magnitude of the consumption taxes.

Thus a tax which has the effect of reducing consumption as well as diverting to the Treasury that part of income which would not have been consumed in any case, is worth while from the point of view of reducing the deficit required to obtain the given multiplier effect and perhaps even

of making that multiplier effect possible without any deficit at all. The reduction in consumption can be offset by increased expenditures equal to those tax revenues derived from the reduced consumption; hence the Treasury comes out even on this score. The diversion to the Treasury of savings which would have taken place in any case does not interfere with the multiplier and thus makes possible a reduction in the deficit. Thus it is that a tax of this sort involves some efficiency for the Treasury. No harm in the form of a reduced multiplier effect can befall the economy. The Treasury might have to increase its expenditures a little because the taxes may have some effect in the direction of reducing consumption, but the deficit does not rise because the increased expenditures will at least be offset by increased tax revenues. In short, the initial expansive impact of fiscal policy and the subsequent multiplier effects may be, and ordinarily are, radically different from those suggested by the size of the deficit.

### A General Theory of Balanced Budgets

The possible effects which may be expected from balanced budgets of various magnitudes may be illustrated by the following diagram. All induced effects on investment and consumption are taken into account. Although the diagram appears complicated, it really represents some rather simple and obvious factors and the indulgence of the reader is requested in the interpretation of the various lines shown. The dotted line,  $BB'$ , is a balanced budget line representing identical amounts of revenues and expenditures, the amounts being indicated by the horizontal distance from  $O$ . For instance, at the point  $a$ , the expenditures are \$1 billion and the revenues are \$1 billion. At the point  $b$ , the expenditures are \$2 billion and the revenues are \$2 billion. In other words, the line  $BB'$  represents balanced budgets of various magnitudes.

Suppose that the government spends \$1 billion. It cannot be assumed that the initial effect of that is an increase of fully \$1 billion in income because it may be that the method of expenditure will interfere somewhat with private expenditures of one sort or another and therefore with the income that would have been created by the private sector alone. However, whether this is true or not is not material to the argument. It is assumed that in any case the expenditure of \$1 billion by the government has a stimulating effect initially of close to the \$1 billion. Actually the magnitude of the stimulating effect is indicated by the letter  $c$ .

The more money that is spent the greater the likelihood that the expenditures will interfere initially with some private expenditures. For

instance, if the government makes larger and larger relief payments it is likely that the full amount of the relief payments is not reflected in a net increase in spending because presumably the individuals would have maintained some level of expenditures anyway, perhaps by borrowing from relatives. In other words the government relief payments are merely substituted for other less direct sources of funds. This is not to imply that any large amount of this goes on or that it can or should be prevented. The point is that it is assumed here that the greater the amount

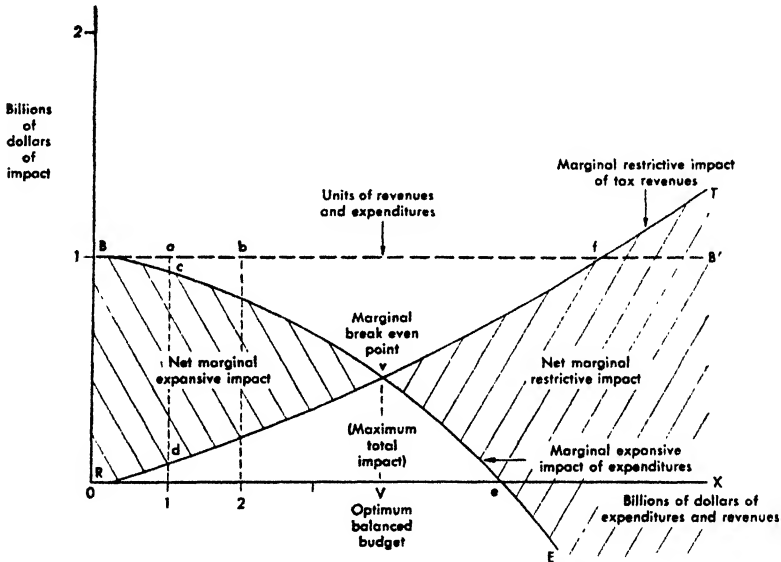


FIG. 20. A theory of the balanced budget.

of expenditures the greater the likelihood of substituting for private expenditures. In the extreme form, if the government provides private housing free of charge, then presumably private spending would be substantially curtailed and the government spending may be said to substitute for private spending.

At this point we are not evaluating these facts in any economic, social, or moral sense. If it is felt that the above assumption is not valid, then the line *BE* would follow the line *BB'*. It must be emphasized again that the fact that the line *BE* is downward sloping to the right is not material to the present argument and is made merely as an assumption which probably approximates reality. If the line *BE* follows the line *BB'* or closely approximates it that would mean that there is no substi-

tution of government spending for private spending no matter how much government spending takes place.

The line  $RT$  represents the restrictive effect of taxation. If the amount of taxation is small, say \$1 billion, it is quite conceivable that that amount can be taken out of idle balances or savings in such a way as to have practically no detrimental effects on the economy. In other words, with an amount of revenues of \$1 billion it may be that the restrictive effect is very small as indicated by the letter  $d$  in Fig. 20. The marginal amount of money that is withdrawn from the economy is  $OB$  but the marginal restrictive effect is only a small fraction of that, represented by the letter  $d$  on the diagram which, as can be seen, is only a small part of the way up to the high level of  $BB'$ .

As more and more billions of dollars are raised through taxation it becomes more and more difficult to remove those billions from funds which would not otherwise have been spent. Therefore if a large amount of money is raised, the restrictive effect on the last amount of money becomes larger and larger. Finally at the point  $f$  the marginal restrictive effect is just as great as the marginal amount of revenue. In other words the last billion dollars raised through taxes cuts down private spending by a full billion. Beyond the point  $f$  we have some very drastic consequences because the additional money raised through taxes has an even greater restrictive effect than the marginal amounts of taxes raised. Because of the severity of the taxation people curtail their spending even more than by the amount they have to turn over to the government. This is not likely in the case of consumption expenditures but it is extremely likely in the case of investment expenditures after a certain point.

The expenditures line  $BE$  is allowed to fall below the  $X$  axis, implying that after a certain high level of expenditures is achieved any additional amount of expenditures will actually have a detrimental effect. At the point  $e$  it is assumed, for instance, that the last billion dollars of expenditures result in no net expansive effects. The expenditures had become so large that any spending by the government was merely a substitute for an equal amount of spending by private consumers or investors. This may be true, for instance, if the government actually engages in ordinary business activity. If the government built houses for high income groups in competition with private builders in such a way that any building done by the government took the place of building that would have been done by private builders, then we could say that we have reached the point  $e$  on the diagram where the government has no expansive effect through its additional expenditures. Beyond the point  $e$  the

government is drastically discouraging expenditures which might have taken place by private consumers or investors. A billion dollars worth of additional expenditures at this high level of expenditures might discourage even more than a billion dollars worth of private expenditures.

The expenditure and revenue curves in Fig. 20 are drawn optimally; i.e., it is assumed that the distribution of expenditures and the nature of the tax structure are such as to obtain the maximum expansive effect per dollar of expenditures and the minimum restrictive effect per dollar of tax revenues. These are not necessary assumptions, however. The curves can be drawn on the basis of any given expenditure and tax structure for each respective dollar amount. In that case there would be an infinite variety of possible curves from which to choose.

The curve *BE* may be called the curve of *marginal expansive impact of government expenditures*. The line *RT* may be called the curve of *marginal restrictive impact of tax revenues*. At the point *r* the curve of *marginal expansive impact of government expenditures* intersects the curve of *marginal restrictive impact of government expenditures*. At the level of total expenditures and revenues indicated by the point *v* the last dollar of expenditures and revenues cancel each other out and they have no net expansive or restrictive effect whatever on the economy. Up to the point *v* the marginal expansive impact of expenditures exceeds the marginal restrictive impact of tax revenues. Up to this point each additional dollar of balanced budget has had some net expansive impact on the economy. The first few dollars of balanced budget had a very large expansive impact because the first few dollars of expenditures contributed greatly to total expenditures in the economy and the first few dollars of tax revenues came out of money which would not have been spent anyway. But as the size of the balanced budget grew until it reached the point *v* the marginal expansive impact of expenditures declined and the marginal restrictive impact of tax revenues grew. Thus the maximum net expansive impact of the balanced budget is obtained at the point *v*.

There is no reason to believe that the point *v* does not exist in actuality. However, it may exist at a very low level of expenditures and revenues, hence at a small balanced budget. For instance, if the budget of the United States were only \$5 billion at present levels of income it is quite conceivable that the expansive effect on the national income of the \$5 billion of expenditures would substantially exceed the restrictive effect of the \$5 billion of revenues. As small an amount as \$5 billion could probably be obtained from sources which would not materially detract from private spending on consumption and investment. If we should find,

however, that any increase in the budget would begin to reduce the net favorable effect so that an additional million dollars of revenue had had a greater restrictive effect than did the additional million dollars of expenditures, we could then say that for the present economy of the United States the point  $v$  is at a balanced budget of \$5 billion.

At the point  $v$  the total expansive impact of the balanced budget is represented by the area enclosed by the letters  $RvB$ . If the balanced budget rises above the level indicated by  $v$ —that is, if the total budget exceeds  $OV$ —then we find that an additional amount of revenue has a restrictive effect which exceeds the expansive effect of the same additional amount of expenditures. If the budget rises high enough above the level  $OV$ , then the cumulation of net restrictive effects will offset the cumulation of net expansive effects which arise with a budget of the size  $OV$ . Finally at some point the budget will grow large enough so that the *total* restrictive effect is exactly equal to the *total* expansive effect. In other words, the budget has grown so large that the net expansive impact represented by the area  $RvB$  is offset by an area of net restrictive impact to the right of the point  $v$ . Just where this point of completely “neutral” balanced budget comes is not indicated on the diagram but let us say that it is some distance to the right of  $v$ . This may be called the *neutral balanced budget*.

The *neutral balanced budget* is neutral only from the point of view of these over-all expansive and restrictive impacts. There may be other consequences of the expenditures and revenues which even in a narrow economic sense could not be considered neutral, but we are confining our attention here to the over-all effects on the economy, in fact on the over-all dollar effects on the economy. We are merely considering the extent to which government expenditures and revenues take the place of, or prevent, private consumption and investment expenditures. The *neutral balanced budget* is the balanced budget for which the total restrictive effect is exactly equal to the total expansive effect so that there is no net restrictive effect or expansive effect of the budget, interpreting these effects in the narrow sense indicated above.

Now of all the infinity of balanced budgets possible along the line  $OX$  in Fig. 20, only one of these is a *neutral balanced budget*. Balanced budgets of any other magnitude will have either a net restrictive or a net expansive effect. Any budget less than the neutral budget will have a net expansive effect and the maximum possible expansive effect is at a budget  $OV$ . Any budget greater than  $OV$  but less than the neutral budget will also have a net expansive effect but less than that which the budget

of the size  $OV$  would have. The *neutral balanced budget* has no net expansive or restrictive impact. Any budget larger than this will have a net restrictive impact.

In evaluating the above analysis it must be emphasized that the particular shape and position of the curves  $BE$  and  $RT$  need not be as shown in the graph. As was mentioned previously, the line  $BE$  may remain at the high level of the point  $b$  and may dip down only slightly if ever at all. As for the line  $RT$  no one can seriously question that it does rise and some will say that it rises more rapidly than indicated in the diagram. That will merely move the point  $v$  and will change the point of the *optimum balanced budget*,  $OV$ , and also of the *neutral balanced budget*. This does not change the qualitative aspects of the analysis in any way. Changes in the tax structure or in the nature of expenditures will of course change the shape of the lines  $RT$  and  $BE$ , respectively.

Thus it is incorrect to assume that a balanced budget is necessarily neutral in its effects on the economy. Most balanced budgets, in fact, are not neutral. Moreover, if the assumptions implied in the curves used in Fig. 20 are at all realistic, then the smaller the balanced budget the less the danger that it will have a net restrictive effect and the larger the balanced budget the greater the likelihood that it will have a net restrictive effect. This means that if government expenditures must be large so as to employ a large number of people, then it is likely that a balanced budget is impossible if actually there is to be a sufficient net increase in employment. A real danger exists that a balanced budget on a high level will discourage through taxation as much employment as it encourages through expenditures. A small balanced budget does not run such risks because the people employed through the government expenditures are not likely to displace private employment in any way; and the tax revenues may come from such sources as would not have given employment in any case.

## Fiscal Policy and Income Fluctuations

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The part to be played by fiscal policy in influencing economic activity presents a major question of political economy. Should expenditures be confined to the provision of minimum needs or should they be designed to influence the level of economic activity? Should the tax structure be devised so as to pay for expenditures as simply and directly as possible or should it attempt to control inflationary forces and the distribution of incomes? Should the borrowing and retirement policy be concerned merely with financing the government debt or should it try to govern the flow of funds for private investment? These are typical questions which must be answered in deciding on the degree to which fiscal policy is to be used to influence business fluctuations.

### Closing "Gaps" Through Fiscal Policy

The use of fiscal policy to close any gap left by private enterprise has had strong adherents in recent years. This is sometimes called "compensatory" fiscal policy. The implicit aim is to maintain full employment at stable prices. This requires that the government shall exert inflationary or deflationary pressure as conditions warrant. The "gaps" to be closed have various possible definitions.<sup>1</sup> An interpretation in terms of consumer goods and services is given here. Although this analysis runs in terms of broad aggregates, it should be emphasized that close attention must actually be paid to details in setting up the taxing and spending programs. Careful advance planning is implied since equitable and economically efficient policies cannot be established overnight. Regional needs and differences must be taken into account. No indiscriminate "absorption" and "release" of funds is contemplated.

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<sup>1</sup> For a valuable critique of gap analysis see Lawrence R. Klein, *The Keynesian Revolution*, pp. 154-164 (New York: The Macmillan Company, 1947).



## CLOSING AN INFLATIONARY GAP

The inflationary gap is the excess of prospective consumer spending over the aggregate dollar value of the goods and services which will be available for consumption at their current market prices. If that excess is not removed, prices of the goods and services will tend to rise, the excess of purchasing power acting with increases in costs to promote price rises. What brings about the inflationary gap in the first place? The excess of purchasing power making up the inflationary gap is a result of the release of consumption funds through government expenditures, not offset by an equivalent absorption of consumption funds through taxation and borrowing. Once the amount of consumer goods and services becomes fixed, any *net* government release of consumption funds contributes to an inflationary rise in prices. The inflationary gap, in fact, arises from the net government release of consumption funds. The inflationary gap and the net government release of consumption funds are indicators of the extent to which it will be difficult to enforce price ceilings and rationing. The net government release of consumption funds might be considered the origin of the inducement to violate the price ceilings and to engage in "black market" or "gray market" operations.

**Absorption of Consumption Funds.** In order to reduce the inflationary gap the government should reduce its net release of consumption funds. This does not mean that the government should finance all expenditures through taxation and thus balance the budget. Whether the budget is balanced is a minor question as far as the elimination of the inflationary gap is concerned. As shown in the preceding chapter, even if the budget is balanced, fiscal policy may have an expansive, and under conditions approaching full employment, an inflationary, effect. The discussion of the expansive effects of a balanced budget should direct attention away from the deficit and toward the true expansive element in fiscal policy; namely, the net government release of consumption funds. In considering the extent to which fiscal policy contributes to the inflationary gap, and the extent to which it can be used to reduce the inflationary gap, we would be misled completely if we concentrated attention on the size of the deficit. The important thing is to devise a taxation and borrowing program which absorbs consumption funds (rather than just loanable funds) of an amount equal to the release of consumption funds through government expenditures. If, with full employment, there is a net release of consumption funds by the government, there is an inflationary gap and a strong pressure in the direction of price

increases. Given the level of expenditures dictated by domestic needs, military necessity, and the availability of resources, fiscal policy should try to reduce the resulting inflationary gap as much as possible. This means that the restrictive instruments of fiscal policy—taxation and borrowing—should be so designed as to reduce the gap, i.e. reduce the net government release of consumption funds. In other words, taxation and borrowing should absorb consumption funds rather than just loanable funds.

**Downward Multiplier Effect.** The restrictive and anti-inflationary effect of such taxation and borrowing is not confined to the initial absorption of consumption funds. Just as the release of consumption funds has an upward multiplier effect in addition to the initial expansive impact, so the absorption of consumption funds has a downward multiplier effect in addition to the initial restrictive impact. The money which is diverted to the Treasury and is not spent on consumption does not create income and is, therefore, not spent on consumption again. Since the level of expenditures and thus the potential inflationary impact is usually given in wartime, fiscal policy under such conditions is really concerned more with the downward multiplier, which is set in operation through taxation and borrowing which can be modified at will, than with the upward multiplier, which results from the given expenditures. The problem is one of creating as great a downward multiplier as possible through the use of taxation and borrowing to offset as far as possible the given upward multiplier effect of the expenditures. Since the inflationary gap arises from the net government release of consumption funds, the aim of fiscal policy under inflationary conditions should be to reduce the net government release of consumption funds to zero or below. The conclusion is inescapable that a policy of heavy consumption taxes and purchase of bonds by consumers generally must be adopted under such conditions.

#### CLOSING A DEFLATIONARY GAP

There frequently arises the problem of maintaining national income at a level high enough to provide full employment. If the whole national income were respent by private individuals and firms, the income would automatically keep itself up. There is a possibility, however, that not all income will be respent by private individuals and firms, and that there will be a deflationary gap to be filled by fiscal policy. Whether or not this gap develops will depend on the magnitude of consumer expenditures and on the opportunities for private investment. The former will probably be substantial but some difficulties may arise respecting the

latter. Major new industries involving heavy capital equipment may not make their appearance. Hence, it is at least possible that the volume of private investment will fall short of the amount of income not spent on consumption. National income will then necessarily fall unless the government makes up the difference through a substantial release of consumption funds. The repayment of public debt incurred during the war will have this effect to some extent, and the rest will have to come out of continued government expenditures. In short, it is likely that considerable government expenditures will have to be undertaken during certain periods if national income is to be maintained at a high level. Does this mean that the public debt must rise?

#### **Maintaining a High National Income with a Balanced Budget.**

Our study of budget balancing points to the possibility of obtaining a relatively large multiplier effect with a relatively small deficit; or even of eliminating the deficit entirely. The fear, however unfounded, of the consequences of an ever-growing public debt might discourage government expenditures sufficient to maintain national income at a high level. But a recognition of the fact that the expansive effect on national income might be obtained with a balanced budget or, at least, with a relatively small deficit, might make it easier for the government to undertake whatever level of expenditures may be necessary. If a deflationary gap develops it is more important to keep up the level of expenditures than it is to balance the budget, and if a choice must be made between the two, the former policy must be selected. But we do not necessarily have to choose between the two. We can have a high level of expenditures and a balanced budget, and yet have a substantial expansive impact of fiscal policy sufficient to fill the deflationary gap.

It cannot be emphasized too strongly that a policy of balancing the budget when there is a deflationary gap to be filled is appropriate only if certain very special conditions are satisfied: (1) national income must be high when the policy is adopted; (2) government expenditures must be maintained at a high level; and (3) the tax structure must be such as to impinge as little as possible on private consumption and investment despite the high level of taxes.<sup>2</sup> On the first condition, if the national income is allowed to fall then a *deficit*-spending program must be adopted to raise the level of national income. Any attempt to raise the national

<sup>2</sup> Hence "redistributive" taxation is usually involved. See M. Kalecki, "Three Ways to Full Employment," pp. 39-58, especially pp. 53-57; and E. F. Schumacher, "Public Finance—Its Relation to Full Employment," pp. 85-125, especially pp. 91-100; in *The Economics of Full Employment* (Oxford: Basil Blackwell, 1945).

income from a low level by means of a balanced budget might needlessly retard recovery since heavy taxation combined with unfavorable expectations might have a considerably unfavorable effect on private consumption and investment. On the second condition, a balanced budget with a level of expenditures insufficient to fill the deflationary gap would only result in a decline in income. On the third condition, it should be remembered that fiscal policy must be such as to result in a net release of consumption funds if any expansive effect is to be felt and the gap is to be filled.

**Revision of Tax Structure.** The precise nature of the tax structure required to cope with a deflationary gap will depend on the size of the gap and on the state of the inducement to consume and invest. Contrary to tax policy under inflationary conditions the tax structure under deflationary conditions should interfere as little as possible with private consumption and investment. This suggests the raising of income-tax exemptions and the reduction of tax rates on lower and lower-middle income groups. It is not likely that the deflationary gap will ever be so great that what remains of the tax structure after the above modifications will be unable to produce enough revenue to pay for the expenditures required to fill the gap. The taxes will absorb mainly loanable funds while the expenditures will release mainly consumption funds, so that there will be a net release of consumption funds to fill the gap. The absorption of loanable funds might conceivably interfere with the inducement to invest and thus make the gap greater than it otherwise would be. But, beginning with a high level of national income, the government need fear less than ever the unfavorable effects which taxation may have on investment in producers' and consumers' capital goods. Provided the government acts soon enough in its expenditure policy, that is, before income is given a chance to fall, expectations of both consumers and investors will be high and taxation will have little tendency to reduce the amount of consumption or investment which takes place. If the banking system is able, the financing of both consumption and investment will be facilitated by instalment financing, the purchase of industrial securities, and the extension of short-term loans by the banks.

In one way or another the deflationary gap must be filled if a fall in national income is to be prevented. To help fill the gap the government must see to it that its release of consumption funds through expenditures and repayment of debt is greater than its absorption of consumption funds through taxation and borrowing. To prevent any fall in national income fiscal policy must aim to make the net government release of con-

sumption funds *equal to* the deflationary gap. This requires government spending, but if we begin with a high level of national income it is likely that the government can fill the deflationary gap without resorting to *deficit* spending.

### **Dangers of a Government Policy Guaranteeing Full Employment**

An established government policy of closing any deflationary gap that arises essentially means that the government underwrites or guarantees full employment. It has been pointed out that a government policy guaranteeing full employment opens the economy to the danger of a runaway inflation.<sup>3</sup> The argument runs somewhat as follows: if the government's policy is to maintain full employment (or a high level of employment) and if it is generally known that such is the government policy—and it could not fail to be known if the policy is followed for any length of time—then all economic groups will throw caution to the winds in the demands they make. At present the dangers of inflation and depression influence wage and price policies. It is hard to evaluate the strength of, shall we say, patriotic motives in influencing the pressures exerted by economically strong groups. There can be no doubt, however, that altruistic considerations do play some part in a discussion of such pressures and probably do have some effect in influencing them.

### **NATIONWIDE INFLUENCES ON WAGE-PRICE POLICIES**

Wage demands made by nation-wide bargaining units such as automobile workers have lately adopted arguments which run in terms of the maintenance of purchasing power and a high level of employment. The fact that the state of business activity as a whole is to be considered in wage demands is now recognized. Similarly, in the problem of high prices which became acute in the middle of 1947, industry was asked to cut prices on the grounds of maintaining business activity and preventing a depression. A few large firms did so. It seems likely, therefore, that union and business policies are influenced by national although not necessarily altruistic considerations.

Once the danger of a depression is removed by an announced govern-

<sup>3</sup> William Fellner, *Monetary Policies and Full Employment*, pp. 217–35 (Berkeley, University of California Press, 1946) and Alvin H. Hansen, *Economic Policy and Full Employment*, Chapter 20 (New York: McGraw-Hill Book Co., 1947). Cf. Arthur Smithies, "Effective Demand and Employment," Chapter 39 in *The New Economics*, S. E. Harris, ed. (New York: Alfred A. Knopf, 1947), especially p. 563.

ment policy of guaranteeing full employment, the dampening effect which the danger of the depression now has on union and business policies will be removed. It can be expected that unions and businessmen will exploit their power fully and raise wages and prices respectively under the favorable conditions of demand which will be guaranteed by government action. A rise in prices will provoke the demand for higher wages. Businessmen will be able to grant the higher wages because of the possibility of raising prices further since the market will be maintained by government action. There is, therefore, a very definite possibility of a persistent inflation.

#### CUMULATIVE EFFECT OF A PERSISTENT INFLATION

A persistent inflation is not necessarily calamitous if it takes place slowly enough. If the price level one hundred years from now is twice as high as it is now, there will be no serious consequences if people, knowing that it is likely to happen, plan their programs accordingly. Insurance and annuity claims would not be wiped out but would merely be supplemented by schemes which would take account of the gradually rising price level. Suppose, for instance, that wage increases are made only every six months and are determined by the price increase which took place previously. It is then quite conceivable that the resulting rise in prices would not be great provided that we begin the program from a relatively stable position. Under other conditions, however, where a rise in price to be taken into account in wage demands (following the announcement of the government policy) is a substantial one, then it is possible that a runaway inflation will develop in a short period of time. The longer the period between adjustments of wages the less the danger of a runaway inflation; the greater the increase in prices during the first period in which the program begins the greater the danger of a runaway inflation.

Even this result can be avoided if the program is instituted during the period when prices are kept stable, possibly through a concentration of all government policies and devices. The same would be achieved if the policy were such that the initial price increase would not be taken into account in initial wage negotiations. In other words, suppose that the policy begins under conditions of a high level of employment and it is agreed that wages at the moment are not to be adjusted on the basis of any past events. In that case it is quite conceivable that further rises in prices would not be necessary even if the government guarantees full employment. The government could exercise sufficient controls in various

directions to maintain stable prices under such initially favorable conditions. Then when the next wage adjustment comes due there would be no adjustment to make.

#### AUXILIARY USE OF GOVERNMENT CONTROLS

A government policy guaranteeing full employment is fraught with the danger of cumulative inflation only if that is the only policy there is. If the government is also prepared to exercise its financial powers, including taxation, to say nothing of regulatory powers, including control of credit, then the government could remove the danger of a runaway inflation and could offset any reckless policies of private groups through taxation or stricter control. Full employment would still be maintained and the private enterprise economy would still exist but the problem of maintaining a proper balance would be a difficult one and *freedom* of enterprise would be curtailed. Before a government policy of guaranteeing full employment is declared to be dangerous to the point of being calamitous, it would have to be shown either that the structure of government policies and powers taken as a whole would be inadequate to remove the basis of the inflationary pressure, or that freedom of enterprise is curtailed to an intolerable degree. These considerations indicate the complications involved in a full employment policy and the direction which a feasible policy of control would have to take.

An example may illustrate the points brought out above. Suppose that the government announces a policy of maintaining full employment and businessmen find it possible to raise prices to sop up the unlimited demand created by government spending. The government then announces a policy of taxing away all or most of the profits above a certain level—much like that of the excess profits tax during the war. It may seem that the rise in prices would then be greatly discouraged. Traditional tax shifting theory, however, would say that the tax (if properly computed) would have no effect on prices. It is even possible that the tax would *stimulate* price increases. Drastic control methods including rigidly enforced price ceilings would have to be imposed if the full employment policy is not to get out of hand. The difficulties and dangers are evident. Although the economy would still be based on private enterprise, freedom of enterprise would suffer a drastic curtailment.

There is one aspect of the problem which seems to reduce the probability of dire consequences of a full employment policy. Those who point to the inflationary dangers do so on the theory that unions and businessmen now do take account of the threat of depression. The danger is that

with the new policy of guaranteeing against depressions they will act freely. But if one of the possible consequences of exploiting fully the government's full employment policy is a catastrophic inflation and resulting chaos to both unions and businessmen or the imposition of drastic wage and price controls, why do we ignore the possibility that that too will have a dampening effect on union and business demands?

For these reasons it does not seem that a policy of guaranteeing full employment will necessarily lead to a runaway inflation. It would, however, probably require a large auxiliary battery of controls. On this score it may be rejected, as a feasible policy for an economy grounded in free enterprise.

### The Theory of Functional Finance

The most extreme departure from traditional theory of government finance has been made by the school which speaks of "functional finance." This is a theory of government finance which has been advanced by Professor A. P. Lerner.<sup>4</sup> Strictly speaking, it may be used to pursue any degree of fiscal policy from the provision of minimum essential government services to the guarantee of full employment. It is generally used, however, to carry the "gap" theory of fiscal policy to its logical conclusion. Once it is granted that the instruments of government finance, such as spending, taxing, borrowing and debt repayment, may be used to achieve certain economic effects on the economy, then the question reasonably arises, Just where do we stop in using them for this purpose? Once we give up the necessity of balancing the budget every year, how long may we go with an unbalanced budget? Once we agree that we may use taxes to reduce purchasing power—as during the war—then why should we not always use it for that purpose when it is desirable to do so for economic reasons? Once we agree that government spending may be used to stimulate purchasing power in order to raise the level of business activity—as it was used during the depression of the '30's—then should we not rely on this device whenever we wish to achieve a stimulation of the economy? Why not also devote the other instruments of government finance to the achievement of economic ends rather than be bound by considerations of budget balancing? In fact, borrowing money is never really necessary if the desire is to spend money without harmful effects. The more convenient method would be to print money outright. This

<sup>4</sup> See A. P. Lerner, *The Economics of Control*, Chapter 24 (New York: The Macmillan Company, 1944). This doctrine was presented by Professor Lerner in several earlier writings as well.



view is not confined to the advocates of "functional finance." The use of currency issues instead of debt when expansion is desired was also advocated by Henry Simons.<sup>5</sup> The theory of functional finance would say, print the money and put it into circulation and then withdraw it from circulation as the need arises. Matters of reserve, either legal or practical (according to traditional standards) are considered irrelevant.

#### APPLICATION OF THE THEORY

The theory of functional finance may best be understood by an application to hypothetical economic conditions. Suppose that a serious depression occurs and the aim of the government is to raise the level of economic activity. If it decides that the best way to do this is to spend a lot of money, then the question arises, Where will it obtain the money? If it obtains it through taxation it offsets the favorable effects of spending to some extent. If it obtains it through borrowing from the public or even from the banks, it again tends to offset its favorable effects to some extent. The theory of functional finance would say that the government should merely print the money (or, one may say, borrow from itself or from the central bank, presumably without interest). In this way the government would be going directly toward its aim of raising the level of economic activity and would not have to be concerned with any detrimental effects through the method of raising the funds. Any given amount of governmental expenditure, therefore, would have the maximum effects in the direction desired. The budget would, of course, be hopelessly out of balance but that is of absolutely no concern to the proponents of this theory.

**Removing Inflationary Pressures.** Suppose that the economy reaches an inflationary condition such as prevailed during the first half of 1947. "Demand was outrunning supply," to use a trite expression, and prices were rising. The talk then was of balancing the budget. The theory of functional finance, however, would go much farther than balancing the budget. It would impose taxes to whatever degree was necessary to remove the inflationary pressures. This might mean a budget surplus of \$30 billion. The surplus would not be used to repay debt because there would not be any debt. The budget surplus would mean that there was a large net inflow of funds to the Treasury. In this way the budget surplus would result in the reduction of the inflationary pressure

<sup>5</sup> See, for instance, Henry Simons, *Economic Policy for a Free Society*, p. 196 (Chicago: University of Chicago Press, 1948).

but the fact that there is a budget surplus would be incidental. The main thing is that there is a net inflow of funds to the Treasury and those funds are sterilized or withdrawn completely from circulation.

**Influencing the Capital Market.** Borrowing, debt repayment, and lending by the government would be used solely to influence the interest rate. If the government wished to reduce the interest rate, thereby hoping to stimulate investment, it would lend money freely at low interest rates, thereby forcing the general interest rate structure down. If conditions were such that the Treasury wished to raise interest rates, hoping thereby to curtail investment activity, the Treasury would go into the open market and borrow from all comers but especially from those whose expenditures would be directly influenced by the government's policy of spending and taxing. In this way government finance would be used to influence investment activity.

It may be that as a result of these policies the governmental accountant will discover that over a long period there is a persistent government deficit or that there is a persistent budget surplus. By pure accident over a longer period the budget may become balanced. That would be interesting to traditional students of government finance but it would be of no interest whatever to the functional finance theorist.

#### PROBLEMS INVOLVED IN THE APPLICATION OF THE THEORY

The problems involved in the application of this theory are the problems involved in any overt policy of full employment by the government. If it is known by all concerned that the government will always fill the gap and will not be bound by traditional considerations regarding budget balancing, then the problem of persistent inflationary pressure by dominant groups exists. A situation of this sort involves a great many problems and dangers which are discussed earlier in this chapter. But if the announced aim of government policy is to maintain full employment and to fill the gap wherever necessary, and if the dangers of a runaway inflation resulting from such a policy do not actually exist, then it cannot be denied that the method of functional finance will fulfill that aim. The danger might then lie in so drastic an unfavorable effect on business confidence that business activity would be virtually at a standstill. Businessmen may consider functional finance as inevitably leading to chaos. This would mean that before the introduction of a policy of functional finance a wide educational campaign would have to be undertaken. But if such a campaign is not carried on or is not effective, then there is a serious danger that businessmen and consumers who consider government

finance in the same light as private budgeting practice will bring about a decline in business activity.

**Enlargement of the Gap.** The consequence of a wholehearted policy of functional finance may be that the government in filling the gap fills everything, there being nothing but the gap. The government might then have to maintain almost the whole of business activity by itself. It would have to underwrite private activity. All would work for the government indirectly through their business connections. Then, once they got on to the idea, they would realize that they could exert pressure for higher incomes in future and in any and all cases the government would agree to close the gap. There is, therefore, the danger that the government not only would be filling the gap but also would be trying to fill a bottomless void: in trying to fill the gap the government might be enlarging the gap. This again confronts us with the danger of a runaway inflation. These extremes and most undesirable consequences are not necessary concomitants of a policy of functional finance. They are likely, however, if the policy is carried to the extreme of closing a deflationary gap completely.

The functional finance school does not want government domination of the private sector of the economy—at any rate that has not been part of the theory. We must assume that the theory of functional finance is designed to sustain the economy in roughly its present form. The government would merely fill a gap and the major volume of business activity would normally be carried on by the private sector of the economy. If that is the case, the theory of functional finance requires additional study to determine the limited conditions under which it will operate effectively and those conditions under which the dangers specified above will become real.

#### TRADITIONAL VIEW OF GOVERNMENT FINANCE VS. FUNCTIONAL FINANCE

The theory of functional finance may also be evaluated in traditional terms which would assume that budget balancing is an end in itself. That type of evaluation is not attempted here. Most of the mistakes made in fiscal policy are based on an uncritical transfer of private financial attitudes to government finance. The mere fact that a particular type of financial policy is desirable in private life does not, in itself, mean that the same type of policy should be practiced by the government. Balanced budgets may be desirable for the government, but, if so, it is not because balanced budgets are desirable for individuals. There are a great many

arguments which could be presented in favor of a balanced budget, if not from year to year at least cyclically, and these arguments would be in contradiction to some of the doctrines of the functional finance school. But the desirability of balanced budgets must be determined on such grounds and not by an unthinking and uncritical carry-over of private attitudes.

### **Dangers of a Government Policy of No Policy**

At the opposite extreme to a government policy guaranteeing full employment there is the policy of letting any business cycle run its natural course without governmental interference. This policy is sometimes rationalized by the claim that a good healthy depression will speed recovery and make for a sustained prosperity. This analysis is questionable on economic grounds. It is doubtful whether costs and prices are any more "in line" in a depression than in an artificially sustained boom. Moreover, there is always the danger that a recession may develop into a depression and a depression into economic paralysis. The policy of no policy is much too risky on economic grounds.

### **SOCIAL AND POLITICAL CONSEQUENCES OF DEPRESSIONS**

There are important political and social dangers as well. Depressed economic conditions accentuate every tension, latent or overt, which exists in our society. Class conflict, particularly the struggle between employer and worker over the distribution of the joint product, becomes acute. With dwindling profits, every additional dollar given to labor seems virtually to be snatched from the pocket of the capitalist. Any dollar which inadvertently appears as a profit is claimed as the rightful property of the worker whose weekly pay envelope has become lighter as a result of lower wages and shorter hours. When losses appear the conflict reaches a climax. For losses mean impairment of capital. The defense of capital values readily becomes associated with the defense of capitalism itself. On the labor side dwindling union membership and disappearing financial reserves make each wage stand, whether defensive or offensive, a struggle for union survival. The fight becomes bitter and ruthless. The outcome leaves open wounds. The path to business revival is made tortuous and uncertain.

Under prosperous conditions the rift between capital and labor may sometimes appear quite as wide. Rich and powerful unions are set off against rich and powerful employers. But there is a fundamental difference. The luscious pie to be divided up, the potential sales of the potential

product, beckons and reconciles. If taxes are high, the employer can feel that part of the cost of acceding to the wage demands is met by the government. If the existence of the union itself is not at stake, the prospect of continued depletion of funds is not imminent. Accusations and counter-accusations are made. Both sides put up a good front. Perhaps a few heads are knocked in but somehow a "face-saving formula" is found. The strike is settled, the creation and allocation of the pie proceeds. It is not in prosperity but in depression that real class conflict occurs.

Conflict *within* each class also becomes patent when unemployment is widespread. Jurisdictional disputes become a matter of the daily bread, the baby's shoes, the unpaid rent. The big chain and the corner grocery store declare a stalemate of the game of low prices vs. personalized service and they resolve the issue in the legislature. The electrician and the carpenter fight, now to a finish, over who should build the new built-in kitchen gadget. Competition becomes keener at every level.

Racial antipathies become race hatred and take on an economic cloak. When business was good, jobs plentiful, and labor scarce, every person seemed to be helping the co-worker or the employer. The new worker relieved the strain on the old, helped meet the production schedule, gave more than he received. Only the one who looked to a forthcoming period of depression objected when the color line was broken or religious "policy" was forgotten. As soon as depression hits, however, each man regards every other as one who has taken away his job or may do so in the near future. Then excuses are found to restrict competition and limit the available labor supply. Racial and religious differences which previously seemed to bear no relation to coöperativeness, congeniality, and productivity now suddenly acquire sinister characteristics which in one way or another make a person ineligible for a job.

Government, at least until the relief payments begin, becomes the ogre grinding the faces of the poor. The home is lost because of unpaid taxes. The automobile license fee makes a noticeable dent in the vacation savings. The tobacco tax cuts sharply into the family's cigarette budget. It seems like government of the people, by the people, and against the people.

International rivalry also develops a cut-throat streak. In an effort to protect domestic producers by restricting imports and maintaining exports, tariffs are raised, currency is devalued, and if the game really becomes sporting, exchange control and innumerable restrictive devices are imposed. The story of intranational racial and religious conflict is

repeated on a world-wide scale. Imports which helped maintain our standard of living by providing cheap and useful goods now seem to threaten our job and our livelihood. The air suddenly becomes stifling and the demand is made for more living space. The next step is war. A policy of no policy is the most dangerous of all.

### **Conclusion: Maximum vs. Minimum Fiscal Policy**

An evaluation of the vast congeries of complicated issues involved in determining an appropriate fiscal policy suggests that the government avoid the two extremes of either guaranteeing full employment or allowing depressions to run their natural course. Some fluctuations in employment may be permitted, but any substantial decline should be forestalled. Can this be accomplished?

That the task is difficult goes without saying. It would be easier to follow either a maximum fiscal policy (guaranteeing full employment) or a minimum fiscal policy (no policy). The government must stand ready to step in with useful expenditures whenever a serious dip in employment threatens, but it should avoid the dangers involved in either the maximum or the minimum policy. The exact nature of the spending program will have to be determined in each case. No general rules can be established to substitute for mature judgment well-grounded in a knowledge and understanding of fiscal and economic forces.



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