

CHAPTER 1
INTRODUCTION

1. Introduction

Livelihood diversification is a process by which rural households construct a diverse portfolio of activities and social support capabilities in their struggle for survival and improvement in their standards of living. Livelihood diversification implies a process of dynamic change and constant adaptation (Ellis, 2000) and the means of gaining a living (Chambers, 2005, Loison & Loison, 2016). It can be defined as the maintenance and continuous alteration of highly varied range of activities and occupations to minimize household income variability, reduce the adverse impacts of seasonality, and provide employment or additional income (Barrett, et al., 2001; Loison, 2015)

It is defined as the scope and combination of activities and choices (Liu & Liu, 2016); comprises the capabilities, assets and activities required for a way of living (Farrington et al, 1999; Scoones, 1998). It is also defined as the course by which households establish progressively diverse livelihood portfolios (Niehof, 2004); adequate stocks and flows of cash to meet basic needs (Hilson, 2016).

Different researchers have mentioned several kinds of livelihood diversification activities. Diversification can be divided into two categories, on farm and non-farm diversification. On-farm diversification means “maintenance of a diverse spread of crop and livestock production activities that interlock with each other in various ways”. A conventional example is a mixed cropping or intercropping, which refers to growing two or more crops on the same piece of land to “take advantage of complementarities between crops in their use of soil nutrients, sunlight and other resources” (Ellis, 2000). Non-farm activities include all economic activities in rural areas except agriculture, livestock, fishing and hunting. It includes all off-farming activities, processing, marketing, manufacturing, wage and casual local employment in the rural villages. Several authors suggest that the highly diverse and heterogeneous rural non-farm sector offers opportunities for the poor as well as the rich. Poor households frequently seek economic refuge through distress diversification into low-skill non-farm employment

such as basket making, pottery, small-scale retailing and seasonal labor migration (Barrett, Reardon, & Webb, 2001). On the other hand, the rich engage in the more sophisticated, profitable, high investment activities such as transportation, processing, contracting and manufacturing (Barrett et al., 2001).

Livelihood diversification is undertaken to generate additional income from the major agricultural activities, via the production of subsidiary agricultural and non-agricultural goods and services, the sale of wage labor, or self-employment in small firms, and other strategies undertaken to minimize risk. These include activity or environment diversification in agriculture (Losch et al., 2010). Farm household diversification refers to income strategies of rural individuals in which they increase their number of activities, regardless of the sector or location (Brandth & Haugen, 2011; Loison & Loison, 2016; Martin & Lorenzen, 2016).

The focus on livelihood is relevant, in particular, with the discussion on rural poverty reduction (Kim, 2011). Millions of rural people were able to escape poverty through better farm incomes, employment in agriculture, and rural nonfarm enterprises and through migration and hence contributed to better livelihood (World Bank, 2008). Rural development has been considered as an important policy goal for many developing countries, and large-scale, structural reform measures and poverty reduction have been taken to this end. In situations of high-risk agricultural sector and poverty incidences, poorer farm households with constraints of critical assets will be forced to engage in alternative incomes by participating in low-yield and sometimes risky non-farm activities (Barrett, et al., 2001; Makita, 2016; Martin & Lorenzen, 2016; Loison & Loison, 2016).

In India, agriculture is the primary activity for most rural households, although the relative importance of farm cultivation has decreased over the years. In 2013–2014, an estimated growth rate in economic activities in agriculture, forestry and fishing was only 2.7 per cent while there was significant growth in non-farm activities like business service, hotels, etc. (NSSO, 2014). The agricultural sector is characterized by decreasing farm sizes, low

levels of output per hectare of land, low productivity, a high degree of subsistence farming, with increases in production being driven mainly by area and not yields growth (Jirström et al. 2011). As a result, rural households are attracted towards alternative sources of income or simply diversify their livelihood. In India, land-based livelihoods of small and marginal farmers are increasingly becoming unsustainable, since their land is no longer able to meet the requirements of food for the family and of fodder for their cattle (Hiremath, 2007). In this context, livelihood diversification acts as the most significant source of poverty reduction for such farmers in rural India.

1.1. Concept of Diversification and Livelihood

Diversification refers to a process in which households voluntarily or involuntarily increase the number of economic activities they are involved in. Diversification is a form of self-insurance in which people exchange some forgone expected earnings for reduced income variability achieved by selecting a portfolio of assets and activities that have a low or negative correlation of income (Barrett et al., 2001; Reardon, et al., 2000). Diversification focuses on different income sources and their relationship to income levels, income distribution, assets and other factors. This definition focuses on diversification as a source of income growth and a potential means for household well-being (Dollar & Kraay, 2002; Ersado, 2006). In fact, diversification in rural livelihoods is the subject of conceptual and policy-based research as income from farming has come under pressure due to population explosion (Khatun and Roy, 2016).

Livelihood has been defined by Chambers and Conway (1992) as “the capabilities, assets, i.e., stores, resources, claims and access and activities required for a means of living.” A livelihood comprises the capabilities, assets including both material and social resources and activities required for ease of living. It also encompasses income, both cash and in-kind, as well as the social institutions, gender relations, and property rights required to support and sustain the ease of living. A livelihood is sustainable when it can cope with and recover from

stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base (Ellis, 1998; Niehof, 2004).

Literature on livelihoods focuses on issues concerning the coping, survival, and different approaches that rural households adapt in response to socio-economic and environmental factors they encounter in their pursuit of household income and food. These coping mechanisms involve making decisions about present and future strategies through selecting investments, production system and employment options. Attempts have been made by individuals and households to find new ways to raise incomes and reduce risk, which differ sharply by the degree of freedom of choice and the reversibility of the outcome. Many authors have shown that the declining farm income and market failure drives rural farm household to undertake non-farm activities as supplementary sources of income so as to reduce the fluctuations in household income (Barrett et al., 2001; Fabusoro, Omotayo, Apantaku, & Okuneye, 2010; IFAD, 2009).

1.2. Livelihood Diversification in Rural Areas: A Theoretical Underpinning

Rural livelihood diversification is usually posed in terms either of the need for on-farm changes in the mix of agricultural activities or of the desirability of developing rural-based nonfarm industries. The former sets out to correct the dangers of undue reliance on a single main farm output; while the latter seeks to provide alternative full-time employment for rural dwellers in locations other than cities (Saith, 1992). In both cases, diversification is thought of as changing the nature of full-time occupations than as a single individual or family possessing multiple occupations. Yet, as has been demonstrated now by several comparative studies (Haggblade et al., 1989; Braun & Pandya-Lorch, 1991; Sahn, 1994; Reardon, 1997), it is the maintenance and continuous adaptation of a highly diverse portfolio of activities in order to secure survival that is a distinguishing feature of rural livelihood strategies in contemporary poor countries. This household level diversification has implications for rural

poverty reduction policies since it means that conventional approaches aimed at increasing employment, incomes and productivity in single occupations.

Rural livelihood diversification is divided into four distinct strategies, namely: (a) on-farm agricultural production, (b) off-farm wage employment, (c) non-farm earnings from trades, commerce and skilled employment and (d) fourth mixed strategy combines all the three strategies (Gebru & Beyene, 2012; Hilson, 2016; Sherren, Loik, & Debner, 2016).

There are theories that explained why farm households diversify, instead of specializing their livelihood activities. The major justifications for diversification as summarized by (Sherren et al., 2016) are attribute to (a) self-insurance against risk, (b) an ex-post coping strategy, (c) inability to specialize due to incomplete factor markets and (d) Consumption diversification where there are incomplete product markets. In addition, there are incentives for allocating labor to the non-farm activities including: better comparative returns, inadequate farm output, a need for non-farm income sources to purchase for farm inputs and risky returns to farming (Barrett, et al., 2001; Gebru & Beyene, 2012; Marenja & Barrett, 2007; Martin & Lorenzen, 2016; Reardon, 1997). The extent of risk-taking or aversion behavior of the farm household also positively determines the necessity for diversification as a form of insurance, and conversely may also determine negatively the degree of access to other ways of settling and coping with shocks and risks (Ellis, 2000). Generally, these drivers have been divided along a spectrum of “necessity versus choice”, on the one extreme, “push factors”, and on the other extreme, “pull factors” (Hilson, 2016; Makita, 2016; Orenstein & Hamburg, 2009; Sherren et al., 2016; Hulst et al. 2016).

Risk and seasonality comprise two classic reasons for livelihood diversification. In order to minimize risks and secure a constant inflow of income despite different harvesting seasons, rural populations have pursued various income activities with different risk profiles. Securing a variety of income sources in preparation for a failure in a certain activity is a conventional wisdom reflected in the saying, “Do not put all your eggs in single basket”. It is

especially relevant in a rural context where unpredictable weather patterns and harvest performance make it difficult to secure a fixed amount of regular income (Ellis, 2005). Analysis of livelihood is based on the assumption that the current livelihoods reflect people's rational choices. It focuses on the resilience of the poor and builds on their initiatives. Thus, it attempts to identify asset bases, livelihood strategy and desired goals of the poor in order to create an enabling environment to support them (Kim, 2011).

Diversification is also sometimes referred to a process in which households voluntarily or involuntarily increase the number of economic activities they are involved in. Diversification can take place on farm and non-farm. On-farm diversification is linked to agricultural transformation (Timmer, 1997) at the early stages of agricultural transformation where most households produce for subsistence, there is diversity in agricultural production at the individual farm level. At the later stages, the rising agricultural productivity with surpluses will enable development of the non-farm sector. (Kimenju & Tschirley, 2008) claimed that the transformation will first lead to greater economic diversification, which later reverses its course because farmers in an enabling policy and economic environment will specialize in activities in which they have a comparative advantage.

In fact, there are contexts where livelihood diversification strategies can have economic scope effect when rural households invest resources across multiple scopes and obtain higher per unit returns (Barrett et al, 2001). Farmers also need to diversify due to their inability to specialize and to get sufficient income, and also the need to make self-insurance against drought. Especially, the better off rural households that do not only diversify for survival but also for enhancing better financial returns and then accumulation of wealth for a better life. In addition to this, empirical studies consistently show that diversification to non-farm livelihood strategies enables farm households to have better incomes, enhance food security, and increase agricultural production by smoothing capital constraints and help coping with environmental stresses (Loison, 2015; Davis et al, 2014; Udoh and Nwibo, 2017).

Farm households that engage in highly productive non-farm activities typically enjoy upward mobility in earning (Barrett et al, 2001, Chawanote and Barrett, 2013). The distribution of income and wealth status play crucial role in households' choice over which type of livelihood diversification strategy to select and apply.

There are two kinds of diversification trend in the rural sector. On one hand, diversification takes place (survival strategy) because of increasing rural population growth, land fragmentation, increasing input cost, adverse environmental conditions, diminishing access to agricultural markets, declining farm income and lack of access to public services (Ellis, 2001). On the other hand, diversification evolve either as a coping strategy where it is an enforced response to failing agriculture (distress-push) or as opportunity mechanism where the economy is growing and opening markets (demand-pull) (Davis & Bezemer, 2003). According to (Haggblade, Hazell, & Reardon, 2002), the global economic liberalization during the 1990s has opened up the rural non-farm sector as never before – to new opportunities and to new treats. (Kusters, 2010) explained both distress-push and demand-pull diversification situations as: “In the first case (distress-pull diversification), people are pushed towards non-farm activities as they try to diversify their income sources in an attempt to reduce vulnerability and avoid falling deeper into poverty. In the second case, (demand-pull diversification), people are pulled towards non-farm activities as a response to opportunities to accumulate household income”. Distress-pull diversification occurs in an environment of risk, market imperfections and of hidden agricultural unemployment and is usually facilitated by economic diversity which takes the household on a downward income trajectory (Davis & Bezemer, 2003). The authors maintain that demand-pull diversification is a response to evolving market and technological opportunities to increase labor productivity and household income. It has also been suggested that ‘poorer people and households’ engage in non-farm activities as survival-driven rather than opportunity-driven strategy.

1.3. The Sustainable Rural Livelihood: A Conceptual Framework

Livelihood diversification in the rural areas of the developing world got importance in the literature and research since the 1990s with the introduction of the livelihood frameworks. Several issues have received attention during the late nineties, when various studies verifying the diversity of rural livelihood strategy (Reardon, 1997) the determinants of diversification (Smith et al., 2001), favorable and unfavorable factors for diversification (Hussein and Nelson, 1998) its distributional effects and its relationship with agricultural productivity (Ellis, 2000).

The term "Sustainable Livelihood" is used here to refer to a livelihood that can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base. The sustainable livelihoods approach (SLA) is a way to improve understanding of the livelihoods of rural households. It draws on the main factors that affect rural household's livelihoods and the typical relationships between these factors. It can be used in planning new development activities and in assessing the contribution that existing activities have made to sustaining livelihoods. On the basis of (Chambers & Conway, 1991) works, a framework of the Sustainable Livelihood Approach (SAL) has been developed by Scoones (1998) which is presented in figure 1.1

The emphasis on access to assets and other livelihood resources originates directly from the works of (Amartya, 1981; Chambers, 1989; Chambers & Conway, 1991; Moser & Holland, 1997; Moser, 1998; Swift, 1989). Some writers call these assets a "capital" base (Bebbington, 1999; Scoones, 1998; Serageldin & Steer, 1994; World Bank, 1997) while others call them "capital assets" (Bryceson, 1999; Rakodi, 1999). The central premise in the "sustainable livelihoods" approach is that at the individual, household, community and higher levels of analysis, the configuration of assets available and accessible to people constitutes a stock of capital which can be stored, accumulated, exchanged, transformed into use-values,

and reproduced to counter the negative effects of the trends, shocks and seasonal changes on livelihoods. It suggests that for livelihoods to be sustainable, all the social units represented by these levels of analysis should be able to call on all the components of the capital stock without undermining the natural resource base but, although they do not always succeed do not always succeed.

Empirical evidence shows that different types of trends and external factors negatively affect the livelihoods of rural poor households. For example, flood, cyclone, erosion of river bank or insecurity of lawlessness, abnormal increase of food prices etc. could adversely affect the livelihoods of the poor households and their asset endowments. To cope up with these shocks, rural people always depend on their assets which are termed as “livelihood assets or capital”. There are five types of capital or assets can be identified in this context. Assets are both created and destroyed as a result of vulnerability context.

Natural capital. Natural capital is the term used for the natural resource stocks from which products and services are derived for livelihoods. In rural context of rural India, the natural capital is land, water, forest, marine and wild resources, crop varieties and fertility of cultivable land.

Human capital. It represents education, skills, knowledge, health etc. that enable people to reap home a better harvest from their hard labor. Good health is the most important capital for the poor.

Social capital. There are many connections to this but, suffice it to say, it implies social resources upon which people draw in pursuance of their livelihoods e.g. goodwill. The main pillars of social capital are network and connectedness, formalized group settings and trust, reciprocity and exchange. This is an asset in which the rural households are rich in India.

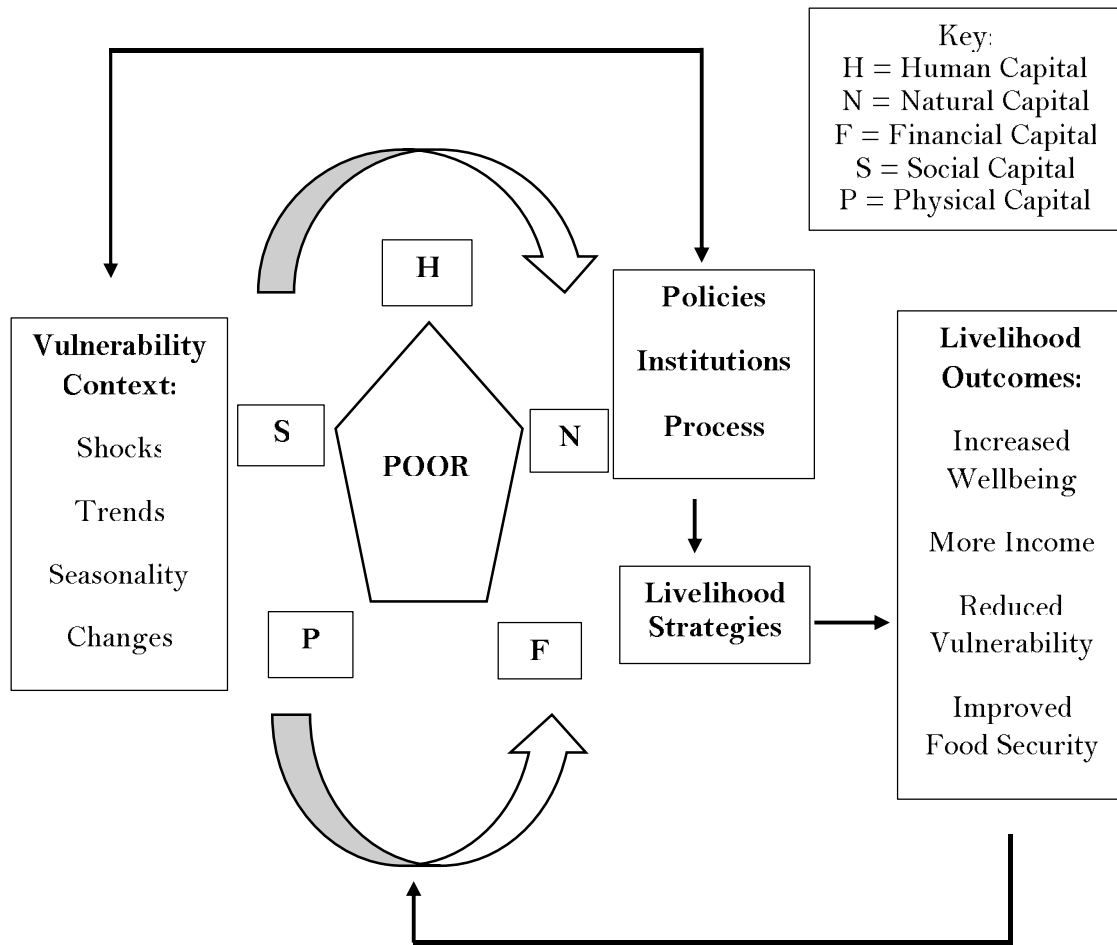
Physical capital. Infrastructure such as roads, rail and telecommunication are essential ingredients for the integration of remote areas where many poor people live. It's also includes

schools, water supply, market place, mosque, temple etc. The study areas found poor in physical capital.

Financial capital. Financial capital includes savings, inventories, and access to credit that is needed for livelihood objectives. Financial resources are not end in themselves, but means to an end of poverty and vulnerability.

The endowment of all these assets greatly affects the livelihoods of rural poor households. These assets help rural households to find the most appropriate livelihood strategies which enable them to make higher income, to increase the number of income sources, to improve living standard, to improve food security and to reduce vulnerability. The sustainable livelihood framework focuses on the poor households and the five types of resource endowment which help them to cope up with various shocks by the support of various institutions and national policies. Hence, they can make more income, reduce vulnerability and improve their well-being. This whole framework works as a cycle.

Figure 1.1: Sustainable Rural Livelihood Framework



Source: Scoones (1998)

1.4. Participation of Rural Households in Farm and Non-Farm Activities in India

Today, India is not only self-sufficient in respect of demand for food, but is also a net exporter of agro-products occupying seventh position globally. It is one of the top producers of cereals (wheat & rice), pulses, fruits, vegetables, milk, meat and marine fish etc. No nation can afford to compromise with its farming and farmers. And much less India, wherein the absolute number of households engaged in agriculture in 2015-16 (145 million) outpaced those in 1970-71 (70 million). Then, there are the operational land holding who numbered 157.14 million hectares in 2015-16 as against 162.12 million hectares in 1970-71 (see figure 1.2). On the other hand, there has been no significant change in area holding from 1970-71,

except for a slight decline of around 3 percent. Given the progressive rise in the number of rural households a decline in average area owned is inevitable. Furthermore, the increasing pressure of population on the limited land base is reflected in the consistent decline in the average area owned per household over the years. In 1970-71, the average area owned per household was 2.28 hectares. Gradually and steadily, it came down to 1.41 hectare in 1995-96 and subsequently to 1.08 in 2015-16.

Figure 1.2: Operational Numbers, Area Holding and Average Size (1970-71 to 2015-16)



Source: Data from Agricultural Censuses (1970-71 to 2015-16)

Despite of the importance of agriculture sector in numerous segments such as food security, percentage share in gross domestic product (GDP), absorption of labor force etc. It is an irony, that the farmers are caught in the vortex of more serious challenges. The yearly incomes from major sources as per data from India Human Development Survey (IHDS) has been reported in table 1.1, and these major sources are divided into farm and nonfarm segments. Additionally, total consumption expenditure, per capita consumption and monthly per capita expenditure per rural household are also reported for various categories based of land size possessed. The average income of a farm household during 2011-2012 was as low as Rs.7,268, as against its average monthly consumption expenditure of Rs.6,777. The share

of household income deriving from non-farm enterprises is substantial in case of all the categories of landholders. The share of income from non-farm sources is larger than the share of income from the farm sources irrespective of the size of land holdings. Though in case of households belonging to large farmers, income from livestock and cultivation is comparable with the income from non-farm activities. Share of income from non-farm sources in the annual income decreased with increase in land size. In the same way total consumption, per capita consumption and monthly per capita expenditure increases with the increase in the land size.

Further, primary factor of production, namely, water is also under stress. Climate change is beginning to challenge the farmer's ability to adopt coping and adaptation measures that are warranted. Technology fatigue is manifesting in the form of yield plateaus. India's yield averages for most crops at global level do not compare favorably. The costs of cultivation are rising. The magnitude of food loss and food waste is alarming. The markets do not assure the farmer of remunerative returns on his produce. In short, sustainability of agricultural growth faces serious doubt, and agrarian challenge even in the midst of surpluses has emerged as a core concern. Land is a powerful asset. And, that such an asset owning class of citizens has remained poor is a paradox. They face the twin vulnerabilities of risks & uncertainties of production environment and unpredictability of market forces. Low and fluctuating incomes are a natural corollary of a farmer under such debilitating circumstances. While cultivation is boundarised by the land, market need not have such bounds.

Between 1980-81 and 2014-15, Indian economy grew at an annual rate of over 6 percent, but with significant inter-sectoral differences. Agriculture grew at a much slower rate of about 3 percent and experienced a drastic fall in its share in the gross domestic product (GDP), from 36 percent to about 15 percent. The importance of agriculture, however, transcends its income contribution. It is a source of livelihood for more than half of the country' population, and is crucial for poverty reduction. Several studies have shown that

growth in agricultural sector, compared to growth in other economic sectors, has been more effective in reducing poverty in spite of its falling share in GDP (Datt & Ravallion, 1998; Kotwal, Ramaswami, & Wadhwa, 2011).

However, the pro-poor effect of agriculture has diminished in the recent past (Datt, Ravallion, & Murgai, 2016) on account of several factors, such as continued high employment pressure on agriculture, declining farm size and growing biotic and abiotic stresses. The average size of landholding in India has shrunk by 52 percent, from 2.28 hectares in 1970-71 to 1.08 hectares in 2015-16. The falling share of agriculture in GDP has not matched its share of workforce that declined by only 6 percentage points to 54.6 percent in 2011 from 60.5 percent in 1981 (GoI, 2017). Therefore, it is clear that household land holding has been declining and the scope of agricultural sector also limiting over the periods. Again, agriculture is a risky investment due to the volatility in price and weather. The impact of risk and seasonality in agriculture triggered the diversification process in rural occupations and income. On the other hand, participation in non-farm employment reduces risk by combining activities that have different risk profiles, while they can also ameliorate labor and consumption smoothing problems associated with seasonality (Ellis, 2005). Thus, agriculture continues under pressure to provide livelihood support to majority of the rural population despite that its labor absorption capacity has reached extensive limit.

Table 1.1: Income Levels on the basis of Land Classification Across Various Categories of Farmers

	All Categories of Farmers		Marginal Farmers (<1 Hectare Land)		Small Farmers (1 to 2 Hectares Land)		Medium Farmers (2 to 4 Hectares Land)		Large Farmers (>4 Hectares Land)	
			Mean	SD	Mean	SD	Mean	SD	Mean	SD
			Mean	SD	Mean	SD	Mean	SD	Mean	SD
Total Consumption	81328	86158	74442	80695	85172	85454	90945	92082	124215	122615
Per capita Consumption	14229	18372	12907	16349	14838	24270	15037	18841	21320	25587
MPCE	1186	1531	1076	1362	1237	2023	1253	1570	1777	2132
Total Income	87224	136329	67520	106622	90411	153507	99926	144191	176650	246954
Per capita Income	15088	25941	11666	21136	16225	34458	15990	24722	30296	49305
Total Farm Income	77901	126323	54951	77162	78389	128584	92886	133966	178165	229997
<i>Cultivation Income</i>	65050	102659	54087	75734	78224	128948	88964	129053	170080	223160
<i>Livestock Income</i>	63597	96599	51907	81780	63085	83820	70325	77516	133637	186859
<i>Farm Wages Income</i>	45840	53992	42644	50161	58869	90649	57007	61061	69383	103508
Total Non-Farm Income	97208	146810	76549	108920	111143	179991	118319	173938	225421	276673
<i>Non-Farm Wages</i>	68124	80756	61871	77610	78554	101479	64014	56958	138712	189339
<i>Salaried Income</i>	209377	227173	176347	194537	229668	171218	197588	228178	358972	276689
<i>Business Income</i>	131512	225533	111941	169770	164763	321025	215566	255900	270549	344965

Source: Authors' Calculations based on data from IHDS

Note: SD refers to Standard Deviation; MPCE refers to Monthly Per Capita Consumption Expenditure

Table 1.2: Percentage Share in Operational Holdings by Land Class

year	Number				Area					
	Marginal	Small	semi-medium	medium	large	marginal	small	semi-medium	medium	large
1971	50.62	19.05	15.15	11.25	3.92	8.97	11.89	18.50	29.75	30.88
1977	54.58	18.06	14.30	10.07	2.99	10.72	12.80	19.85	30.38	26.25
1981	56.39	18.08	14.01	9.08	2.44	12.05	14.14	21.15	29.64	23.02
1986	57.79	18.45	13.64	8.15	1.97	13.39	15.62	22.28	28.65	20.05
1991	59.44	18.84	13.06	7.11	1.55	15.04	17.42	23.19	27.04	17.32
1996	61.58	18.73	12.34	6.14	1.21	17.21	18.81	23.85	25.34	14.79
2001	62.88	18.92	11.69	5.48	1.03	18.70	20.16	23.96	23.97	13.22
2006	64.77	18.52	10.93	4.93	0.85	20.23	20.91	23.94	23.11	11.82
2011	67.10	17.91	10.04	4.25	0.70	22.50	22.08	23.63	21.20	10.59
2016	68.52	17.69	9.45	3.76	0.58	24.16	23.19	23.65	19.96	9.11

Source: Data from Agricultural Censuses (1970-71 to 2015-16)

Land ownership and the pattern of its distribution can have a direct bearing on the distribution, accumulation and generation of wealth, specifically in an agrarian economy like India. To examine whether there has been any significant change in the agrarian structure, apart from the observed decline in average size of holdings, it is necessary to study the nature and extent of temporal variation in the size distribution of ownership holdings. In this context table 1.2 presents the percentage distribution of rural households and area owned by size class of ownership holdings as per the data from agricultural censuses (1970-71 to 2015-16).

An increasing trend in the percentage of ownership holdings is evident in the case of the marginal farm class which has increased at an accelerated rate speed with each passing decade. In 2016, almost 70 percent of the ownership holdings belonged to marginal size group. On the other hand, medium and large size group show a quite sharp declining trend in the number of their holdings. The sharpest decline was noticed in the case of the medium class group, followed by semi-medium size group in terms of the percentage of holding.

The area owned by the total ownership holdings shows a declining trend over the period. However, the area owned by marginal class has increased at an increasing rate over the years. This is followed by a moderate increase in the small size group and a marginal increase in the semi-medium size class. This is largely attributable to the sub-division of holdings and in the case of marginal holdings, partly due to distribution of government land. On the other hand, there has been a decrease in the area owned by the medium and large classes. In the case of the large class there is a decline from 30.88 percent in 1971 to 9.11 percent in 2016. This decline is also attributable to sub-division of holdings.

It is also seen from the above table 1.2 that the broad, highly skewed nature of size-distribution of ownership holdings has by and large, remained unchanged over time, despite the progressively downward shift in the distribution. Notably distribution of ownership holdings in terms of size is characterized by predominance of landless and marginal holders. These two classes constitute about 80 percent of the rural households but own only 23 percent

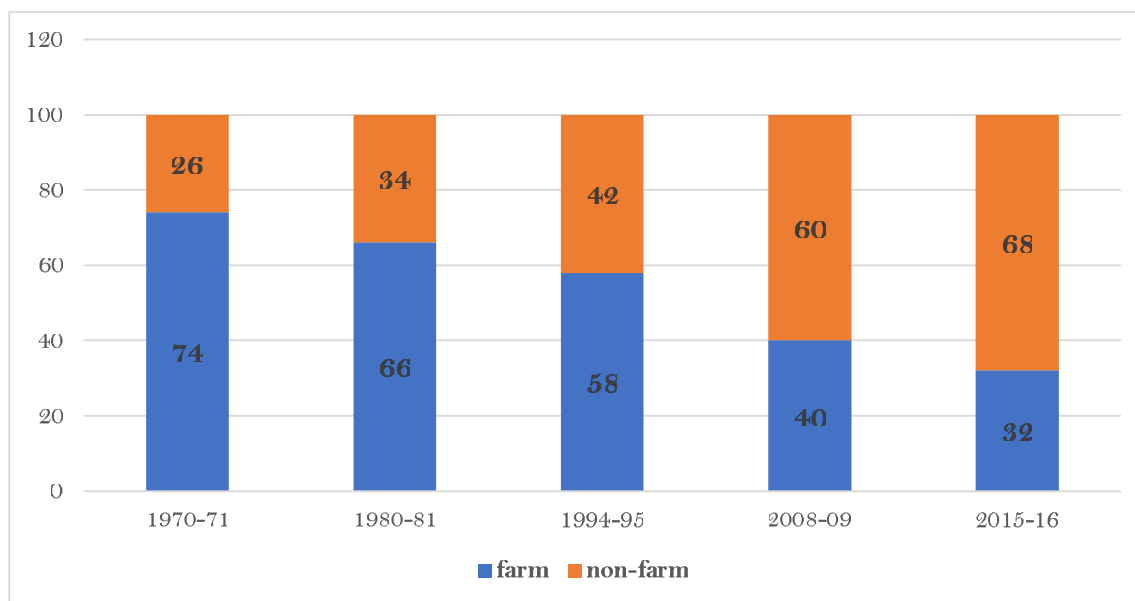
of total area. While the medium and large holders accounted for only 3.6 percent of the households but a combined share of about 35 percent in the total land owned by all households.

Further, the technological gains realized during first three decades of Green Revolution have started diminishing—the annual growth in average yield of food grain crops has decelerated to 1.7 percent during 1996-97 to 2014-15 from about 3 percent during 1981-82 to 1995-96. The groundwater resources that irrigate 30 percent of the net cropped area (equivalent to 62 percent of the net irrigated area) are becoming unsustainable due to their higher rate of extraction than their recharge rate, mostly in the north-western and southern states. Amidst these challenges, agriculture is now confronting frequent extreme changes in climate (i.e., droughts, heatwaves and floods) that are adversely affecting its efficiency and sustainability, leading to increased incidence of distress among farming community (Katia, 2013).

However, agriculture remains the main source of income for the majority of the rural population of developing countries. In case of India, the average contribution of non-farm income to the total household income has increased from less than one-third (26 percent) in 1970-71 to more than two-third (68 percent) in 2015-16, compared to about 74 and 32 percent from farm activities during the same time periods. It is evident from figure 1.3 that the importance of the non-farm sector as a substitute income source has increased over the past five decades. Examining the decadal increase in the contribution of non-farm sources to total income, study finds that the highest increase of 18 percent occurred from 1994-95 to 2008-09. Conversely the increase over the other periods have been mostly uniform. Taking the overall increase into account, the results suggest that the importance of non-farm income has fairly increased on an average. The increasing share of non-farm income is considered a positive change as it contributes to growth, raises the living standard of the population and

is associated with a dynamic process of intersectoral transfer from agriculture to industry and services.

Figure 1.3: Share of Farm and Non-Farm Incomes over the Years in India (in percentage)



Source: National council of Applied Economic Research, Elara securities Research

In the past few years, small and micro-enterprise development has been considered a key to economic development, growth, employment creation and poverty alleviation of developing countries. It is a generally accepted tenet of international development that small-scale enterprises perform a crucial role in alleviating poverty (UN, 2008, 2009). The dynamic role of small and micro-enterprises (SMEs) in developing economies as necessary engines for achieving national development goals such as economic growth, poverty alleviation, employment and wealth creation, leading to a more equitable distribution of income and increased productivity is widely recognized (IFAD, 2009). Until recently, however, relatively little has been known about the role and contributions of SMEs, especially in Indian rural economy. These household-based activities, which are mainly informal, are faced with numerous obstacles that affect their performance and also reduce their ability to contribute significantly to poverty reduction. These problems range from the lack of access to credit,

inadequate managerial and technical skills, and low levels of education to poor access to market information and an inhibitive regulatory environment.

Based on the above scenario, it is clear that in India the majority of the population continues to live in rural areas and earns its living in agriculture. Structural change that enhances productivity growth requires the movement of workers out of farming to more productive forms of labor allocation, such as entrepreneurship or wage employment. It also requires that higher productivity is actually achieved in these areas of employment compared to farming activities.

With regard to non-farm enterprises in rural India, the evidence of why households engage in this form of self-employment and how these enterprises perform continues to be scarce. Existing evidence is often based on single period and incomplete data. Hence, a large gap remains in the understanding of a rural household's decision to engage in entrepreneurship, and the resulting outcomes of such a choice. The present work makes an attempt to study the decision of rural farm households to engage in entrepreneurship, their choice of business activity and the performance of these enterprises. Whether individuals and households operate enterprises due to choice, because they perceive a promising business opportunity, or due to necessity, because they need to cope with adverse events (*ex-ante* or *ex-post*), is still under-researched. However, the motivation is assumed to have an effect on the choice of business activity, the enterprise performance, the ability to grow and survive, and to offer employment to non-household workers.

1.5. Statement of the Problem

Rural households on their side partake in a number of strategies, including agricultural intensification, and livelihood diversification, which enable them to attain household well-being. However, the contribution to be made by livelihood diversification to rural livelihoods has often been ignored by policy makers who have chosen to focus their

activities on agriculture (Carswell, 1997). Several authors have investigated the role of household livelihood diversification in developing countries. For instance, (Babatunde & Qaim, 2010), in the study of rural Nigeria, off-farm income has a positive net effect on food security and nutrition. (Thomas Reardon, 1997) claim that non-farm income is potentially particularly important for long-term food security in Africa because it may broaden smallholders' access to farm inputs, and consequently increase productivity and intensify production. Livelihood diversification is also associated with higher incomes and food consumptions, more stable income and consumption over years (Reardon, 1992).

In addition to the traditional livelihood strategies such as crop production and livestock, rural households in Southeast Asian countries perform new livelihood strategies like working in manufacturing sector, in service sector, including hotel and food service, etc. which are commonly referred to as nonfarm employment. Nonfarm employment including nonfarm self-employment and nonfarm wage-employment in rural areas is increasingly important to improve livelihoods and welfare of rural households in developing countries (Chang & Mishra, 2008; Mishra & Sandretto, 2002; Owusu, Abdulai, & Abdul-Rahman, 2011). Despite being labor intensive, the setting up of nonfarm employment of rural households requires relatively little capital and provides an important source of income (Reardon, 1997; Tsiboe, Zereyesus, & Osei, 2016). By easing capital constraints, nonfarm employment can enhance farm households' input purchasing capacity, thereby contributing to higher food production and farm income, thus improving household welfare (Babatunde & Qaim, 2010; Ruben & Van Den Berg, 2001). Rural households engaged in nonfarm employment tend to raise their household food consumption and income and have better food access (Ersado, 2006; Owusu et al., 2011). There is also evidence that the importance of nonfarm employment has been increasing over the last few decades (De Janvry & Sadoulet, 2001; Olubire et al., 2011), especially in emerging Asian economies (Démurger, 2010).

Even though the effects of nonfarm employment on rural food security and the factors determining the participation of rural households in nonfarm employment have been fairly well documented (Abdulai & Crolerees, 2001; Tsiboe et al., 2016; Van Leeuwen & Dekkers, 2013), there are still gaps in the existing research. First, previous studies mainly focused on nonfarm employment as a whole, though, nonfarm entrepreneurship is a part of nonfarm employment however its dynamics are different as compared to other sub-categories of nonfarm employment opportunities. Second, the effects of nonfarm employment on food security of rural households has been documented, however such studies ignored the relevance of non-food consumption expenditure. Third, while examining the effect of non-farm employment on poverty, these studies did not paid attention to the multidimensionality of poverty.

The desire to increase household income and insure against agricultural production risk has led rural households to increasingly diversify their income sources. Yet the potential roles of livelihood diversification on well-being status particularly among the rural farm households have not been adequately examined in India. In other words, there is no empirical work available that specifically investigates the effect of the level of household livelihood diversification on consumption expenditure, farm income, dietary diversity, expenditure diversity, farm investment, unidimensional and multidimensional poverty status by using longitudinal data in rural India.

Another motivation for the present study is to understand the role of agro-ecological zones in the welfare and livelihoods of rural households in India, especially of low-income households who depend more on economic resources. Economic resources provide a variety of life-supporting ecosystem services to rural households such as timber, non-timber forest products and fish (Babulo et al., 2009; Bühler et al., 2015). The extraction of economic resources in rural areas is often considered an important source of income and a means of livelihoods for low income rural households (Jansen et al., 2006; Schaafsma et al., 2014). Even

though efforts to quantify the contribution of non-cultivated environments to rural income have been undertaken for decades (Beck, 1994; Beck & Nesmith, 2001; Thondhlana & Muchapondwa, 2014). Therefore, understanding rural livelihood strategies and economic resource dependence can help to improve rural household welfare and livelihoods and to reduce and prevent livelihood stresses induced by the degradation of economic resources during the development process, especially for low income households (Babigumira et al., 2014; De Sherbinin et al., 2008).

1.6. Research Questions

In the present context, it was considered important to generate a rather comprehensive picture of the income generation and diversification patterns of the Indian economy with respect to farm and non-farm households. Hence, the present work designed to frame following research questions to assess the effects of the on-going trends, processes and changes in the patterns, which seemed particularly relevant to the present study.

- i. How do different livelihood resources, opportunities and constraints influence rural household's participation in non-farm activities in general and non-farm entrepreneurship in particular?
- ii. What are the patterns, determinants and effects of livelihood diversification in rural India? And how important is the nonfarm income to farm household income?
- iii. What are the effects of nonfarm incomes on different dimensions of dietary and expenditure diversities of rural farm households?
- iv. What is the relationship between the diversity of sources of income and household's unidimensional and multidimensional poverty? What are the roles of non-farm income in reducing rural poverty?

1.7. Objectives of the Study

The present work tries to provide some answers to the above raised questions. In other words, the purpose of this research is to contribute to the conceptualization of rural livelihoods by offering an improved approach to analyzing the diversity of rural farm households' sources of income and livelihood diversification processes in rural areas of India. Accordingly, the specific objectives of the present study are designed as follows:

- a) to investigate the determining factors of livelihood diversification and its effects on farm income and consumption expenditure of farm households in different agroecological zones of rural India.
- b) to examine the role of different credit institutions in livelihood diversification of rural households.
- c) to assess the effect of diversified income on farm investment, dietary and expenditure diversities.
- d) to estimate the effect of livelihood diversification on unidimensional and multidimensional poverty status of farm households.

1.8. Data Sources

An analysis of income dynamics should be based on time series data. Unfortunately, in India no such series is available on farmers' income. The National Accounts Statistics, published by the Central Statistical Organization (CSO) of the Ministry of Statistics and Programme Implementation (MoSPI) of the Government of India (GoI), provides estimates of the gross as well as net domestic product from agriculture and allied activities and the value of output of various agricultural commodities, but not of the incomes from sources other than agriculture and allied activities. Occasionally, it also provides estimates of rural income (not farmers' income) and its components at all-India level.

Household surveys such as NSSO and IHDS are the only source that provides information on farm households' income and its components. In case of NSSO, until now, two rounds of such surveys have been conducted; in 2002-03 (GoI, 2005) and 2012-13 (GoI, 2014). The estimates of income and other variables from these rounds, however, are not strictly comparable due to change in definition of farmer or farm household in the latter round. In the first round, a farm household has been defined as the one who owned some land, while the second round considers a household as farm household if one or more of its members are engaged in agriculture and allied activities and earn at least Rupees 3000 a year from these. In this thesis, we confine our analysis to the data from IHDS surveys, which is motivated by both being the latest survey as well as the breadth of activities covered in terms of livelihood strategies that are pivotal to the research questions that we address. The beauty of IHDS is that it allows to make panel of same households which help to control household level heterogeneity. This survey covered 40,018 common households; out of which 14,250 are those whose primary sources of income is cultivation and living in rural areas of India. It contains comprehensive information on farmers' income and its components. Besides, it provides information on a number of individual and household level characteristics; and socio-economic, institutional and organizational aspects of farming, i.e. landholding size, irrigation status, crop yields, cost of crop production; and demographic and social characteristics of households, and their access to credit, markets and information. Our focus is on farmers' income, its components and correlates.

Further, to assess the climate impacts, we used district-level data on climate variables (temperature and rainfall) for the respective years. The district-wise data on temperature and rainfall were extracted from 1 x 1 degree high-resolution daily gridded data available from the Indian Metrological Department, Government of India. The daily data were converted into monthly averages. One can use averages of temperature and rainfall during different quarters of the year or the monthly means for January, April, July, and October as

representative of the respective quarters. But there is a possibility of a high correlation between quarterly or monthly series of these variables. We have used mean monthly temperature and cumulative rainfall for India's two main crop growing periods, viz., *kharif* (June to September) and *rabi* (October to February), which are less correlated than the quarterly or monthly averages.

The data were scrutinized for errors and outliers. There were various households who had no access to land, owned or leased, but rather had reported income from the farming. A few households have likewise reported unusually low or high earnings from crops not identified with the measure of their landholding size. These observations were avoided from the analysis.

1.9. Significance of the Study

The importance of farm and non-farm livelihood diversification for developing country like India is substantiated by the fact that it has important policy implications to achieve the goals of doubling farmer's income within the stipulated time period. The present study provides some justifications for policies that encourage rural farm household to practice non-farm activities to increase their income and welfare in rural India. Farm households in India practices a number of livelihood diversification strategies for their means of subsistence. In order to improve well-being status of households these include among others: agricultural intensification and diversification, participating in different activities outside agriculture and income from remittance transfer etc. This study focuses on determinants of household livelihood diversification and its effect on household well-being which includes total income, consumption expenditure, dietary and expenditure diversities, farm investment, unidimensional and multidimensional poverty in rural India by using the longitudinal data of India Human Development Surveys (IHDS). This will help the policy makers to target these sources for appropriate policy initiatives and improvement of livelihood diversification.

Further, there also exist research gaps in the literature about the regional patterns of livelihood diversification in different agro-ecological zones of India. This study provides empirical evidence, based on the household level longitudinal data, on how the diversification of rural livelihoods is taking place in different regions of India. The study also proposes to determine the factors contributing to the transformation of livelihoods patterns in different regions of India. By examining the livelihood patterns, the study would examine various sources of income and their contribution to the overall household income of the farm households. Hence, the results would help the policy makers and donor agencies to frame policies and finance to different projects in the regions for the development of rural economy of India.

This study also adds to the existing literature by examining various factors and the degree of incidence of these factors in contributing to increase the severity of poverty among rural farm households in India. It is hoped that the information generated will enhance a deeper understanding of the poverty situation, and permit formulation and implementation of a much more effective poverty alleviation policies and programmes in the rural region of India. This study fills the knowledge gap in the poverty literature by providing useful insights on various income sources available to rural farm households from non-farm activities and their potentials to mitigate poverty and reduce income variability. It also provides information on the outcomes of various livelihood strategies to be undertaken by rural farm households.

Furthermore, the study contributes to the on-going debate in the development literature on the possible linkage between poverty reduction and access to urban-type employment in the rural non-farm sector. Considering the diverse types of activities available in the rural non-farm sectors, many of which compete with farming activities for labor and other household resources, this study identifies the particular set of non-farm activities that compliments and/or supplements activities in the farm sector in such a way that farm

household income is raised without sacrificing the broader goal of enhancing national food security. It also provided additional information concerning the influence of various socio-economic factors at the community, household and personal levels on access to poverty-reducing non-farm activities.

1.10. Structure of the Thesis

The present study consists of seven chapters. The first chapter introduces the concept of livelihood diversification and the significance of concept of sustainable livelihood for rural development. It also highlights the Indian situation, the statement of problem, the significance of the present study, research objectives, and data sources to be undertaken in the study.

The rest of the study is organized in six chapters. Chapter 2 is titled “Determinants and Effects of Livelihood Diversification on Rural Non-Farm Enterprises: Longitudinal Evidence from different Agro ecological Zones of India”. The chapter makes an attempt to examine empirically the determinants of livelihood diversification of rural farm households in non-farm enterprises (NFEs) and its possible impact on their income and consumption expenditure in different agroecological zones of rural India.

Chapter 3 is titled “Impact of Institutional Credit and Livelihood Diversification on Household Well-Being” focuses on examining the role of formal and informal credit institutions on livelihood diversification. This chapter mainly examined the impact of livelihood diversification and accessibility to institutional credit on the monthly per capita consumption expenditure (MPCE) of households.

Chapter 4 is entitled “Impact of Non-Farm Enterprises Income on Dietary Diversity, Expenditure Diversity and Farm Investment”. This chapter is mainly investigating whether additional income obtained from rural non-farm enterprises (NFEs) help farm households in enhancing their dietary and expenditure diversity. Additionally, it also investigates the

impact of NFEs income on farm investment to comprehend how NFEs income is acting as a complement along with agricultural production activities. It discusses the theoretical conditions where access to NFEs income may affect farm investment, dietary and expenditure diversity in a farm household model followed by panel data analysis.

The title of the Chapter 5 is “Livelihood Diversification into Non-Farm Enterprises and its Impact on Uni-Dimensional Poverty Status of Farm Households”. This chapter examined the impact of livelihood diversification of farm households in non-farm enterprises (NFEs) on their unidimensional poverty status, escaping from poverty, and falling into poverty.

Compared to the Chapter 5, Chapter 6 is titled as “Dynamics and Determinants of Multidimensional Poverty Status of Farm Households”. This chapter analyzes the dynamics, prevalence and determining factors of both unidimensional and multidimensional poverty among farm households in rural India.

Finally, Chapter 7 presents the conclusions and policy implications of the present study. This chapter highlights the main issues discussed in the previous chapters and suggested policy recommendations based on the empirical findings. And then it concludes the study, mentioning the limitations and future scope of research.

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