THE RURAL NON-FARM SECTOR IN INDIA: APPROACHES, LINKAGES AND GROWTH DRIVERS

Ph.D. THESIS

by

AMANDEEP KAUR

DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE
ROORKEE-247 667 (INDIA)
FEBURARY, 2019

THE RURAL NON-FARM SECTOR IN INDIA: APPROACHES, LINKAGES AND GROWTH DRIVERS

A THESIS

Submitted in partial fulfilment of the requirements for the award of the degree

of

DOCTOR OF PHILOSOPHY

in

HUMANITIES AND SOCIAL SCIENCES

by

AMANDEEP KAUR

DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE
ROORKEE-247 667 (INDIA)
FEBURARY, 2019

INDIAN INSTITUTE OF TECHNOLOGY ROORKEE
ROORKEE

CANDIDATE'S DECLARATION

I hereby certify that the work which is being presented in the thesis entitled "**THE RURAL NON-FARM SECTOR IN INDIA: APPROACHES, LINKAGES AND GROWTH DRIVERS**" in the partial fulfilment of the requirements for the award of the Degree of Doctor of Philosophy and submitted in the Department of Humanities and Social Sciences of the Indian Institute of Technology Roorkee, Roorkee is an authentic record of my own work carried out during a period from February, 2013 to February, 2019 under the supervision of Dr. S. P. Singh, Professor, Department of Humanities and Social Sciences, Indian Institute of Technology Roorkee, Roorkee.

The matter presented in the thesis has not been submitted by me for the award of any other degree of this or any other Institution.

(AMANDEEP KAUR)

This is to certify that the above statement made by the candidate is correct to the best of my knowledge.

(S. P. Singh)
Supervisor

The Ph.D. Viva-Voce Examination of **Amandeep Kaur**, Research Scholar, has been held on ……..

Chairman, SRC **Signature of External Examiner**

This is to certify that the student has made all the corrections in the thesis.

Signature of Supervisor (s) **Head of the Department**

Date:

DEDICATED TO MY FAMILY

ABSTRACT

Even after the extensive research on Rural Non-Farm Sector (RNFS), still there exists ambiguities regarding its definition, impact, and linkages with rural poverty and quality of employment provided by the sector. Thus, keeping in view of these issues the present study examines the difference in share of employment of the RNF activities on the basis different approaches; assess the impact of RNF sector on rural poor; evaluates the status of RNF employment through Quality of Employment Framework; and analyzes the factors affecting the growth of RNF sector at aggregate as well as disaggregate levels.

The study uses four rounds i.e.50th round (1993-94), 55th round (1999-00), 61st round (2004-05) and 68th Round (2011-12), but for the detailed explanation, it is based on the unit level data of 7th (61st round, 2004-05), 9th (68th round, 2011-12) quinquennial NSS surveys. The study is majorly based on UPSS (PS+SS) which captures the short term employment also. The OLS, Logistic Regression and Multinomial Regression are used to identify the determinants of rural poverty and RNF employment and quality of employment framework is used through identification and aggregation of indicators to examine the quality of RNF employment. The summary of main findings of the study is presented as follows:

The study has its own significance as it explores the nature, pattern, approaches and linkages of RNF sector. The most important aspect taken up in the study is to suggest a synthesized approach/definition of RNF sector on the basis of NSS dataset. Moreover, no study has estimated Quality of Employment through framework of indicators separately for RNF sector which is an important aspect to study while estimating the share employment. Furthermore, a number of studies documented the nature and pattern of RNF employment either for major states (mainly 12 or 15 states), for different regions within a state but the studies on regional analysis of RNF employment in comparison to farm sector are scant. Therefore, the present study is expected to add a new dimension to the analysis of RNF employment across different regions of India from the latest NSS data available (from 1993 to 2011-12).

Keeping into account all the ambiguities of the sector and rural-urban linkages, we estimate the RNF employment using a new synthesized approach which uses the theoretical background defined by Saith (1992) but with some alterations. While estimation, two major heads are taken into consideration i.e. *Area and Activities* which further are elaborated on the basis of narrow and broad aspects. The synthesized approach suggests the methodology to account for location of the activity while estimating the share of RNF employment. According

to the approach, Wide Area Confined Activities (WACA) is the recommended estimation approach, which considers the location of activity as rural irrespective of location of the worker. The actual estimation based on this approach varies from the estimation not considering the location of activity. The WAWA captures the less number of people as compared to the CACA approach. Thus, CACA (which can be taken as proxy to usual estimation) leads to the overestimation of RNF employment.

According to the suggested methodology, location of the activity plays important role in estimating the share of RNF sector. The estimation without considering the location of activity may lead to overestimation of the share of RNF employment. Since the share of the sector has been increasing over a period of time, overestimation can lead to the serious policy issues. The accurate estimation allows us to formulate the policies accordingly and not to overestimate the share of a sector.

RNF sector and poverty linkages show that non-farm activities appear to be strongly associated with declining incidence of poverty but in-depth analysis reveals that the poor face significant pressure to explore opportunities in the RNF economy. The lack of their human (such as, education and skill), financial and physical (such as land ownership) assets often confines them to low productive, low remunerative and low-growth labour market segments, of which there are few pathways out of poverty, simply a means of bare survival.

The main indicators, which lower the quality of employment, are absence of collective bargaining, economic freedom and vocational training which constitute more than 75 percent of the employed population in RNF sector. Aggregation of the indicators also signals towards the severity of the deprivation in terms of quality indicators in RNF sector. Total 1/3rd of population is working in lower quality employment in RNF sector due to deprivation in any of the three indicators.

The analysis of determinants of RNF employment shows that both pull as well as push factors affect the adoption of RNF employment. On one side, urbanization, high literacy, non-farm wages, and electrification enhance RNFE, while population density and incidence of poverty put the pressure on the rural workforce to join RNF sector. The micro level analysis reveals that being a female, belonging to lower caste, having low skill level and being young (age group 15-29) confine them to the casual employment only and lower their chances of being employed in self-employment in non-farm or other occupations.

Thus, first and foremost policy issue is to understand the severity of overestimation and measures should be taken towards the correct estimation of the share of employment in the sector. Second, the quality indicators highlighted in the study such as vocational training,

economic freedom and collective bargain should be improved. There should be some specific policies to enhance the skill level by opening the training centers, giving the social security to the casual workers as it is done in the upcoming budget (pension scheme for unorganized workers). Increasing informalisation within formal sector has led to lower the quality even for regular workers which should be taken care of. The promotion of RNF employment should also be undertaken within the broader context of rural development. The most important for rural poverty reduction is to improve the quality of RNF employment rather just focusing on the quantity. It should also be noted that RNF employment is not a substitute for employment in agriculture; it is rather a supplementary option. Agricultural development is still important and should be pursued as a necessary precondition.

ACKNOWLEDGEMENTS

Submission of thesis is supposed to be an individual task, but defacto it is a collective work of many hands and minds. I am highly indebted to **Dr. S. P. Singh**, Department of Humanities and Social Science, Indian Institute of Technology, Roorkee for his generous help, able guidance, critical comments and excellent advice in carrying out this work even at a great personal inconvenience. It is literally true that but for his keen, critical and sympathetic approach, ever willing help and constant encouragement, this work could have not been accomplished to such a degree of satisfaction.

I feel pleasure in acknowledging Dr. Nagendera Kumar, Professor and Head, Department of Humanities & Social Sciences, IIT Roorkee, for providing the requisite infrastructure for research in the department. I would like to express my gratitude to Chairman, Departmental Research Committee (DRC), Chairman, Student Research Committee (SRC), Dr. S.P. Singh, Committee members Dr. Rachita Gulati (Internal Expert) and Dr. Z. Rehman (External Expert) for being supportive and providing their valuable suggestions to improve the quality of my research work.

I would also like to mention and show my gratitude to Dr. D.K. Nauriyal, Ex-Chairperson of the Departmental Research Committee (DRC), Department of Humanities & Social Sciences, IIT Roorkee and Dr. Subir Sen, Department of Humanities & Social Sciences, IIT Roorkee for their constant encouragement and valuable comments during the research.

I would also like to thank Dr. Anupma, Deptt. of Economics, Punjabi University, Patiala for motivating me to pursue and undertake doctoral fellowship from IIT, Roorkee.

I am also grateful to Prof. Ashwini Saith, International Institute of Social Studies (ISS), Academic Staff Unit Erasmus University Rotterdam, for making available his book for reference (the main theoretical background for my work), which otherwise I was unable to find in any of the Indian library.

Special thanks are due to Mr. Akarsh Arora, Mr. Puneet Srivastava, Mr. Nitin Sihma Vihari, Mr. Vijendra Singh Brahme, Mr. Ankit Nagar, Ms. Akshi Bajaj, Mr. Samar Tyagi for their helping attitude and ready cooperation during the research.

I would like to thanks Dr. Mansha Swami, Dr. Ramanjit Kaur, Ms. Ayushi Verma, Ms Harwinder Kaur, Ms. Ramandeep Kaur and Mr.Vikrant Singh for their constant moral support and encouragement during the journey.

I am also grateful to Mrs. Kamla for her endless efforts to make my stay comfortable during the journey of research.

I shall be failing in my duty if I do not mention of my parents Dr. Jarnail Singh and Mrs. Salwinder Kaur, my in-laws Mr. Jagdeep Singh Kochar and Dr. Irvinder Kaur Kochar for their blessings and constant moral support.

My spouse, Mr. Simarjot Singh Kochar deserves special acknowledgements for his patience in bringing this work to fruition.

My sincere thanks to my sister Ms. Simranjeet Kaur and brother Karanjot Singh Kochar for the encouragement offered throughout my research work.

I would like to thanks University Grants Commission for providing financial assistance in the form of Junior Research Fellowship. My sincere thanks to all people who are not mentioned but contributed in completion of thesis.

I would like to thank the almighty God for everything I have accomplished in my life.

(Amandeep Kaur)

CONTENTS

LIST OF TABLES

LIST OF FIGURES

BPL	Below Poverty Line
CDS	Current Daily Status
CLF	Casual Labour in Farm
CLNF	Casual Labour in Non-Farm
CR	Central Region
CWS	Current Weekly Status
ER	Eastern Region
EUS	Employment Unemployment Survey
FAO	Food and Agriculture Organisation
HCR	Headcount Ratio
ILO	International Labour Organisation
MSME	Micro, Small and Medium Enterprises
NCO	National Classification of Occupation
NDDP	Net District Domestic Product
NER	North Eastern Region
NIC	National Industrial Classification
NR	Northern Region
NSSO	National Sample Survey Organisation
OBC	Other Backward Classes
RNF	Rural Non-Farm
RNFE	Rural Non-Farm Employment
RNFS	Rural Non-Farm Sector
RWE	Regular Wage Earner
SC	Scheduled Castes
SEF	Self Employed In Farm
SENF	Self Employed In Non-Farm
SR	Southern Region
ST	Scheduled Tribes
TEG	Tendulkar Expert Group

UPS	Usual Principal Status
USS	Usual Subsidiary Status
WR	Western Region

1.1. The Context

India's development lies in the development of its rural areas, where about 69 percent of the households and 71 percent of the total population live. The rural area, which consists of 60 percent of the total males and 61 percent of the total females as an economically active group (15-59 years) and 55 percent of the total males and 25 percent of the total females as the labour force, becomes important to understand the growth pattern of the country as a whole (Government of India 2014a). So, it is essential to focus on rural growth pattern and the transformation, which the rural economy is passing through over a period of time (Reddy et al. 2014). The phenomenon of structural transformation is evident from the present situation of economic development of the country, which has outpaced the role of industry and services over agriculture and allied activities. The rural areas are also going through the similar situation where the non-farm activities are growing at a faster pace than the farm activities.

Although agriculture occupies a pivotal place in the rural economy in terms of its contribution to employment generation, however, disaggregating rural employment growth in the farm and non-farm sectors would demonstrate that non-farm employment growth had been significantly higher than that of the farm sector over a period of time. The slow and declining growth of employment in agriculture is the result of the declining its rate of GDP growth as compared to the other sectors. Even employment elasticity of this sector became negative in 2011-12, which indicates that farm sector is not able to absorb the existing workers; thus moving of workers from farm to the non-farm sector in general and industry in particular. During 2004-05, the share of industry and services in providing employment was almost same, i.e., 14.28 percent and 14.9 percent respectively, but during 2011-12, the share of industry has become higher (20.5 percent) than that of services (16.6 percent). This rise in industrial activities (even within all non-farm activities) is majorly because of construction sector (11.2 percent) as it engages the highest proportion of rural population followed by manufacturing activities (8.5 percent). At all India level, the employment elasticity of the construction sector is more than one, indicating the high labour absorptive capacity of this sector. Moreover, most of the employment generated in this sector is of low quality, casual and irregular, which needs not much skilled and qualified labour. The manufacturing activities remain the dominant part of industrial activities in rural areas since

the past decades as the employment provided by these activities is better than that of construction activities (Rangarajan and Seema 2014; Wiggins and Hazell 2008).

The significance of RNF sector has been extensively documented in numerous studies through the magnitude of employment opportunities, increase in income, poverty reduction, rural industrialization and low rate of rural-urban migration (Haggblade et al. 2007, Himanshu et al. 2011, Pal and Biswas 2011, Binswanger-Mkhize 2012, Dave and Dave 2012; Ranjan 2009). Even though proportion of employment provided by the sector is indicative of reduction in unemployment rate (directly) and increase in rural development (indirectly), still both the aspects are missing in the rural areas if we observe the RNFS from the perspective of permanent employment, high productivity, lowering inequality and sustainable growth of rural areas (Jha 2006; Lanjouw and Shariff 2004; Start 2001; Binswanger- Mkhize 2013). Thus, it is important to understand the nature of employment in the RNF sector which the rural masses are going for.

The RNF sector has been perceived as the growth engine these days, but there are still some ambiguities regarding its definition, impact, and linkages with rural poverty. Some issues yet need to be resolved for its sustainable growth.

First, the definition of the RNF sector is not clear and specific i.e. what should be included in RNF sector or what should not? Even there is no standard definition of RNF sector being followed at national or international level. And, one of the main reasons for heterogeneity of RNF sector is the absence of clarity of location and inclusion of activities within the sector. The location of activities is itself suggested by the name i.e. non-farm activities which are performed within the vicinity of rural area but what is rural is itself a question because definition of rural is not uniform across nations or within the nation. Also, the non-farm activities are not having same meaning across nations and within a nation. Hence it makes dissimilarity in definition of RNF sector. Some of the scholars have taken a narrow definition of RNF sector (Fisher and Mahajan 1997; Panda, 2012; Start and Johnson 2004; Davis et. al 2003; Lnjouw and Lanjouw 2001), while others are focusing upon broader perspective by taking migration into consideration (Saith 1992; Haggblade et al. 2007; Islam 1997; Barrett and Reardon 2000; Davis and Bezemer 2003).

Davis et al. (2003) have defined RNF employment as non-agricultural wage and self-employment and excluded the transfer incomes from these activities. According to Lanjouw and Lanjouw 1997, all the income generating activities (including income in kind), which are located in rural areas, but not agricultural are RNF activities. In the words of Haggblade et al (2007) *"The 'rural nonfarm economy' includes all rural economic activities outside of*

agriculture. Nonfarm activity may take place at home or in factories or be performed by itinerant traders. It includes small- and large-scale activities of widely varying technological sophistication". Islam (1997) has stated the sources of rural non-farm income as income earned from non-agricultural activities in rural areas or small rural towns, within the household or outside, in self-employment or in wage employment, by rural households through commuting to work in large cities, through remittances from household members located in cities or located overseas. According to Barrett and Reardon (2000), RNF includes all activities other than agricultural activities i.e. all secondary and tertiary and non-agricultural primary activities, whatever the location (local or elsewhere) and function (self or wage employment). Davis and Bezemer (2003) describe RNF activities as the agro-processing, small business activities and as receipt of the transfer payments (interest, dividends or remittances from temporary, seasonal or permanent migration). It comprises earned (wage or self-employment) as well as non-earned income (pensions, social insurance and remittances etc.) and also the socio-economic infrastructure (schools, roads and hospitals etc.), which is an integral part of rural economy. Fisher and Mahajan (1997) have used three dimensions to define RNF sector i.e. sub-sectoral, spatial and scalar. According to them, RNF sector comprises all non-agricultural activities (mining and quarrying, household and non-household manufacturing, processing, repairs, construction, trade, transport and other services) in villages and rural towns (of upto 50000 population) undertaken by enterprises varying in size of all the factories. Saith (1992) has given two approaches for defining RNF sector i.e. Location Approach and Linkage Approach. According to former, all those nonagricultural activities are included in RNF sector which are performed only in rural areas; whereas later also emphasizes upon those activities which are having linkages through remittances from urban area. This issue has been taken up in detail while dealing with the definitional ambiguities (refer, Chapter 4).

Second, a number of studies are available to support the fact that RNF sector has led to poverty reduction through increase in the income worldwide[1]. Many scholars opine that the RNF sector contributes to economic growth as it embraces significant implications for rural poor because of its small scale, low capital requirements, seasonality and amenability to home-based activity (Bryceson and Jamal, 1997; Reardon, 1997; Nayyar and Sharma,

[1] RNF employment is major source of income to around 40 percent, 30 to 50 percent and 60 percent of the rural households in Southern, South Asia and Latin America respectively (Haggblade 2007) and also in Balkans and Central and Eastern Europe, non-farm incomes contributes to 30-50 percent of the total income (Pearce and Davis 2000). In India, RNF employment increased by 16 million (UPS), of which 8 million (nearly 50 percent) was self-employment, 5 million as casual employment, and three million as regular employment during 1999-00 to 2004-05 (Himanshu, 2011).

2005; Murty, 2005; Lanjouw and Procter, 2005; Reardon et al., 2007; Haggblade et al. 1989; Haggblade et al., 2002; Eapen, 1996, Basant, 1994; Kundu et al., 2003; Lanjouw and Lanjouw, 2001). But other take this low productive activities and small scale as a way to deep root into poverty because poverty alleviates only if shift happens from low to higher productivity jobs (Ghuman, 2005; Chadha, 1994; Bhaumik, 2007; Chadha, 2008; Binswanger-Mkhize, 2013; Jha, 2006; Start, 2001). In some other cases, rural poverty has been declining alongside a growing RNF sector (Ravallion and Chen 2007). But this does not necessarily mean that the RNF sector was responsible for lifting the poor above the poverty line. The direction of causality could well have been in the opposite direction. It is also possible that both poverty and the RNF sector were driven by third forces, such as migration patterns or technological change in agriculture[2]. So this also remains an issue of concern whether rural poor are actually benefitting from the growth of RNF sector or not (refer, Chapter 5).

Third, the hype of RNF sector is generally due to being the best alternate for unemployed or disguisedly unemployed persons but some issues concerned to the sector are yet to be answered, such as: which types of works are labourers getting? Is the work opportunity provided temporary or permanent in nature? Are workers better off after involving in the alternative opportunities of employment? These issues become vital to assess the importance of RNF employment because in some cases it has been observed that by changing the occupation, workers do not get benefits i.e. there is merely a shift from one low productive occupation to another low productive occupation. The changing nature of the rural sector also suggests that simply being employed in RNF sector is not sufficient for evaluating the rural livelihoods; the quality and sustainability of employment are also important. The poor are being shifted to the RNF activities which are often seasonal, irregular and low paid, informal and insecure, and without the benefits of health and unemployment insurance and pensions along with no employer-employee relationship (Jha 2006; Lanjouw and Shariff 2004; Start 2001; Binswanger- Mkhize 2012). This new form of structural transformation in India has been stated as stunted (Binswanger- Mkhize 2013). The estimation of quality of RNF employment through framework of quality of employment indicators portrays the clear picture of the RNF economy (refer, Chapter 6).

Furthermore, it is essential to know the factors of growth of RNF sector i.e. what are the reasons due to which rural households are adopting RNF activities as supplementary

[2] According to Ravallion and Chen (2007) agriculture growth has remained at forefront in explaining the rural poverty reduction in China as compared to expansion of the secondary or tertiary sector.

occupation. There is extensive literature available witnessing the main drivers or determinants of growth of RNF sector but all of them have focused on different set of factors. A number of studies have given credit to agriculture growth (forward or backward linkages, agriculture inputs, productivity per capita, average size of rural land in cultivation, orchards and plantations, irrigation) for the growth of RNF sector (Dev 1990; Papola 1994; Hazell and Haggblade 1991; Chadha 1994; Davis 2004; Jatav and Sen 2013). Some of the other studies demonstrate that the factors promoting RNF sector are outside the agriculture, such as, rural infrastructure, urbanization, government rural development programmes, level of public services (Unni 1998; Davis 2004; Singh 2007; Jatav and Sen 2013; Jayaranjan 2013), good transportation facilities (Jayaranjan 2013), size of the village resulting in development of labour, product and service markets, population density (Singh 2007), rural physical, social and economic infrastructure (Hazell and Haggblade 1991; Davis 2003), rural roads, rural literacy (Singh 2007) and natural resource endowments (Davis 2004). Some of the studies have also highlighted the household characteristics as the prime movers towards RNF sector, such as, education (Jayaranjan 2013; Jatav and Sen 2013), caste or social group (Davis 2004; Ranjan 2009), gender, age, household size (Lanjouw and Shariff 2004; Ranjan 2009), land ownership structure (Ranjan, 2009). So, it is very essential to know the factors affecting the growth of RNF sector at aggregate as well as household level.

1.2. Research Questions

In the light of above stated issues, there is a need for a comprehensive analysis of RNF sector and certain questions associated with the sector are very crucial to be answered. Thus following research questions draw attention for examining the role of RNF sector carefully.

1) Which definition/approach of RNF sector should be considered for the analysis purposes? Is use of narrow definition (mainly in use) leading to the underestimation/overestimation of the employed population in the RNF sector?
2) What is the impact of the RNF sector on rural poor? Is there any positive association between the RNF employment and poverty reduction as it is believed to be?
3) What is the quality of employment provided by the sector?
4) Which factors (push or pull) drive the rural households to adopt RNF activities as their occupation?
5) How do the rural development indicators affect expansion of the sector?

1.3. Objectives of the Study

Growth of RNF sector is very crucial for the growth of an economy, as a numbers of economic benefits are associated with it. However, large proportions of the non-farm activities undertaken are livelihood-oriented. These activities are neither a source of innovation nor a provider of significant economic returns. Hence, a comprehensive analysis of the RNF sector is undertaken, keeping into account the following objectives.

1) To examine differences in the share of employment of the RNF activities on the basis different approaches.
2) To assess the impact of RNF sector on rural poor.
3) To evaluate the status of RNF employment through identification and aggregation of Quality of Employment indicators.
4) To analyze the factors affecting the growth of RNF sector at aggregate as well as disaggregate levels.

1.4. Significance of the Study

The study explores the nature, pattern, approaches and linkages of RNF sector. The most important aspect taken up in the study is to suggest a synthesized approach of RNF sector on the basis of NSS dataset. The studies related to this sector have described about the debates and ambiguities, however while estimating the share of RNF employment all have used the narrow definition. This study throws light on this unresolved issue of defining RNF sector and helps to assess the difference in the employment shares of the sector in the total employment with respect to different approaches. So far, no study has estimated quality of RNF employment through a framework of identification and aggregation of indicators. Furthermore, a number of studies have analysed the nature and growth drivers of RNF employment either for major states (mainly 12 or 15 states), different NSS regions or different regions within a state (Himanshu et al., 2011; Ranjan, 2009) but the studies on regional analysis of RNF employment are scant. Therefore, this study is expected to add a new dimension to the analysis of RNF employment across different regions of India[3] from the latest NSS data available (from 1993 to 2011-12).

[3] The regional classification is done according to employment review published by Directorate of Labour and Employment, 2012. This classification is not based on the traditional classification of India rather it is based on the geographical location of organized establishments (i.e. primarily based on employment) in the country.

1.5. Points to be taken into Consideration

- The study is majorly dependent on different rounds of Employment-Unemployment surveys conducted by National Sample Survey Organisation (NSSO) for estimating the share of RNF employment on the basis of different approaches. Following the Linkage Approach for calculating definition of the RNF sector, the study does not take into account the employment status of daily commuters because the data regarding the employment status including day to day migration is missing or excluded. However the data related to the subsidiary employment of the workers is included in the dataset.
- Since the recent NSS data available for employment-unemployment is till 2011-12; the estimation of the study is confined from 1993-94 till 2011-12. It does not consider the latest changes occurred after 2011-12 in the RNF employment.
- Although region is used as the unit of comparison for all objectives but to overcome the compatibility issues in the dataset (specifically for chapter 4) Rural India as a whole is used as unit of comparison in definition specific chapter.
- For examining the linkages between RNF employment and Poverty reduction in rural India, the comparison is done at three point of time (1993-94, 2004-05 and 2011-12) because of the data compatibility issues[4] for following the Tendulkar Expert Group (TEG) methodology. Furthermore, the proportions of poverty are calculated at household level as the most important variable used to calculate incidence of poverty (MPCE) is given at only household level which can be appropriately captured at household level and cannot be equated equally across members of the households.

1.6. Organization of the Thesis

Chapter 1- Introduction

This chapter introduces the background of the rural non-farm sector while highlighting the issues to be addressed. It elaborates the objectives and underlying hypotheses and describes the significance of conducting the study.

Chapter 2- Review of Literature

The review of literature is divided into two broad sections stating RNFS role as a savior and as a residual sector. The role of saviour is presented in terms of increasing employment,

[4] The identification of poor is based on the methodology adopted by Tendulkar Expert Group (TEG) which uses the state specific poverty line and the aggregation of poverty has been carried out by a measure of Headcount Ratio (HCR).

income, poverty reduction, whereas as a residual sector RNFS provides employment of casual and informal in nature, employment of last resort and secondary occupation.

Chapter 3- Data and Methodology

The different rounds of unit level data of quinquennial NSS Employment-Unemployment Surveys (EUS) have been primarily used i.e. 50th Round (1993-94), 55th Round (1999-00), 61st Round (2004-05) and 68th Round (2011-12). The methodology includes theoretical framework, various tools and techniques, such as: Ordinary Least Square, Logistic regression, Multinomial Logistic regression, and framework of quality of employment indicators.

Chapter 4-Rural Non-Farm Sector: Understanding Definitional Ambiguities

The chapter describes the meaning of rural non-farm sector and various definitions related to it. The main theoretical framework of the study is based on Saith (1992), which comprises location and linkages approaches to measure the RNFE. With alteration in the definition (focusing on location of activity), the chapter comes up with a new synthesized approach and estimates the share of RNF employment according to the new approach.

Chapter 5- Rural Non-Farm Sector and Poverty Linkages

This chapter examines the RNFS and poverty linkages. It is observed that the incidence of poverty in rural areas has declined over a period (from 1993-94 to 2011-12) in rural areas. The chapter investigates whether the poverty reduction is just because of increase in RNF employment only or due to a combination of other factors.

Chapter 6- Quality of Employment in RNF Sector: Identification and Aggregation

The changing nature of the rural sector also suggests that simply being employed in RNF sector is not sufficient for evaluating the rural livelihoods; rather the quality of employment is essential to understand the situation. The workers are being shifted to the RNF activities which are often seasonal, irregular and low paid, informal and insecure, and without the benefits of health and unemployment insurance and pensions along with no employer-employee relationship (Jha 2006; Lanjouw and Shariff 2004; Start 2001; Binswanger-Mkhize 2012). Therefore, framework of identification and aggregation of selected indicators has been used to measure the quality of employment in RNF sector.

Chapter 7- Employment Diversification: Pattern and Determinants

The chapter examines the pattern of employment diversification in rural India and further explores the determinants which induce an individual to opt for a particular occupation. It studies the reasons due to which rural households adopt RNF activities as supplementary

occupations. Both macro as well as micro determinants of RNF employment are analysed through regression models.

Chapter 8- Conclusions and Policy Implications

The last chapter presents the summary of findings of the study and draws key conclusions and suggests policy implications along with the scope for the further research.

1.7. Summing up

This chapter explains the motive behind conducting the present study while stating the problem and laying down a foundation for the thesis with brief explanation of the all the chapters and issues raised related to RNF sector and its estimation.

2.1. Introduction

The significance of RNF sector has been extensively documented in numerous studies through the magnitude of employment opportunities, increase in income, poverty reduction, rural industrialization and low rate of rural-urban migration (Himanshu 2008; Haggblade, et al. 2007; Pal and Biswas 2011; Dave and Dave 2012; Binswanger- Mkhize 2012; Ranjan 2008). Even though proportion of employment provided by the sector is indicative of reduction in unemployment rate (directly) and increase in rural development (indirectly), still both the aspects are missing in the rural areas if we observe the RNF sector from the perspective of permanent employment, high productivity, lowering inequality and sustainable growth of rural areas (Jha 2005; Lanjouw and Shariff 2004; Start 2001; Binswanger- Mkhize 2012).

On the positive side, even low-productivity economic activities add to per capita national income and act to tighten labour markets. Non-farm sector performs other functions for managing the risks and uncertainties associated with rural livelihood. It acts as a safety net during the critical times of employment and during agricultural off-season and provides employment and income. Indirectly, growth in the RNFE supports the growth of agriculture, allowing it to expand beyond supply-side constraints, and it leads to the development of new skills and contacts for those who participate in it.

However, the negative impacts of the RNFE are closely linked with the positive ones. Portraying a residual sector as a safety net may include the fact that employment provided is often exploitative, with incomes too low to meet basic needs and a work environment too poor to meet basic human rights. Moreover, rural livelihoods are highly insecure, due to involvement in informal kind of jobs which are without any written contract, social security. Furthermore, with low level of skills and education there exists scarcity of regular jobs and uncertainty of the employment opportunities which push them to join highly casualised labour markets.

2.2. Characteristics of RNF Sector

The role of RNFS can be judged beforehand if someone has the idea about the characteristics of the sector. Because of its instinct nature and characteristics associated the consequences can be predicted well before as they will behave in the manner as expected. These features sometimes play a role as catalyst or sometimes impediment for the growth of the sector so

it is very important to overcome and improve the negative ones and increase the efficiency of the sector. Some of the important characteristics of the sector are:

Heterogeneity

Rural non-farm sector covers a broad spectrum of activities outside agriculture in the tertiary and secondary sectors of the economy pursued in the rural areas for reaping economic benefits. It covers heterogeneous assortment of various groups ranging from medium units to tiny units harvesting intermediate technology and also traditional activities carried out in the diversified sectors including non-farm labourers engaged in small part time jobs (NABARD 2003-2004).

Small Size

The enterprises in RNFS are of very small scale with low capital investment, low productivity, inefficient tools and techniques and less number of workers involved. Thus, enterprises are primarily home based majorly including unpaid family workers. Because of its small size in every aspect it becomes difficult for the home based enterprises to compete with the other urban or foreign enterprises with given technology and knowhow.

Low Productivity

Since the sector is heterogeneous providing employment in all the subsectors. Some of the activities under the sub sectors are low productive in nature whereas others are high productive in nature. The availability of infrastructure facilities varies across states or regions in the country which indirectly affects the productivity of the sectors. Hence geographical, infrastructural and institutional factors affect the productivity of the different activities within RNFS. But to say, construction activities are counted among the low productive activities as in case of India the employment elasticity of the very sector is more than one which means the it provides employment to the more number of people but contribute less to the economic GDP.

Population Pressure

India is a country where 69 percent of the total population lives in rural areas. Thus more pressure is on rural avenues to feed its population when they are not finding their meals anywhere. When urban areas are even not able to absorb the surplus labour from the rural areas then rural people accommodate themselves grab the employment opportunities whichever is available at that time irrespective of low productivity and low wages.

Seasonality

Many people in rural areas are seasonally unemployed because of seasonal nature of agriculture. They are not able to find work in agriculture during slack season. So during this time they are ready to work at even low wages and in low productive sectors. Rural nonfarm enterprises experience marked seasonal fluctuations in activity. In general, levels of rural nonfarm output run counter cyclically to the agricultural calendar. Given agriculture's role as the predominant employer in most rural areas, seasonal labor release from agriculture drives labor availability for many off-season activities.

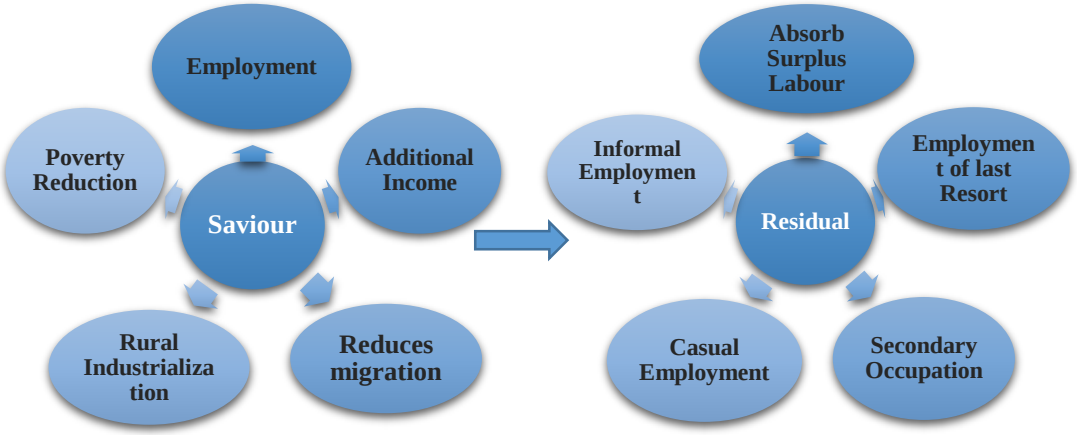
Despite marked seasonality of nonfarm activity, numerous studies have found that nonfarm troughs rarely descend to zero. Even during the peak agricultural season, nonfarm activities can occupy as much as three to four hours a day. Rural blacksmithing and metal work, for example, reach their peak during the agricultural season, as farmers require new tools and repair services for farm equipment (Chuta and Liedholm, 1979).

Thus, keeping in view the reviewed literature, the role of RNF sector has been classified into two categories, i.e., as a saviour and as a residual sector.

1. The RNF sector acts as a saviour for rural people as it provides employment, additional income and helps in reducing poverty which primarily deals with quantitative aspect of the sector (refer, Figure 2(a)).
2. Contrary to this, arguments are also given highlighting it as a residual sector under which the characteristics of informality and casualization are present and highlight the quality of employment provided by the sector (refer, Figure 2(b)).

These two categories are further studied under separate sub heads. The role of RNF sector as savior is explained as subheadings: a) Employment b) Additional Income c) Poverty Reduction d) Rural Industrialization and e) Reduction in Migration whereas the other role as a residual sector has been described through a) Absorption of only Surplus Labour b) Casual Employment c) Secondary Occupation d) Employment of last Resort e) Informal Employment

Figure 2.1 Review Classification of RNF Sector



2.1 (a) 2.1 (b)

Source: Author's Own Compilation on the basis of the Literature

As mentioned in Start (2001), RNF sector while dealing with the well-being issues, often results in negative as well as positive consequences. The diversification from a positive point of view provides employment opportunities to those who are on the verge of fall or need of employment; but such conditional employment often leaves them in a dilemma of either to opt low productive employment or to remain unemployed voluntary (refer, Table 2.1). Having no option left, they choose to be employed even at lower wage rates rather than being unemployed. Even the opportunity cost is very low but is not zero in case of opting RNF employment for these people.

The sector offers the work to needy given the place and working conditions of the activity. Sometimes they have to go to other places for work to be employed and have to work under the conditions prevailing. There are no standard rules and regulations for working in these low profile jobs. Everything goes in an informal way without any legal certification and norms. Moreover, to work far away from home increases the cost of living and travelling expenses leaving meager net gain from the work.

This sector provides a number of alternatives for those who want to go out of agriculture with a new zeal to work. In this way, the sector offers the flexibility of livelihood for the people to opt multiple avenues for sustaining their livings. The main purpose of the chapter is to stress upon the residual nature of the sector which hampers the growth of the particular sector in rural development. Though it has been seen as a potential sector to enhance the growth opportunities; still the potential has not been channelised in a proper way to reap the desired results.

Table 2.1: Variable Impacts of Diversification on Well-being

Feature of RNFE	Dimension of Well-being	Negative Impacts	Positive Impacts
Low return 'residual' sectors	Income & working conditions	Low returns, limited possibility to escape from poverty	a) Acts to check falling wages rates in agriculture. b) Acts as coping strategy & safety net.
Informal with no regulation; many are located away from home.		Poor work standards. Stress of travelling & living away from home	
Diversity	Inequality	Excludes those without access to resources	Provides possibilities for regional growth, possibly reaching the poor through 'trickle-down'
Highly casualised Labour markets	Security	a) Insecure work-looming possibility of unemployment. b) Difficulty of collective action	Efficient for business & growth. Allows a degree of livelihood flexibility, though few may desire this
Non-Local Opportunities.	Social & political empowerment	Migratory labour forces are dispersed & foreign, reducing bargaining base & civil rights respectively	Provides opportunities for experience outside an agrarian economy.
Multi-spatial Livelihoods			May bring new experience, skills, contacts, & thus break down traditional institutional structures.

Source: Start, 2001 (Table 3, page no-498)

Thus simply seeing RNFS as a boon for the rural development will be denying the fact of provision of informal and low productive employment which otherwise can be converted for the betterment of the economy in coming future. So to improve the development path of the rural economy it is important to study the gap or loopholes where the negative impacts surpass the positive impacts and nullify the role of positive impacts. To analyse the scope of improvement it is essential to first study and examine the sector's negative impacts and suggest the policies for improvement. These negative impacts are reviewed in detail from the past literature and further explorations are done for in depth analysis of the RNFS. Thus focus of this chapter revolves around the negative impacts of

the RNFS which originates from the positive sides only and presents RNFS as a residual sector or the sector of the last resort.

2.3. Quantitative Aspect: As a Saviour

2.3.1.Employment Generation/ Diversity/Savior

There is no denial in the fact that the RNF sector is picking up significance nowadays because it opens up the opportunities which are primarily labour intensive and run on a small scale. That is the reason that it can accommodate the majority of the rural populace. In addition, urban industralisaion is not equipped for retaining surplus workforce from rural areas as it neither encompasses labour intensive procedures nor the pace of industralisation is able to utilize the additional workforce. Moreover, RNF employment is critical, especially to the landless and marginal land owners, who generally cannot survive if there are agricultural shocks. In such situation they manage to endure though working at lower wages (Islam 1997, Coppard 2001). While supporting this argument, Fisher and Mahajan (1997) emphasize that RNF sector acts as safety net for landless and marginal land owners. Since 1980's, the role of RNF in creation of new employment opportunities has been highlighted by number of studies either through conducting surveys or through various existing databases (especially NSS and Census in Indian context) (Bhalla, 2006; Basant, 1994; Chadha, 1994). However the rise in share of RNF employment changes as the region varies but employment expansion is certain (Papola 1994; Sen 1996; Chadha 1994). Region specific and state specific studies are also conducted to examine the contribution of RNF as employment provider. RNF employment sometimes considered as the primary source of employment in many regions.

2.3.2.Additional Income

A number of surveys of the rural households have been conducted over a period of time which show that RNF sector also provides additional income to smooth the avenues of rural masses worldwide. According to Haggblade et al. (2007), 35 percent of the total rural income comes from RNF sector in Africa and roughly 50 percent in Asia and Latin America. Consequently, Datt and Ravallion (1996) and Ravallion (2000), conclude that the growth of real per capita non-agricultural output can have a significant impact in reducing rural poverty if growth exceeds its usual trend. However, Chadha (1994) and Sen (1996) argue that rising non-agricultural incomes can also increase inequality, as the more well-endowed benefit more from the transition into more remunerative activities of the non-farm sector than poorer groups (Lanjouw, 2007). But the complete picture is clear when earnings from seasonal and

part-time activity are considered. The contribution of nonfarm income about 35 percent in Africa and roughly 50 percent of rural income in Asia and Latin America respectively confirms the importance of part time and secondary activities (Haggblade et al. 2007). Ellis (1999) has estimated this share around 30-50 percent in sub Saharan Africa (Davis 2004). For the same regions FAO (1998) gave the estimates of 42 percent. On the other hand for South Asian countries these estimates were appreciably higher. Davis and Bezemer (2003) find that the average non-farm income shares of rural households in some CEE/CIS countries range from 30 to 70 percent.

Table 2.2: Review of Studies Highlighting the Quantitative Aspect of RNFS

Sr. No.	Author and Year/ study	Findings
1	Johnston and Kilby (1975)	Nonfarm linkages generated by technical change in agriculture can accentuate both the growth and the poverty-reducing impact of agricultural growth.
2	Bhalla (1993)	Based on state-level time-series data covering the period 1971-72 to 1983-84, she found that nonfarm employment exerted a more discernible impact on agricultural wages than did agricultural productivity.
3	Sunil Ray (1994)	The growth of RNF sector is depicted as the solution to rural unemployment.
4	Papola (1994)	There was growth of 5 percent per annum in male workers who opted RNFE as their main occupation between 1977-78 and 1987-88. The overall share also increased from 17.9 percent to 23.4 percent.
5	Unni (1991)	In rural areas, gradual increases is recorded in the share of non-agriculture workers.
6	Visaria and Basant (1994)	During the last three decades 1961-1988, the share of the rural non-agricultural sector in the total rural workforce has increased.
7	Chadha (1994)	The significant expansion is observed for male workers in the states like in male workers during the in Punjab, Haryana, Gujarat, Himachal Pradesh, Rajasthan and Tamil Nadu during 1970s and 1980s
8	Singh and Singh (1995)	The rural industries (part of RNFS) provides more income, social overhead costs, consumables at cheaper rates which leads to raise the standard of living of rural people.
9	Chadha (1996)	As a part of long-term strategy of employment for the rural households, non-farm avenues are must for eradication of poverty.
10	Sen (1996)	Non-farm employment was the main cause behind poverty reduction.

11	Haggblade et al. (1989)	Countries in Sub-Saharan Africa also show that rural poverty has got mitigated as people gained access to rural Non-farm employment.
12	Bhalla (1981, 1997)	Rapid rural non-farm growth is occurring along transport corridors linked to major urban centers in India which is largely independent of their agricultural base.
13	Eapen (1996), Basant (1994) and Kundu et al. (2005)	Rural Non-farm sector in India has been found to be performing the safety net function in that it contributed to raising the absolute-income levels of the poor
14	Reardon et al. (2001)	More Non-farm employment, all else being equal, reduces the incidence of poverty.
15	Bhalla (2008)	The non-farm sector has drawn the labour from farm sector and increases in farm wages is supported by the author
16	and Reardon et al. (2007)	Non-farm activity is positively correlated with income and wealth (in the form of land and livestock) and therefore offer a pathway out of poverty if non-farm opportunities can be seized by the rural poor.
17	Nayyar and Sharma (2005) and Murty (2005)	Rural Non-farm enterprises in China, Japan and Taiwan, are highly productive and helped to reduce rural poverty dramatically
18	Lanjouw and Procter (2005)	Even the low productive RNFE are beneficial for poor and prevents the poor from further deprivation.
19	Bhaumik, (2008) and Chadha (2008)	Explain poverty mitigating role of non-farm sector in context of India. The poverty rate would inflate substantially if the workers solely depended upon agricultural income.
20	Saith (1992) and Chadha (2008)	A large proportion of the rural landless labour and marginal and small cultivating households, are involved in a wide variety non-farm activities, this adds to their limited earnings from the farm sector and helps many of them to move above the poverty line
21	Papola (2009)	Casual wages in non-farm rural activities are generally 40 percent higher than casual wages in farming.
22	Himanshu et al. (2011)	The RNFS has contributed significantly in employment growth. The share of RNFS in rural jobs increased from 4 to 6 out of 10 from 1980 to 2009-10.
23	Kumar et. al (2011)	RNFS have positive and significant impact on reducing poverty by providing gainful employment to rural people.
24	Gulati et. al (2013)	The rising trend in employment in non-farm sector, specifically, under the programs like MGNREGA has led to increase in farm wages by enhancing the demand for casual and

		unskilled labour. Thereby, reducing the poverty in rural areas.
25	Liu (2016)	Better real wages, education and proximity to city are the major pull factors and the shortage of land or low productivity of land is the key push factor that has increased the employment share in non-farm sector.

Source: Author's Own Compilation on the basis of Literature

2.3.3.Poverty Reduction

Although RNF has been established as the suitable alternate for unemployed or disguisedly unemployed persons; households getting employment in RNF activities are not in better conditions as perceived because there is merely a shift from one low-wage occupation to another low-wage occupation. The majority of the rural households are engaged in the construction activities which often provide them casual employment with low wages. In this case, these RNF activities are not the best alternatives to go with because these only help to sustain the livings rather improve the livings.

While analyzing the RNF sector as a boon it only plays role as a coping strategy as it helps the poor to get employment and offset the income fluctuations when there is dearth of other coping institutions. Thus it helps in lowering down the poverty upto some extent but it does not essentially improve the rural income distribution (Islam 1997). Empirical evidence on the link between RNFE growth and poverty reduction requires careful examination given the complex inter-relationships among agriculture, rural non-farm businesses, and the national economy. Strong correlations between growing rural non-farm income and falling rural poverty, as in China since the 1980s (Ravallion & Chen, 2004), do not necessarily imply causality. Nor do they rule out the possibility that independent third factors, such as agricultural technology, may be driving both (Lanjouw, 2007). It has been also elaborated that rich people get the benefit from the formal or regular sector jobs in RNF sector, while low income groups are dependent on wage labour only (Haggblade et al. 2007).

The incidence of poverty has declined over a period (from 2004-05 to 2011-12) in both farm and non-farm sectors, but whether this decline is just because of increase in RNF employment only, this issue should be looked into. The other factors behind this decline can be increase in agricultural growth and infrastructure development which resulted from the policies adopted during 10^{th} and 11^{th} Five Year Plans (FYP) to boost the rural development

and also due to the highest migration from rural to urban areas[5] (Government of India, 2012-13). This study, therefore, puts efforts to highlight this issue and tries to resolve it up to some extent.

2.3.4.Rural Industralisation

Industries in rural areas are mostly micro or tiny in structure and quick yielding. In other words, their gestation period is much less as compared to large scale industries. Rural industries are also labour intensive and provide substantial employment opportunities to rural folks of all age groups. Few examples of such type of industries are food processing industry, poultry industry, cottage and handicrafts industry, etc. The RNFS encourages the growth of rural industries through development of these small and cottage industries. These industries generally don't produce final products rather produce raw material for medium and large scale industries established in nearby towns or in urban areas. Thus, industralisation is also promoted through growth of rural non-farm sector. Moreover, the growth of the sector also promotes the household based rural manufacturing industries, to fulfil the needs of the rural masses. These industries increase the affordability of the rural poor by providing the goods to the rural masses at a cheaper rate as compared to that of urban industries. Thus, RNFS helps in maintaining the real income of the rural poor (Islam 1997).

The manufacturing sub-sector is often further disaggregated in the literature to household and non-household, traditional and modern. Traditional, household industry is considered to be the most significant sub-sector of rural manufacturing in terms of size of workforce, and to be in decline, while more modern industries are growing, and constitute a large contribution to the export market.

2.4.Qualitative Aspect: As a Residual Sector

The discussion of positive aspects always takes along the negative consequences too and it is not justifiable to consider the RNF sector a boon for the rural people simply on the basis of employment generation, provision of additional income and helping in escaping from the edge to poor. The question of quality of employment becomes more important in this globalized era where getting a "good job" is a major problem rather getting a "job". It is time to focus not just on whether jobs are being created, but what sort of jobs. A new emphasis

[5] As for the first time increase in urban population was reported higher than increase in rural population during 2001-2011(Government of India, 2012-13).

on ‘gainful employment’ is needed. The residual nature of this sector is highlighted from following subheads (also refer, Table 2.3).

2.4.1.Absorption of Surplus Labour

Labour absorption in rural areas lags behind agriculture output growth. Moreover increased labour productivity in agriculture releases the labour for employment outside agriculture. Thus this surplus labour find better option to work in non-farm sector. When the absorptive capacity of agriculture and urban areas is limited; RNF activities tend to act as a sponge for the surplus labour. In other words, RNFS served by the unemployed from either urban sector or agriculture sector, since they could not find the employment at lower wage rate in either of the sectors (Mahmood, 1993). Moreover, the growth of the sector was result of stagnant or unproductive agriculture (Islam 1997). Thus, one of the major components of RNF sector employee comprises the surplus workers, who are not able to absorb themselves in agriculture sector. Majority of the scholarly work be it an international study or national, is a depiction or proof of the fact that RNF sector has emerged only after the inability of agriculture sector to absorb the excess labour force. The labour force, thus, becomes part of small and tiny activities which can provide even surviving remuneration during the crisis. On the other hand, there are also the evidences to show the linkages between agriculture growth and RNF employment.

The non-farm employment is considered as the source of sectoral diversification and overall development of rural areas. In terms of the conventional supply-demand analysis of the labour market, if the absorptive capacity of agriculture and of urban areas is limited, the pressure of excess labour supply in rural areas will fall more heavily on rural non-agricultural sector which means that the level of the rural non-agricultural wage rate relative to the agricultural wage should be quite sensitive to the extent of imbalance between labour supply and demand in the rural areas. This imbalance is not easy to measure, but one may perhaps take the rate of rural unemployment as a rough measure of it. In which case, the higher the rate of unemployment, the higher is likely to be the share of non-agricultural sector in total rural employment and the lower the non-agricultural wage relative to that in agriculture (Vaidyanathan 1986). That is, there is positive correlation of RNFE and unemployment rate. This implies that people participate in non-farm activities in the absence of employment opportunities in the farm sector (Kundu et al 2005). Thus, Vaidyanathan (1986) concludes that rural non-agricultural activities may have become the new 'residual-sector'. However, Unni (1998) moderated this statement by the finding that the ratio of non-agricultural, to agricultural wage rates was not universally related to the unemployment rate.

The "residual sector hypothesis" given by Vaidyanathan (1986) in which wage rates in the rural non-agricultural sector are lower than the agricultural wage rates but in some cases this hypothesis was not validated and supported from the micro-1evel data. This was mainly because institutional factors (as in Kerala) and job opportunities offered by small and medium towns enabled the wage rates to be determined in a broader spatial context rather than conditions in the villages. Studies that concentrated only on rural areas invariably highlight the push factor or residual nature of the sector, as reflected in population pressure, unemployment rates, and so on. The urban phenomenon largely depicted pull effect and the urban activities, such as, trade and transport services, construction, manufacturing, including agro-processing, were often organised in a manner to take advantage of seasonal availability of workforce in the rural areas (Kashyap and Mehta 2007).

Table 2.3: Review of Studies Highlighting the Qualitative Aspect of RNFS

Sr. No.	Author and Year	Findings
1	Anderson and Leiserson (1980)	Approximately 1/3rd of the rural labour force in most developing countries are engaged in RNFS. Since it provides **secondary earnings** to the small and landless farmers during low returns from agriculture.
2	Vaidyanathan (1986)	The positive relation between unemployment rate (UR) and the proportion of non-agricultural workers is due to disequilibrium in demand and supply of labour. The RNF activities forms the new '**residual-sector'.**
3	Visaria and Minhas (1991)	A majority of labour force will have to join **casual worker** or be **self-employed** since the organised sector has failed to absorb the surplus labour due to resource crisis and other structural rigidities during 1999-00.
4	Visaria and Basant (1994)	The bulk of the increase in the rural non-agricultural sector is explained by the increase in the proportion of **casual workers**.
5	Bhalla (1994)	Agricultural involution in low-growth agricultural districts in Bihar and Madhya Pradesh, India document the resulting prevalence of **low-productivity rural nonfarm** activity.
5	Singh and Singh (1995)	They identified the RNF sector as a **residual economy** in rural areas.
6	Bhattacharya (1996), Visaria and Basant (1994)	There is an increase in the proportion of **casual workers** in the unorganized sector, rather than full time employment.
7	Eapen (1996)	The **micro petty and tiny** enterprises dominates the labour market and also increase in **distress** induced non-farm wage employment.
8	Fisher and Mahajan (1997)	Most of the non-farm **enterprises are small**, such that an average of 2.2 people are employed by them. These enterprises depends upon manpower mainly and produce low quality products.
9	Bryceson and Jamal (1997)	A growing RNF economy **does not guarantee access by the poor**. Wealthy households, often prove better equipped to take advantage of growth in the high-productivity segments of the rural non-farm economy (as entrepreneur and as wage employees) whereas, poor households, left to their own

		devices, risk remaining relegated to slow-moving backwaters of the RNF economy.
10	Hossain (2004)	The capacity of agriculture to generate productive employment and provide a decent standard of living is becoming increasingly limited.
11	Murty (2005)	The slow growth of RNF enterprises have not served the desired objectives of reducing poverty and inequalities. This can be largely attributed to engagement of low skilled workers in these enterprises and providing training to them requires capital.
12	Ghuman (2005)	The rural workers entered into non-farm sector because of the **push effect** of agricultural sector and not due to the pull effect of non-farm sector.
13	Bhaumik, (2007)	The major sub-sectors employing rural males in the post reform period are **construction,** wholesale and retail trade while rural females are engaged in manufacturing and services sector.
14	Sundaram, (2007)	In spite of this, incidence of poverty was higher (35.9 percent) among those are working as casual workers and lowest (10.5 percent) among those employed as regular workers. Among self-employed, 19.6 percent were poor.
15	National Commission for Enterprises in the Unorganised Sector (NCEUS), 2007	About 79 percent of those working in the unorganiosed sector are poor and vulnerable. Many self-employed workers in the agricultural sector, agricultural labourers, workers in the unorganized sector and other informal Non-farm activities constitute a majority of the poor, this is not because they are unemployed, but because their productivity and incomes are low, and the nature of their work is **irregular and uncertain**.
16	Lanjouw (2007)	The rural workforce is largely confined to the **low return RNF activities** since the factors like lack of education, limited access of land and financial capital, social and economic barriers (particularly for women) prevents them from accessing productive non-farm activites.
17	Haggblade, Hazell and Reardon (2010)	A growing rural non-farm economy does not guarantee access by the poor. Wealthy households, well endowed with financial, human, and political capital, often prove better equipped to take advantage of growth in the high-productivity segments of the rural non-farm economy, both as entrepreneurs.
17	World Bank, (2010) and NCEUS, (2007)	Even in the RNF sector, the employment has been predominantly of informal nature. The proportion of employees with informal contracts within organised sector increased from 37.8 percent to 46.7 percent during 1999-2004.
18	Binswanger-Mkhize (2012)	Most of the unskilled or semi-skilled workforce is employed in the informal sector or hold informal contracts in the formal sector.
19	Binswanger-Mkhize (2013)	The new form of structural transformation in India is a **stunted one,** because it primarily generates employment that is informal and/or insecure, and without the benefits of health and unemployment insurance and pensions.
20	Mitra and Verick (2013)	In rural areas, females are engaged in agriculture sector whereas males are turning towards non-farm sector. But the

		non-farm employment is largely casual wage employment and mainly induced by supply side factors.
21	Basu (2018)	The major problem with respect to employment in non-agriculture sector is quality not quantity. The major share of employment in this sector is of informal kind and this share has increased by 10 percent points during 1999-2011 decade.
22	Krishna et. al (2018)	The important sub sectors in India that contributed in growth in the average labour quality index during 1980-2014 are organized manufacturing, electricity, mining and services. The labour quality is comparatively low in agriculture and construction sector.

Source: Author's Own Compilation on the basis of the Literature

2.4.2.Casual Employment

The type of employment indirectly signals towards the quality of employment and an increase in the proportion of casual workers in the total work force, the quality of employment decreases since social security measures for casual workers are less effective in the country Jha (2006). Thus deterioration of quality of employment is associated with increasing casualization.

The share of casual labour in the total employment has increased specifically after liberlisation and It has led to rise the demand for casual and intermittent work (Coppard 2001). The share of self-employed in the rural workforce declined from 62 percent in 1977-78 to 56 percent in 1999–2000, while the proportion of casual labour increased from 30 percent to 37 percent; though the proportion of self-employment in total employment has remained high in RNF sector (Start and Johnson 2004). The major shift was observed from self-employment in agriculture to non-agricultural activities, especially as casual workers. According to Papola (2013) the recent trends witness the typical Indian economy scenario where informal employment prevails even in the organized sector (casual and contract labour).

The casual employment as well as self-employment (especially family run enterprises) shows strong correlation with poverty. World bank also supports this fact by stating unstable or inadequate employment as the main cause of poverty rather than lack of employment (Anyanwu 2013). Several other scholars also have the views that casual employment (especially non-farm) is not the better option to go with as in case of India the lowest quintile is concentrated with casual laboures signalling at the poorest section of the economy (Lanjouw 2007). He further states that casual, daily-wage earnings opportunities are often associated with strenuous physical effort and sometimes with health hazards as

well. It is clear that those rural households with other, more attractive, income-earning options tend to opt for those instead.

In earlier sections we have seen that at least some segments of the RNFE are associated with low returns. In case of public work projects, there is an element of self-targeting associated with these low-return nonfarm employment opportunities. At any moment in time, households might be exposed to shocks and crises and may find themselves unable to fall back on insurance, credit, or other means of offsetting income shortfalls. Their ability to secure some earnings, however limited, through nonfarm employment opportunities can be of great assistance in preventing them from sliding into poverty or, if they are already poor, from falling into deeper poverty.

2.4.3.Secondary Occupation

When self-employment and casual labour dominate in work force especially in low-productivity occupations, a sector or industry of attachment may keep shifting even across one-digit groups for the same person over time. Moreover, the same person at work may not get full time gainful employment from the sector of attachment by major time criterion and may be attached to more than one sector on a part-time basis but would not get classified against these other part-time activities (Sundaram and Tendulkar 2002). Thus, those engaged in agriculture and allied activities on a major time basis may well be engaged in certain non-farm activities during the year on subsidiary basis hence having non-farm employment as their secondary occupation.

Both farmers and agricultural labour households may embrace multiple occupations to shield against seasonal fluctuations in employment and incomes. Reardon (1997) observes that in Africa non-farm income was a means for the poor to stabilise income during drought years. Walker and Ryan (1990) observe that in the semi-arid tropics in India non-agricultural self-employment not only became an increasingly important source of income but also was a means of dampening household income variability (Hossain 2004).

Engaging in multiple activities is termed "pluriactivity" in the literature, and this can be contrasted with specialization. One would expect the frequency of pluriactivity to be inversely related to the average income level of the zone. In poor areas, where households typically participate in both farm and nonfarm activities, they may not engage the very efficiently, but they are able to manage risk, compensate for a poor asset base, and survive. In contrast, in richer zones the specialization rate is higher. More households specialize in purely farm or purely nonfarm pursuits. The range of households undertaking both farming

and rural non-farm activities is generally around 30 to 50 percent (Reardon et al. 2007) but a number of studies are showing even higher participation, such as in Kenya, where the share is 90 percent (Barrett et al. 2004).

Given the efficiency gains from specialization, this positive correlation between income and specialization makes economic sense. Comparing individual households, however, we see the opposite relationship. Increasing household income is typically associated with higher rates of pluriactivity (Barrett et al. 2004). However, closer inspection reveals that this more extensive diversification at the household level actually involves specialization among individuals. Richer households commonly have individual members who specialize in nonfarm work, often highly paid wage employment, or work as managers of specialized nonfarm trading, transport, and processing businesses.

2.4.4.Employment of the Last Resort

Ever increasing Land-Man imbalance (in other words, ever declining land to man ratio), Agriculture alone can't provide the ultimate solution to the rural unemployment and underemployment and poverty. The moot point in developing countries, now a days, is that they must steadily reduce their dependence on agriculture and expand its non-farm sector to facilitate the transfer of workforce out of agriculture, which is supposed to be the economic activity with least productivity (Kumar, 2008).

At any moment in time, households might be exposed to idiosyncratic shocks and crises. Their ability to secure some earnings, however limited, through nonfarm employment opportunities can be of great assistance in preventing them from sliding into poverty or, if they are already poor, from falling into deeper poverty (Lanjouw, 2007). Yet the 'RNF sector' is still justifiably called the 'forgotten sector' because of the low productivity (as it doesn't use very modern & sophisticated technologies) and hence low wage rates and high levels of underemployment in the sector (Kumar, 2008; Fisher and Mahajan, 1997).

If the activities in the RNFS are rewarding, people pursue them on priority basis but in case they are not, then such activities are viewed as 'last resort', 'refuge', or 'residual' and is taken up by the labourers who can't get 'adequate' work in the agriculture sector. The development of rural non-farm sector in India is not only of paramount importance but also of pressing urgency in view of the ever rising unemployment and a high proportion of rural population in the country's workforce. The high unemployment rate is considered as the push factor for the expansion of RNF employment and positive correlation between

unemployment rate and the RNFE also supports the 'residual hypothesis' given by Vaidhyanathan (1986).

2.4.5.Informal Employment

From an individual worker point of view, informal jobs act as a buffer against unemployment, while in the aggregate the informal urban sector serves to take up "some of the slacks created by inadequate rates of growth in the modern sector (Bhalla 2008). A major proportion of workers in non- farm economic activities work in the *informal sector* where they suffer from a large quality deficit in employment, in terms of low productivity, low earnings, poor conditions of work and lack of social protection (Papola 2013). Informal workers being spread both in the organised and unorganised sector, the NCEUS also gave a definition of informal workers as, "Informal workers consist of those working in the informal sector or households, excluding regular workers with social security benefits provided by the employers and the work. The composition of employment in the organised versus unorganised sector was in the proportion 13:87 in 2004-05 and 17:83 in 2011-12 indicating an increase in organised sector employment from 13 per cent in 2004-05 to 17 per cent in 2011-12. But this increase in organised sector employment was informal in nature (48 per cent in 2004-05 increased to 55 per cent in 2011-12) while the share of organised formal employment decreased from 52 per cent in 2004-05 to 45 per cent in 2011-12. But in the unorganised sector the share of formal employment marginally increased from 0.3 to 0.4 per cent and that of informal employment declined marginally from 99.7 to 99.6 per cent. On the whole the number of formally employed increased from 33.41 million in 2004- 05 to 38.56 million in 2011-12, while increase is in informally employed workers in the formal sector without social security benefits provided by the employers (Srija and Shirke, 2014).

Clearly, livelihood diversification can be both a coping and a thriving mechanism – thriving where it is driven by a growing and more flexible economy. But the 'coping' dimension dominates where diversification is an enforced response to failing agriculture, recession and retrenchment (Start and Johnson 2004).

2.5. Research Gaps

On the basis of literature reviewed, following gaps are identified

- It is evident from the studies reviewed that RNF sector has increased the employment and income over a period of time, still studies are scant to assess the quality of RNF employment.

- Even the studies highlighting the RNF sector as residual sector, do not account for different quality parameters to show the quality of employment specifically in RNF sector.
- The studies largely targeting the role of RNFS in poverty reduction, do not take into account the role of other development factors (such as urbanization, electrification and agriculture growth) in reducing poverty along with RNF employment. Thus, the contribution of RNFS in reducing poverty is either through increase in farm wages and through migration. The direct impact is not being examined.

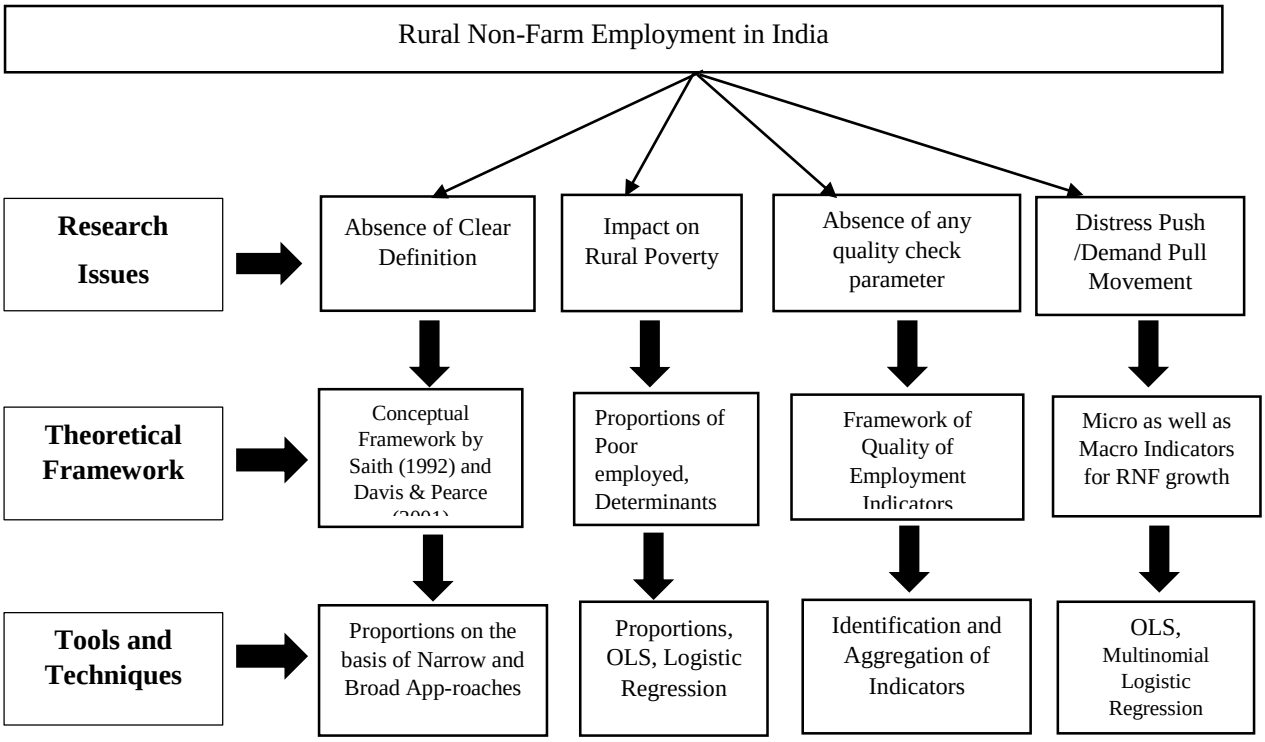
2.6. Summing up

The review of literature explores the role of RNF sector as a saviour which helps the rural poor and unemployed to get the employment opportunities whereas on the other hand, this sector act as a residual sector because it absorbs poor and those who don't have any job and places them at the bottom of quality ladder because majority of them are engaged in casual, informal employment and RNF employment as their secondary occupation.

3.1. Introduction

This chapter describes the overall methodology and research design involved to achieve the set objectives[6] of the study. It elaborates the importance of National Sample Survey **(**NSS) dataset over the other data sources of employment for completing the study. Moreover, the tools and techniques, which statistically verify the results and test the hypotheses of the study, are explained in detail. The methodological framework of the study is also expressed through a flowchart (refer, Figure 3.1)

Figure 3.1: Methodological Framework of the Study



Source: Author's Own Compilation

3.2. Data Sources

There are mainly five sources from which the labour statistics can be obtained, but due to one or the other reasons, only NSS data is found to be appropriate to use for carrying out the proposed study. These sources are National Sample Survey, Economic Census, Population Census of India, Ministry of Labour and Employment and National Council for Applied Economic Research (NCAER).

[6] Objectives discussed in Chapter 1

3.2.1. Why National Sample Survey Data?

Although **NCEAR surveys** (1993-94, 2004-05, 2011-12) can also be used to study labour market behaviour with rich set of control variables from a variety of domains, such as, fertility, education levels, health and infrastructure. But when it comes to state-wise and district-wise analysis, the credibility of dataset is questioned. So for more comprehensive analysis in India, NSS data is the best suited for analysis till date. Moreover, NCEAR data covers issues related to poverty and employment in a single round, whereas in NSS data separate rounds are conducted for dealing with the specific issues. So more authenticity is seemed in this data.

NSS data has also its superiority over dataset provided by **Census of India** in two major aspects. First, the classification of workers is comprehensive in NSS data as compared to census data. The census data provides information of workers regarding two types of status- main and marginal workers, but former dataset covers four types of employment status of the workers, i.e., Usual Principal Status (UPS), Usual Subsidiary Status (USS), Current Weekly Status (CWS) and Current Daily Status (CDS). Second, the data regarding household type (employment type) is also provided in more detail in NSS dataset comprising self-employed, regular wage salaried and casual workers separately for agriculture and non-agriculture sectors. On the other hand, census data describes household type as four categories agricultural labourers, cultivators, household industries and others. Moreover the census data is available for decadal periods i.e. 1991, 2001 and 2011. So NSS data helps in examining the trends in between the decadal period (here in the study: 1993-94, 1999-2000, 2004-05 and 2011-12).

The NSS employment and unemployment surveys are (at least until 2011-12) quinnenial rounds which are carried out after every five years; hence capable to capture the changes over time in the labour market. On the other hand, **Labour Bureau** of the Ministry of Labour has recently launched an annual survey of employment and unemployment (latest 4th annual survey during 2013-14) which reveals its finding every year in the annual reports. However, it seems to add little compared with NSS and since it is new, cannot be used to analyze changes over time. It is, therefore, not included in the study. Moreover, the methodology used in these surveys is unsuitable for measuring underemployment, disguised employment and seasonality of labour force. Further, less attention has been given to capture the true and fair contribution by female in labour market.

Hence only NSS provides a comprehensive dataset to study the employment-unemployment status which can be studied since 90's and a structural transformation in

terms of employment can be analyzed thoroughly. To explain the status of RNF activities, the analysis is based on the time period 1993-94 till 2011-12 but for the detailed explanation, the study is based on the unit level data of 7th (61st round, 2004-05) and 9th (68th round, 2011-12) quinquennial NSS surveys. Data in the Employment-Unemployment Survey (EUS) report is presented according to four measures as:

- Usual Principal Status (UPS)
- Usual Subsidiary Status (USS)
- Current Weekly Status (CWS)
- Current Daily Status (CDS)

In the present study, UPSS is used (the others will be mentioned where relevant). UPSS of the population is widely used while discussing employment trends, because it also includes the subsidiary status of the labour force, which makes it a more liberal measure of employment. Subsidiary employment is measured mainly to capture the various kinds of informal and short-term employment opportunities (at least 30 days in a year) that provide supplementary employment. However, the focus here is on UPSS employment (PS+SS), that is, worker is said to be employed if he had pursued gainful economic activity taking year as reference period.

Although UPS is also important from the view point of quality of employment as it captures the employment during longer time period of the year. However, it does not capture the recent trends and prevalent kind of employment in country like India where rural mass is employed for shorter span in RNF sector to overcome the uncertainties. We have used UPSS because of following reasons:

a) Since principal or primary occupation underestimates the actual proportion of the employed in present era and skips inclusion of those who are employed during slack season of agriculture. Thus, to capture the employment of secondary occupation in RNFS, UPSS is the appropriate measure.
b) Since the size of enterprises working under RNFS is very small and dispersed; there is high possibility that they must have been missed during principal occupation or they can be captured for subsidiary occupation (Rao, 2000).
c) The multiple job holders i.e. those who are involved in primary as well as secondary occupation can be captured only through UPSS, not by UPS.
d) Because employment shares based on primary occupations exclude part-time and seasonal labor, they frequently under-estimate the relative importance of nonfarm activities (Haggblade et al., 2002)

Table 3.1: Objective-wise Summary of the Data Used

Sr No.	Objective	Source	Time Period	Data Type	Variables Used
1	Synthesized Approach for Defining RNF Sector	NSSO Employment - Unemployment Surveys (EUS)	55th Round (1999-00)	Unit Level Data Provided by the NSS Surveys	Location of Workplace
			61st Round (2004-05)		Location of Worker
			68th Round (2011-12)		National Industrial Classification for Categorizing Farm and Non - Farm Sector (NIC 1987, 98, 2008)
2	Poverty and RNFE Linkages	NSSO Planning Commission Poverty Estimates for 2009, 2011-12	50th Round (1993-94) 61st Round (2004-05) 68th Round (2011-12)	Unit Level Data Provided by the NSS Surveys	Monthly Per Capita Consumption Expenditure to classify Poor and Non Poor
					Employment Type
3	Determinants of RNFE		50th Round (1993-94) 55th Round (1999-00) 61st Round (2004-05) 68th Round (2011-12)		NIC 1987,2004,2008
					NCO 1968,2004
2 and 3	Poverty and Determinants of RNFE-Macro Level	1.Central Statistical Office	2004-05 and 2011-12	Macro Data Provided by Official Sources	Agricultural NDDP to Total NDDP.
		2.Census Of India	2001 and 2011		Urbanisation, Population Density, Literacy Rate
		3.Economics And Statistics, Ministry Of Agriculture, Government Of India	2004-05 and 2011-12		Wage Rate
		4. Directorate of Economics and Statistics, Assam, U.P., West Bengal, Maharashtra, Rajasthan, Tamil Nadu.	2004-05 and 2011-12		Percentage of Villages Electrified
		NSSO Employment - Unemployment Surveys (EUS)	50th Round (1993-94), 55th Round (1999-00), 61st Round (2004-05), 68th Round (2011-12)	Unit Level Data Provided by the Survey	Percentage of RNF Employment, Percentage of BPL Population, Unemployment Rate
4	Quality of Employment	NSSO Employment - Unemployment Surveys (EUS)	2004-05 and 2011-12	Unit Level Data Provided by the Survey	List of Variables Used is Already Discussed in Detail in Chapter - 5.

Source: Author's Own Compilations

3.2.2.Why time period from 1993-94 to 20011-12?

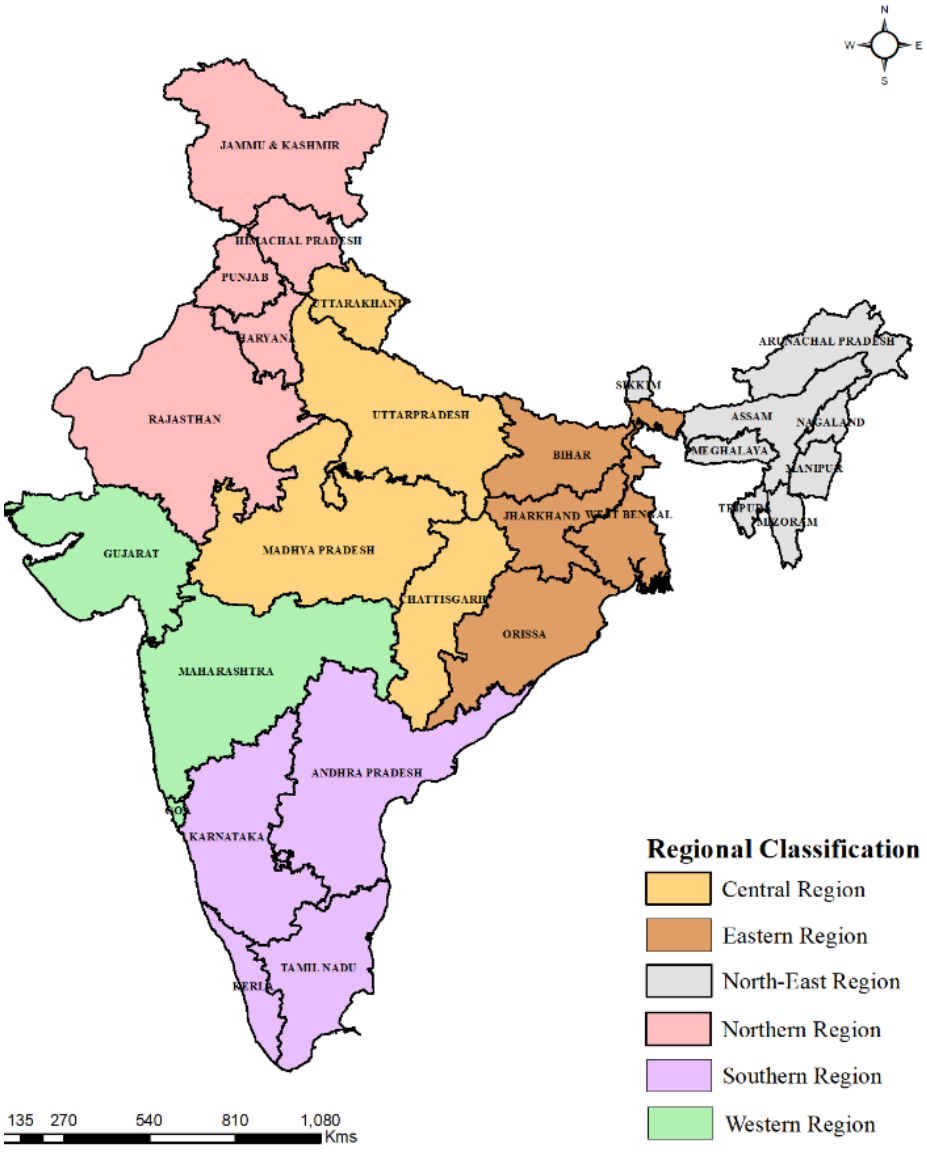
We have taken the time period from 1993-94 to 1999-00 and then 2004-05 to 2011-12 to capture the long term trends in RNFE. Both the decades have shown a drastic trend in terms of employment growth (Sundaram, 2001). It makes interesting that on the one hand, the time period 1993-94 to 1999-00 was termed as a jobless growth after the most awaited results of economic reforms; on the other hand, a sudden rise in the employment is reported from 2004-05 to 2011-12. In former period, lower rural employment growth (0.66 percent per annum) was the main reason for the declining employment trend in the country whereas the rural employment shows significant growth during the later phase from 1999-00 to 2004-05. Because during the period rural employment growth was quadrupled (2.41 percent per annum) as compared to growth rate in 1993-94 to 1999-00.

There is one more round (66^{th} round) conducted during 2009-10 (between 2004-05 and 2011-12), but the present study does not take into account this round as 2009-10 was a drought year and may have affected the results of the survey while depicting a less than positive picture of the economy (Shaw 2013). There are some reasons for using the dataset of 2004-05 and 2011-12. First, the structural transformation happened during this time period with a faster pace as compared to other decades. Second, it was only after 2004-05 that there was an absolute decline in the number of workers in agriculture, for the first time in the history of India. The share of employment in agriculture was declining even in the preceding years too but for the first time share was dropped to less than fifty percent (48.5%) in 2011-12. In other words, a Lewisian structural shift in employment away from agriculture and towards non-agriculture accelerated significantly after 2004-05 (Shaw 2013, Mehrotra et al. 2014). Third, construction employment increased only by 8 million (from 17 million to 25.6 million) from 1999-2000 to 2004-05. But it grew much more sharply after 2004-05 to 50 million by 2011-12; an increase from under 2 million a year to 7 million a year. Fourth, some government policies and investment related projects during this period drove the non-farm employment. Thus, rural areas reported growth in non-farm (mainly, construction-related) employment as government investment grew in the rural housing for the poor (Indira Awas Yojana), rural roads (Prime Minister's Gramin Sarak Yojana and Mahatma Gandhi National Rural Employment Guarantee Act), and other rural construction investment. In addition, $500 billion worth of infrastructure investment materialized during the 11th Five-Year Plan (2007-2012), 62% through public investment (Mehrotra et al. 2014).

3.2.3. Regional Classification

The study is based on analysis across different regions and this regional classification is based on the classification given by the Ministry of Labour and Employment in Employment Review 2011 shown in Figure 3.2 through regional classification map (Government of India, 2012a).

Figure 3.2: Regional Classification of India



Source: Regional classification as per Government of India (2012a)

According to regional classification, six regions, namely Northern Region (Punjab, Haryana, Himachal Pradesh, Jammu & Kashmir and Rajasthan), Southern Region (Andhra Pradesh, Karnataka, Kerala and Tamil Nadu), Eastern Region (Bihar, Jharkhand, Orissa and West Bengal), Western Region (Goa, Gujarat and Maharashtra), Central Region (Madhya

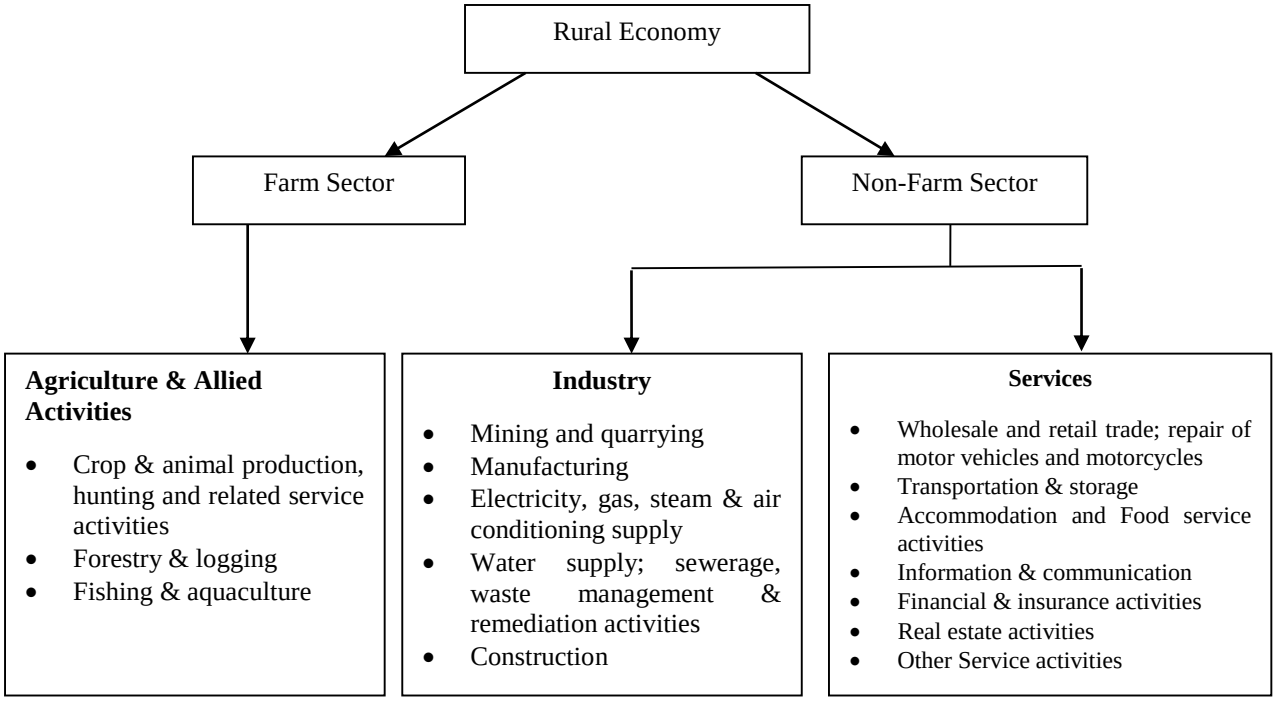
Pradesh, Chhattisgarh, Uttar Pradesh and Uttarakhand) and North-Eastern Region (Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Tripura and Sikkim) have been formed. Union Territories (UTs) are excluded from our analysis because UTs primarily consist of urban areas and the present study focuses on rural areas only.

3.3. Definitions and Conceptual Aspects

3.3.1. Definition of Rural Non- Farm Sector

For defining the RNFS, the most commonly used definition has been considered, which states that all activities, excluding agriculture & allied, that are performed within the rural area are collectively termed as RNFS. This study uses the National Industrial Classification (NIC), 1998 and 2008[7] to describe the farm (agricultural & allied activities) and non-farm (industrial and service activities) sectors in rural economy (refer, Figure 3.3)

Figure 3.3: Classification of Farm and Non-Farm Sector



Source: Compiled from National Industrial Classification (1987, 1998 and 2008)

3.3.2. Theoretical Framework

While defining RNFS on the basis of location, it includes activities associated with wage work or self-employment that are not directly derived from crop and livestock production, but located in rural areas. But some other views regarding the definition of RNF activities

[7] 61st NSS round uses NIC 1998 whereas 68th NSS round uses NIC 2008. So to have a common classification codes NIC-2008 has been harmonized according to NIC-1998.

suggest that these activities should not be based only on the location approach but it should also follow linkage approach i.e. RNFS constitutes all those activities which are rural located- rural linked, rural located-urban linked and also urban located-rural linked (Saith, 1992; Start and Johnson 2004).

The study follows both the approaches to examine the share of RNFE and comes up with a synthesized approach for defining RNFE using NSS data. A theoretical framework encompassing these concepts is developed grounded on the insightful literature review. The study lays its foundation regarding definition of RNF sector and employment on the basis of theories of location and linkage approaches and potential sources of income. The former theory is propounded by Saith (1992) in his monograph "The Rural Non-Farm Economy: Processes and Policies" and the later approach is suggested by Davis and Pearce (2001).

3.3.2.1. Location and Linkage Approaches

3.3.2.1.1. Locational Approach

When the location of performed activity (except agriculture) is confined to rural area only, the activity comes under the category of RNF activity according to locational approach. But the author has also highlighted the issues in defining the activity in an appropriate manner using this approach because it does not encompass the developmental linkages of activities performed in other areas except rural areas but these have directly or indirectly effect on the rural development. Secondly, the ambiguities in defining rural area also poses questions in limiting the role of RNF activity; i.e., which area is called as rural is itself is a debatable issue as it changes over countries, regions etc.

3.3.2.1.2. Linkage Approach

According to this approach, the author stresses upon the developmental linkages of the activities with the rural population. The proposed approach talks about the production backward linkages of the rural activity/enterprise. The idea behind using the linkage approach is to also focus upon location of the activity in which the rural population is engaged in rather than only considering the location of residents. Hence it considers the linkages with the income generation of the rural population (in form of remittances too). Thus four main categories are described in this approach as follows:

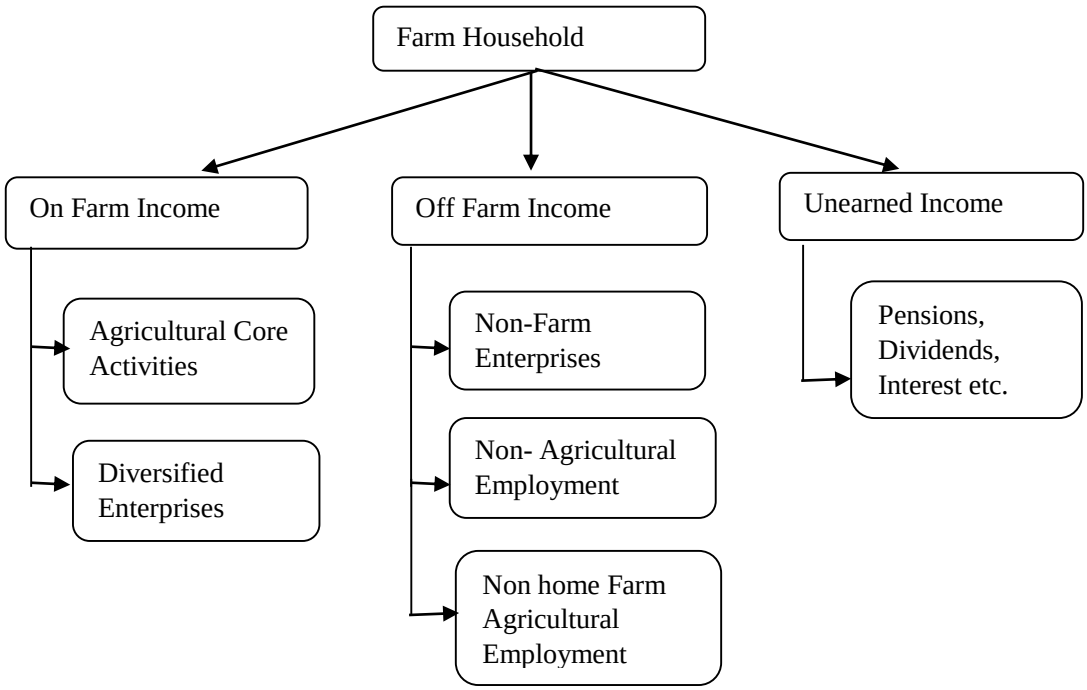
a) Rural Located, Rural Linked (R-R)
b) Rural Located, Urban Linked (R-U)
c) Urban Located, Rural Linked (U-R)
d) Urban Located, Urban Linked (U-U)

Rural located (Rloc) and Urban located (Uloc) refer to rural located and urban located activities whereas Rlink (Rural linked) and Ulink (Urban linked) depicts all rural and urban linked activities respectively. Saith (1992) has used this definition in production contexts but in the present study we have tried to use the definition in employment context using the location of the activity.

3.3.2.2. Income and Livelihood Approach

Davis and Pearce (2001), in a review of the level of RNFE diversification, assert that it is important to consider the potential sources of income available to each farm or rural household. These are shown in Figure 3.4 for the case of a farm-based household. The traditional main component here has been income from agricultural core activities.

Figure 3.4: Potential Sources of Income



Source: Davis and Pearce (2001)

They further elaborated their argument by stating that in the case of farms, on-farm income can come both from agricultural core activities and non-agricultural activities. Potential sources of non-agricultural income can be divided into three components: income from non-agricultural employment; non- farm enterprises; and remittances. As such, one can distinguish between enterprise and income diversification. Enterprise diversification activity embraces both on- and off-farm business created outside of agricultural cores activities. Income diversification will embrace these two components plus any movement towards non-farm employment (whether agriculturally based or not). Finally, a third source of revenue is unearned income (such as remittances, pensions, dividends and interest), which while

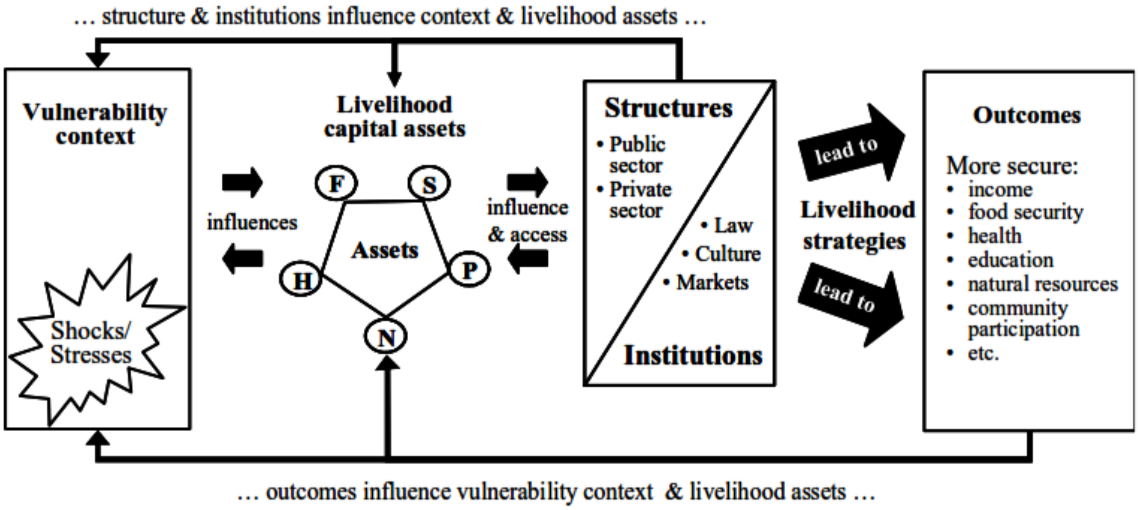
usually ignored, can be very substantial, and decisions made in this sphere may have an important bearing on such crucial choices at the time of retirement and intensity of farming.

Thus, potential sources of income are disparate, likely to vary substantially in importance between rural households, and exhibit wide variations in their attractiveness as sources of financial gain. These variations between components of income are, therefore, likely to have a major effect on the decision making of rural households and individuals. There is a need to understand the importance of each, rather than subsuming them all into binary classifications such as the part/full-time dichotomy. Moreover, there is no reason why RNF income diversification has to be either about setting up new enterprises or even be farm based at all as for many, other, intermediate options may prove more fruitful or promising (Davis and Pearce, 2001).

3.3.2.3. Demand-pull and Distress-push driven Diversification Strategies

Chambers and Conway (1992) gave the very first definition of livelihood as, "the capabilities, assets and activities required for a means of living" and this has become the de-facto definition from thereon. They further state that "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".

Figure 3.5: Sustainability Livelihood Framework (SLF)



Source: Buchenrieder and Mollers (2006)

The SLF merely explains vulnerability and employment management strategies, underlines the livelihood strategies based on institutions, structures, access to capital, and views diversification as an alternative to poverty reduction. Everett Lee (1996) came up with the demand pull/distress-push in order to explain the migration dynamics and is used by

many researchers to explain labor shifts in agricultural sector (farm to rural non-farm). Distress-push dynamics explain the factors in which an individual chooses a low paid non-farm employment and whereas demand-pull describes the factors that drive and drive an individual to opt for lucrative opportunities in the rural non-farm. Both these dimensions are represented as part of the asset pentagon in Figure 3, along with the institutional environment, which encompass the incentives and constraints in achieving RNFE in a given likelihood framework. The factors affecting people's access to different forms of NFRE strongly relate to their access to the five forms of capital asset, i.e. natural (N), physical (P), human (H), social (S), and financial (F) assets (refer, Figure 3.5).

It is reasonable to state that the households with better livelihood assets are more inclined towards demand pull RNFE and get benefited from the factors of positive selection such as age, education, motivation and skills. Push factors drive the force of diversification compared to pull factors, which facilitate the diversification process and Lebhart (2002) finds that distress-push forces are generally subjected to negative selection.

The constraints in farming influence the household members to become pluriactive. Pluriactivity as proposed by Saith, (1992) is connoted as a negative phenomenon related to poverty induced and residual activities. In a similar vein, Start (2001) states that distress-push RNFE may develop a positive effect on the rural population's livelihoods by reducing vulnerability, increasing risk management and total aggregate household income.

3.3.3. Quality of RNF Employment

The estimation procedure of the quality of RNF employment involves four stage process. The procedure includes the selection of target population, selection and classification of indicators and finally the aggregation process to estimate the selected indicators on quality of employment.

a) This is good option to compare between the types of employment across the regions or the state. But due to data inadequacy, the study only limits the comparison of same type of employment across states rather than comparing different types of employment for rural India as well as for states.
b) The unit of analysis used in the study specifically for quality of employment is individual level. The indicators selected capture the quality of employment of a particular individual rather than of household. The data does not permit us to estimate the employment based on these indicators, at the household level.

c) However, wages form an important determinant for measuring quality but our dataset provides wages only for regular and casual workers and not for the self-employed. Thus comparison will not be possible for all types of employment.

Stage 1 Identification of the Target Population

Our target population is employed among the overall rural labour force which is around 97.97 percent during 2011-12. Our sample constitutes the population of age 15 years and above. The proportion of selected age group among employed is found to be 97.91 percent. This size of sample is ought to be justified to represent the quality of employment across states in rural India. The distribution of employed population across farm and non-farm is also calculated as our focus is on estimating the quality of RNFS specifically. For age group of 15 and above, 72.59 percent and 27.4 percent of population comprises the farm and non-farm sector employment respectively during 2004-05 and this proportion declined to 64.07 percent in farm sector but increased to 35.93 percent in RNF sector. Thus, the focus of the study is to estimate the quality of employment in RNF sector during 2004-05 and 2011-12.

Stage II Identification of Indicators

After selecting the target population we have prepared a list of indicators on the basis of literature review while taking into consideration the data availability according to our dataset. Table 3.2 shows the list of indicators as suggested by UN report (on measuring quality of employment published by United Nations) and presented in NSS dataset.

Table 3.2: List of Indicators according to report by United Nations and NSS dataset

Sr No	Dimension/ Sub Dimension	Variable name in UN Report	Formula Followed by UN Report	Measure in NSS	
				Variable Name	Block /Ques No
1	**Safety and Ethics of Employment**				
		1a3 Exposure to physical health risk factors at work	Percentage of employed persons who are exposed to physical health risk factors at work	Industries Involving hazardous processes overall (Factory Act, 1987)	NIC Classification can be used
		1a4 Exposure to mental health risk factors		NA	
1b	**Child Labour and Forced Labour**	1b1 Child labour rate engaged in child labour	Percentage of children aged 5 to 17 years who are engaged in child labour	UPSS- (employed – code 11-51) and age 5-14	Col-5,6 in Block-5.1,5.2 (for upss status and NIC code) and Col-5 in Block-4 (for age)
		1b2 Hazardous child labour rate	Percentage of children aged 5 to 17 years who are engaged in hazardous child labour	Hazardous work- separate list for children (According to ILO for India)	Col-5,6 in Block-5.1,5.2 (for upss status and NIC code) and Col-5 in Block-4 (age-5-14 yrs)
2	**Income and Benefits from Employment**				
2a	**Income from**	2a1 Average earnings	Mean nominal monthly / hourly earnings of employees (local currency)	Daily average wages (Agri and Non-agri) (total wages)	Col-15,16,17 in Block-5.3

	Employment	2a3 Earnings by deciles	Nominal monthly / hourly earnings of employees by deciles (local currency)	Can be calculated in decile form same variable?	Col-15,16,17 in Block-5.3
		2a4 Employment-related income of self-employed		MPCE can be used as a synonym for the wages of Self Employed	
2b	**Non-wage pecuniary benefits**	2b1 Paid leave entitlement	Percentage of employees entitled to paid annual leave	Eligible for Paid Leave or Not?	Col-13 in Block-5.1
3	**Working Time and Work-Life Balance**				
		3a3 Involuntary part-time work	Percentage of employed persons working part time for the main reason that they did not find a full-time job	Whether worked as part time or full time? (but whether voluntary or involuntary- is not given)	Col-5 in Block-6
		3a5 Multiple job holders	Percentage of employed persons who have more than one job	First Calculate Employment on UPS then whether in subsidiary or not?	Col-5, 7 in (Block-5.1+5.2)
		3c2 Possibility to work at home	Percentage of employed persons whose working arrangements offer the possibility to work at home	Whether self-employed or unpaid workers/work as maid or servant	Col-11-21 or 91,92,93 (Not sure)
		3c3 Commuting time	Mean duration of commuting time between work and home (one way)	Seeking alternate job because workplace is too far	Col-12 (code 1 or 2) and Col-13 (code-4) in Block-6
4	**Security of Employment and Social Protection**				
4a	**Security of Employment**	4a1 Fixed-term contracts	Percentage of employed persons 25 years and older with fixed term contract	Type of Contract (longer period if there)	Col-12 (code-4), (Block-5.1+5.2)
		4a2 Job tenure	Percentage of employed persons aged 25 years or over whose number of years of tenure at the current job or with the current employer is (1) < 1 year, (2) 1 – less than 5 years (3) 5 – less than 10 years and (4) ≥ 10 years		
		4a3 Own account workers	Percentage of employed persons who are own-account workers	Employment Status- Own Account Workers	Col-3 (Code-11) in Block 5.1
		4a4 Self-employed with one client	Percentage of self-employed workers with only one client	Employment status (Self Employed) with No of Workers	Col-3 (Code-11-21) and Col-11 (code-1) in (Block 5.1+5.2)
		4a6 Temporary employment agency workers	Percentage of employed persons employed via a temporary employment agency	Whether in Temporary of Permanent job?	Col-16 in Block -6
		4a7 Lack of formal contract	Percentage of employed persons without formal contracts or without pay slip / pay stub	Type of Contract -No contract	Col-12 (code-1) in (Block-5.1+5.2)
		4ax1 Precarious employment rate (experimental)	Percentage of employed persons who are in precarious employment (as defined in ICSE-93)	Workers in precarious employment a)Casual workers b)Workers in short-term employment c)Workers in seasonal employment	Col-3 (Code-41-51) Col-12 (code-2) in (Block-5.1+5.2)
		4ax2 Informal employment rate (experimental)	Percentage of employed persons in informal employment	Informal Employment according to Sastry can be used -enterprise Type and No of workers	Col-9,12,13, 14 cross tab with Col-10 (code-3) or codes already there
4b	**Social Protection**	4b1 Pension insurance coverage	Percentage of employed persons who are active contributors to a pension scheme	Check from Social security benefits	Col-14 (code-1) in (Block-5.1+5.2)
		4b3 Medical insurance coverage	Percentage of employed persons who are active contributors to a medical insurance plan/scheme related to their employment	Check from Social security benefits	Col-14 (code-3) in (Block-5.1+5.2)
5	**Social Dialogue**				

		5.1 Collective bargaining coverage rate	Percentage of employees covered by collective bargaining agreements	Can be checked is there any union/ association in your activity?	Col-14 (code-1) in Block-6
		5.2 Trade union density rate	Percentage of employees who are members of one or more trade union	Member of Trade union or no\t?	Col-15 (code-1) in Block-6
6	**Skills Development and Training**				
		5.x Employer organization density rate (experimental)	Percentage of employees working in enterprises belonging to an employer's organization	Check whether it can be calculated from enterprise type or not/ employment status	Col-3 or 9 in Block-5.1
		6.1 Training participation	Percentage of employed persons having received job related non-formal education and training in the past twelve months	Vocational Training (given in dataset -for persons of age 15 to 59 years)	Col-12 (codes-3,4,5,6) in Block 4
		6.3 Usefulness of training	Percentage of employed persons whose job-related non-formal education and training has helped improve the way they work		
		6.4 Learning at work	Percentage of employed persons whose job involves improving their skills	Vocational Training (given in dataset -for persons of age 15 to 59 years)	Col-12 (code-5), Block-4
		6.5 Employability	Percentage of employed persons whose work experience and job skills would be helpful to find another job	Can be calculated as: Principal Occupation+ Vocational Training (if VT-yes What was Secondary Occupation)	Col-5 (code-11-51) in Block-5.1 with Col-12 (code-1,2,3,4,5,6) in Block 4 and then Col-7 in Block 5.1
		6.6 Skills Match	Percentage of employed persons who have the opportunity to use their knowledge and skills in their current job	Can be calculated as: Current employment (sector) and whether have Training regarding that particular job	Col-5 (code-11-151) and NIC in Block-5.1+5.2 with Col-12 (codes if 1,2,3,4,5,6) and then Col-13 in Block-4

Source: a) Handbook on Measuring Quality of Employment, United Nations (2015)

b) Compiled from NSS EUS 61st and 68th Rounds (Government of India, 2004-05 and 2011-12)

Retention of Indicators

All of the listed indicators were not retained for analysis. On the basis of review of literature and feasibility of the indicators in Indian context, some of the indicators were not included in the final list of Indicators (total 9 indicators are selected). After checking the data and missing values of these 9 indicators we are able to retain only 8 indicators and dropped the indicators with high missing values (refer Table 3.3). Vocational training is dropped only for 2004-05.

Table 3.3: Proportion of Missing Values in the Sample for the Indicators

Indicators	RNF Sector		Rural India	
	2004-05	2011-12	2004-05	2011-12
Member of trade union	**78.47**	**80.01**	**87.41**	**88.13**
Vocational Training	**62.3**	5.58	**66.16**	9.06
Collective bargaining	0.54	0.44	0.66	0.51
Hazardous Industries	0	0	0	0
Informal Employment	2.05	3.53	26.08	22.94
RW/SE not eligible for Paid leave entitlement	2.83	1.35	10.66	5.54
CL with no written contract	5.15	8.59	77.18	63.46
SE having own account worker	0	0	0	0
Part Time	0.25	0.17	0.36	0.18
Multiple Jobs	4.02	6.26	10.09	9.48
Alternative work	0.67	0.63	0.72	0.63
Temporary Employment	0.92	0.64	1.06	0.8

Source: Compiled from NSS EUS 61st and 68th Rounds (Government of India, 2004-05 and 2011-12)

Significance of Considered Indicators

To see the significance of indicators correlation among them is carried out (refer, tables 3.4 and 3.5). The high correlation among the variables indicates the presence of multi-collinearity. In the case of multi-collinearity, the variables are extremely highly correlated (greater than .90; >.90). Not any indicator is highly correlated with other during both the years i.e. 2004-05 and 2011-12. All Spearsman Correlation scores were less than .90 (indicated with level of significance). Since the results have neither indicated high correlation nor redundancy among the variables. The examination of the correlation matrices indicates that the extent of correlation is very less but significant among the selected indicators. It simply means that each indicator has its own significance in explaining the quality of employment.

Table 3.4: Correlation matrix of Selected Indicators (2004-05)

Indicators	Hazardous Work	Informal Employment	Full Time	Multiple Jobs	Alternate Work	Part Time	Collective Bargaining
Hazardous Work	1						
Informal Employment	-0.049	1					
Full Time	-0.008	0.01***	1				
Multiple Jobs	-0.027***	0.057***	-0.002	1			
Alternate Work	-0.009	0.077***	0.098***	0.069***	1		
Part Time	0.006***	0.229**	0.129***	-0.023**	0.184***	1	
Collective Bargaining	-0.046	0.349*	0.066	0.083	0.075	0.159*	1

Source: Compiled from NSS EUS 61st Round (2004-05)
*Notes: ***, **, * signifies level of significance at 1%, 5% and 10% respectively.*

Table 3.5: Correlation Matrix of Selected Indicators (2011-12)

Indicators	Hazardous Work	Informal Employment	Full Time	Multiple Jobs	Alternate Work	Part Time	Collective Bargaining	Member of Union	Vocational Training
Hazardous Work	1								
Informal Employment	0.013*	1							
Full Time	-0.014	0.053***	1						
Multiple Jobs	-0.035***	0.098***	0.029***	1					
Alternate Work	0.013	0.077***	0.071***	0.081***	1				
Part Time	0.077***	0.269***	0.137***	-0.019**	0.11***	1			
Collective Bargaining	-0.034	0.124*	0.046	0.076	0.058	0.191*	1		
Member of Union	0.02**	0.192***	0.059***	0.009	0.074***	0.158***	0.013	1	
Vocational Training	-0.027***	-0.079***	0.007	-0.006	-0.036***	-0.018**	0.01	-0.07	1

Source: Compiled from NSS EUS 68st Round (2011-12)

*Notes: ***, **, * signifies level of significance at 1%, 5% and 10% respectively.*

Stage III- Classification of Indicators

The selected indicators are then defined and classified for measuring the quality of employment.

Table 3.6: Definition and Classification of Indicators for Measuring Quality of Employment

Sr. No	**Indicator**	**Definition**	**Measure in NSS**	**Classification for defining Quality**
1	Exposure to physical health risk factors at work	Percentage of employed persons who are exposed to physical health risk factors at work	Industries Involving hazardous processes overall (Factory Act, 1987), NIC-1998 and 2008	Persons involved in activities/industries includes hazardous processes or materials=Low quality; otherwise=not low quality
2	**Informal Employment**			Persons 2a, 2b, 2c= low quality; otherwise not low quality
2a	Regular Workers without Paid Leave Entitlement	Percentage of employed persons who worked as regular wage/salary earner but don't have any paid leave entitlement	Eligible for Paid Leave or Not?	Persons who worked as regular wage/salary earner but don't have any paid leave entitlement
2b	Casual Workers with no Written Contract	Percentage of the employed persons who worked as casual labour in public works other than MGNREG, MGNREG and other types of works and also don't have any written contact in their job	Type of Contract -No contract	Persons who worked as casual labour in public works other than MGNREG, MGNREG and other types of works and also don't have any written contact in their job
2c	Own account workers	Percentage of those self-employed persons who operated their enterprises on their own account or with one or a few partners and who, during the reference period, by and large, ran their enterprise without hiring any labour was considered as own-account workers.	Employment Status-Own Account Workers	Own Account workers
3	Involuntary part-time work	Percentage of employed persons working part time	Whether worked as part time or full time?	Persons in Part time Work=low quality, otherwise=not low quality
4	Multiple job holders	Percentage of employed persons who have more than one job (One is Principal occupation whereas another is subsidiary occupation	UPS and USS	Persons with Multiple Jobs=low quality; otherwise=not low quality
5	Alternate Work	Percentage of employees who had sought or were available for an alternative work	Seeking alternate job because workplace is too far	Persons had sought or available for alternative work=lower quality; otherwise=not lower

6	Temporary employment	Percentage of employed persons as temporary workers	Whether in Temporary or Permanent job?	Persons in temporary employment= low quality; otherwise= not low quality
7	Collective bargaining coverage rate	Percentage of employees covered by collective bargaining agreements i.e. trade union exists in their respective activity	Can be checked is there any union/ association in your activity?	Existence of trade union the respective activity of employed person=low; otherwise= not low quality
8	Trade union density rate	Percentage of employees who are not members of any trade union	Member of Trade union or no\t?	Persons who are not members of any trade union=low quality; otherwise=not low quality
9	Vocational Training	Percentage of employed persons who have not received or receiving any vocational training	Vocational Training (given in dataset -for persons of age 15 to 59 years)	Persons who have not received or receiving any vocational training= low quality; otherwise=not low quality

Source: Compiled from NSS EUS 61st and 68th Rounds (Government of India, 2004-05 and 2011-12)

Table 3.4 describes in detail how the indicators are classified from the existing indicators to capture the quality of employment in rural India as well for RNF sector.

Stage IV Aggregation

The final stage of the procedure elaborates the aggregation process. There are various types of techniques used for aggregation in literature. But our technique of aggregation is based on number of indicators used since the selected indicators are equally important to capture the quality. The deprivation score is calculated to represent the incidence of people working under low quality employment.

$$\text{Deprivation} = \sum_{i=1}^{8} Deprived_i$$

Where i= Number of Indicator the person is deprived in

The aggregation technique describes the poor state of quality of employment as follows:

0- Not deprived in any indictor
1- Deprived in any one of the indicators
2- Deprived in any two of the Indicators
3- Deprived in any three of the Indicators
4- Deprived in any four of the Indicators
5- Deprived in any five of the Indicators
6- Deprived in any six of the Indicators
7- Deprived in any seven of the Indicators
8- Deprived in any all of the Indicators

Finally the deprivation score is represented in percentage to make the estimates understandable.

3.3. Statistical Tools and Techniques

3.4.1. Ordinary Least Square

The study uses Ordinary Least Square model for estimating macro determinants of poverty as well as macro determinants of RNF employment.

The following functional form has been applied to study the impact of various factors affecting the RNF Employment.

$$RNF_{it}=\alpha+\sum_{j=1}^{n}\beta_j X_{ji}+m_i$$

Where RNF= Proportion of RNF workers as percentage of total workers; i for districts; j for explanatory variables; α and β are parameters to be estimated; m is the random unobserved disturbance with zero mean and a constant variance. The explanatory variables are as follows:

Agri_NDDP = Percentage of Net District Domestic Product of Agriculture to total NDDP

RLIT = Rural literacy rate

URB = Urbanisation (percentage of urban population)

ELEC = Percentage of villages electrified

BPL= Proportion of poor as percentage of total population

POP_D= Density of population (person/square km)

NON_W= Non-Farm Wages (in Rs.)

Another Functional form has been used to see the impact of macro indicators on Poverty as:

$$BPL_{it}=\alpha+\sum_{j=1}^{n}\beta_j X_{ji}+m_i$$

Where BPL= Proportion of poor as percentage of total population

Agri_NDDP = Percentage of Net District Domestic Product of Agriculture to total NDDP

URB = Urbanisation (percentage of urban population)

ELEC = Percentage of villages electrified

RNF= Proportion of RNF workers as percentage of total workers

POP_D= Density of population (person/square km)

Agri_W= Agriculture Wages (in Rs.)

3.4.2. Logistic Regression

The study uses logistic regression model to examine the factors determining the probability of being poor. Here the relationship is to be established between the categorical dependent

variable (BPL= 1, if the household is poor and 0, if the household is non-poor) with one or more continuous as well as categorical independent variables. Using OLS, in this case, will violate the assumptions of OLS, that is, a) the extremes do not follow a linear trend, and b) the errors are neither normally distributed nor constant across the entire range of data. Thus, logistic regression mathematically solves this problem by applying the logit transformation (the natural logarithm of an odds ratio) to the dependent variable (Anyanwu, 2013; Peng et al., 2002). Some studies have used a logit model to identify the determinants either for the adoption of RNF employment (Abraham, 2009; Jatav and Sen, 2013; Khatun and Roy, 2012) or determinants of poverty (Anyanwu, 2013; Arora and Singh, 2015). Nevertheless, studies finding the factors of poverty for non-farm sector at macro as well as at macro level are relatively scant. The present study examines the level-specific factors of poverty (macro as well as micro). The set of independent variables has been used to examine their impact (as described in Table 5.1 in chapter 5) on the probability of being poor in non-farm sector from 1993-94 to 2011-12. The results are expressed in terms of odds ratio and value of odds ratio describes the extent of the probability of becoming poor while being employed in a particular sector. The odds value more than one indicates that the odds are in favour of happening of the event (more probability of being poor) otherwise, the odds are against the event (more probability of being non-poor).

The mathematical interpretation of the model used in the study is as follows:

In the model, the dependent variable is defined as 1 for household's Monthly Per Capita Consumption Expenditure (MPCE) below the poverty line (poor) and 0 if it is equals or above the poverty line (non-poor). The probability of being poor depends on a set of variables (continuous as well as categorical) as listed in Table 1 and denoted as *x* so that:

$$Pr\ (Y=1) = f\ (\beta' x)$$

$$Pr\ (Y=0) = 1 - f\ (\beta' x)$$

Using the logistic distribution, we have:

$$Pr\ (Y=1) = \frac{e^{\beta' x}}{1+e^{\beta' x}}$$

$$= \lambda\ (\beta' x)$$

Where, λ represents the logistic cumulative distribution function.

$$\text{Thus, } E[y/x] = 0\ [1 - f\ (\beta' x)] + 1\ [f\ (\beta' x)]$$

$$= f\ (\beta' x)$$

The results of the regression are meant to strengthen and clarify the descriptive analysis as well as focus on the factors that can lead to the sustainability of poverty reduction in rural India.

3.4.3. Multinomial Logit Regression Model

Two types of factors are responsible for the movement of workers from farm to non-farm sectors: the push factors and the pull factors (Ranjan 2009; Reddy et al. 2014). An individual either is being pushed to join RNFS due to the inadequacy of work in farm sector or he/she is pulled by the better employment opportunities in RNFS. To understand the causes responsible for the shift of workers from farm to non-farm activities, regression analysis has been applied. Some scholars have used logit model for investigating the determinants of RNF occupation (Ranjan, 2008; Abraham, 2009; Khatun and Roy, 2012; Jatav and Sen, 2013). The present study not only examines the determinants of RNF occupation but also focuses on the kinds of non-farm occupations (self-employment, casual employment or regular employment). So, instead of using simple logit model, it applies *Multinomial Logit Model* which takes more than one values for the dependent variable. Since there is no precise ordering of the outcome variable, an unordered multinomial logit model is appropriate (Lanjouw and Shariff, 2004; Cameron and Trivedi, 2005).

For rigorous analysis, factors affecting the adoption of RNFE as occupation have been studied separately for the household as well as for the individual. The household level variables taken under consideration are land owned, social group, household size, and Monthly Per Capita Expenditure (MPCE); whereas for individual level, general education, technical education, age, and gender are used as variables. To club both the factors may lead to inadequacies as some of the factors are being estimated only at the household level, and same cannot be meaningfully equated at the individual level (such as MPCE, land owned, social group, household size, etc.), so two separate models are used for examining the determinants.

3.4.3.1.Multinomial Logit Model

Multinomial Logit (MNL) Regression Model is applied when the dependent variable is categorized with more than two alternatives and such alternatives are not in any specific order. Thus, it is an extension of the logit model, which analyzes dichotomous (binary) dependents. The simplest MNL model, proposed by Luce in 1959, can be thought of as simultaneously estimating binary logits for all alternatives (here, different occupations). The model contains the structural assumption, i.e., independence from irrelevant alternatives (IIA), that the relative odds of two alternatives are independent of the attributes, or even the presence**,** of a third alternative. Following Cameron and Trivedi (2005) , the description of the model can be given as:

There are J unordered occupations, out of which one is chosen by defining a latent variable which is denoted as V^*_{nj}. V^*_{nj} of an individual n choosing occupation j = 1, ..., J is

$$V^*_{nj} = x'_n \beta_j + \varepsilon_{nj} \quad \ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

There are J error terms ε_{nj} for any individual n. The variables x'_n are exogenous variables which describe only the individual and are identical across occupations. However, the parameter β_j differs across occupations. An individual n chooses occupation j if it offers the highest value of V^*_{nj}. Thus the observed choice symbolizes as y_n of an individual n is represented as:

$$y_n = \begin{cases} 1 \text{ if } V^*_{n1} \geq V^*_{ni} \text{ for all } i \\ 2 \text{ if } V^*_{n2} \geq V^*_{ni} \text{ for all } i \\ \vdots \\ J \text{ if } V^*_{nj} \geq V^*_{ni} \text{ for all } i \end{cases}$$

Note that this implies that the choice only depends on the *difference* of usefulness offered by an occupation and not on the level (order) of usefulness. The MNL model assumes that the error terms used in equation (1) follow independently and identically an extreme value distribution. The cumulative distribution function for error term is

$$F(\varepsilon_{nj}) = e^{-e^{-\varepsilon_{nj}}}$$

And also the probability that an individual n chooses occupation j, i.e., the probability of observed choice given the different occupations for the same group of individuals is represented as

$$P_{nj} = P(y_n = j|x_n) = \frac{e^{x'n\beta_j}}{\sum_{l=1}^{j} e^{x'n\beta_i}}$$

The probability in such kinds of choice models is calculated by using odds ratio. An odds ratio is a measure of association between acceptance and non-acceptance of an occupation. It represents that an outcome will occur given a particular occupation, compared to the odds of the outcome occurring in the absence of that occupation. The odds ratio in this model is calculated as given by the equation below. It depicts that the odds ratio (P_{nj}/P_{ni}) depends log-linearly on x_n

$$log\left(\frac{Pnj}{Pni}\right) = x'_n(\beta_j - \beta_i)$$

Where the parameter vectors β_j, j = 1, ..., J are not uniquely defined: any vector q added to all vectors $\beta^*_j = \beta_j + q$ cancels in the choice probabilities P_{nj}

$$P_{nj} = \frac{e^{x'n(\beta_j+q)}}{\sum_{l=1}^{j} e^{x'n(\beta_i+q)}} = \frac{e^q e^{x'n\beta_j}}{e^q \sum_{l=1}^{j} e^{x'n\beta_i}} = \frac{e^{x'n\beta_j}}{\sum_{l=1}^{j} e^{x'n\beta_i}}$$

The β_j's are usually identified by setting the $\beta_i = 0$ for one *reference occupation category i*.

3.4.3.2. Interpretation of the Model

In particular, for MNL models, a positive regression parameter does not mean that an increase in the regressor leads to an increase in the probability of that alternative. Instead, interpretation for the MNL model is relative to the reference or base category group (here Casual Labour in Farm (CLF)), which is the alternative normalized to have coefficients equal to zero. The interpretations will vary according to which alternative (occupation) is normalized to have zero coefficient, and for this interpretation to be really useful, the model should have a naturally accepted base category.

3.5. Summing up

The chapter explains various data sources and methodology used to explain the issues related to RNFE for different regions of India. To achieve the set objectives, several econometric and statistical tools and techniques are used for the data analysis to arrive at some concrete conclusions.

CHAPTER-4 RURAL NON-FARM SECTOR: UNDERSTANDING DEFINITIONAL AMBIGUITIES

4.1.Introduction

The concept of Rural Non-Farm Sector (RNFS) is old but poorly understood phenomenon of the rural economy. Its inception has been recognized since long. But still it is lacking a precisely defined connotation. The two sector conventional development models of Lewis (1954), Fei and Ranis (1964) explain the phenomenon through unlimited supply of labour followed by migration model of Harris and Todaro (1970), and agricultural sector growth through linkages by Mellor and Lele (1972), but in all these models RNFS is not explicitly considered. The RNFS terminology came into use only after the commencement of survival, coping and livelihood strategies and the scholars like Oshima (1971), Hymer and Resnick (1969) and Byerlee and Eicher (1972) started using it as a separate and distinct sector for analytical purposes. These scholars have suggested to use a tri-sector model (capital intensive non-agricultural sector, labour intensive non-agricultural sector and labor intensive agriculture) for studying employment creation because in dual sector models it is difficult to incorporate non-leisure non-agricultural activities (Liedholm, 1973). In India, specifically the involvement of RNFS has been explained by Borkar (2013) through three stages of growth of the sector. Initially started from development of handicrafts and artificial industry, in 1920s' (started by Mahatma Gandhi's Charkha movement) followed by establishment of co-operative system in rural area for providing them financial assistance in the second stage and at the later stage after 1990's openness and policy reforms led to the development of the overall sector.

Although the RNFS is being perceived as the growth engine these days; there are still some ambiguities regarding its definition. Its definition is not clear and specific i.e. what should be included in it or what should not? Even there is no standard definition of RNFS being followed at national or international level. And, one of the main reasons for heterogeneity of RNFS is the absence of clarity of location and inclusion of activities within the sector. The location of activities is itself suggested by the name i.e. non-farm activities which are performed within the vicinity of rural area but what is rural is itself a question because definition of rural is not uniform across nations or within the nation. Also, the non-farm activities do not hold the same meaning across nations. Hence, it leads to dissimilarity in definition of RNFS. Some of the scholars have taken a narrow definition of RNFS i.e. limited to rural area only (Fisher and Mahajan 1997; Panda, 2012; Start and Johnson 2004;

Davis et. al 2003; Lanjouw and Lanjouw 2001), while others are focusing upon broader perspective by taking linkages into consideration (Saith 1992; Haggblade et al. 2007; Islam 1997; Barrett and Reardon 2000; Davis and Bezemer 2003).

Thus, a single and common definition is required to have the idea about exact estimation of the sector. This definition would serve the purpose of inter-state, inter-region and also inter-country comparisons which till date are ambiguous and need to be defined. First of all, it should be clear from the parameter or basis on which it is to be calculated i.e. income, activity and employment etc (Wiggins & Davis, 2003). This chapter looks into this issue through different sections. The second section starts with the description of the problems in defining the standard definition of the sector. Section third deals with classification of RNF economy on the basis of reviewed literature which should be used while estimation. The next and main section describes the definitional ambiguities of terminology associated while defining RNFS and finally suggests a synthesized approach for the estimation of RNFE.

4.2. Problems in Formulating a Standard Definition for the Sector

Some key issues have been raised by various scholars which hinder the following of standard format for defining RNFS. Among them, major highlighting problems are as follows:

4.2.1. Sectoral or Functional Definition

Ideally, there should be a single standard national accounting sectoral classification but in practice, analysts are constrained by the design of the survey data they have to work with (farm versus non-farm). Researchers analysing diversification behaviours must be clear on the definitions of the different terms used (Barrett et al. 2001; Kaija, 2007). The sectoral basis of farm versus non-farm categories is suggested by a number of authors including Barrett et al. (2001), Barrett and Reardon (2000). The sectoral farm/non-farm classification concerns only the nature of the product and the types of factors used in the production process. It does not matter where the activity takes place, at what scale, with what technology or whether the participant earns profit or labour income from the activity. The use of the locational classification is due to limitations of the design of the survey data. Farm wage income and non-farm wage income data were collected as employment income.

4.2.2. Unit of Analysis

The non-agricultural employment can be looked into from several ways: household, head of the household and individual. The first way to define is on the basis of occupation of household as a unit. Here the focus is on the activity which the author wants to explore.

Second way is to define on the basis of principal activity, which is the source of income for a household. Here head of the household forms the main unit of analysis. Third way, looks into the main occupation or activity of each member of the household. Here individual is the unit of analysis. Household surveys or censuses provide this kind of detailed information.

According to Davis and Bezemer (2003), the unit of analysis plays important role in determining the source of income or employment. Individuals and households form the two important units. The individual as a unit is an independent unit whereas household as a unit is dependent on the social and cultural circumstances prevailing. For instance, smaller units may be relevant in case of joint families or there can be case of larger units which are run by household's collaborations. Thus, the unit of analysis may be specified in certain context to study the employment or income sources of an individual as well as of a household.

4.2.3. Data Inadequacy

The detailed analysis regarding various concepts and definitions of the RNFS lacks readily available data for testing or validating the hypothesis and conditions. And sometimes, it becomes difficult to incorporate the latest used terminology to update the concept just because of data unavailability or lack of data availability in specific form which is required. So it becomes very difficult to generalize the concepts or terms related to RNFS for different regions and countries. Moreover, the norms and standards for defining two terms "Rural" and "Rural Non-Farm" is altogether different for different regions. First deals with the location and other deals with the activities. Therefore, it is not easy to make a generalized definition which can be used across countries or regions for comparisons (Islam, 1997). Generally, the problem arises with the format of the data available.

- First, the data is available for different activities or sources of income for particular set of rural households but these households do not necessarily cover the entire region or district. Moreover, sometimes this set is even not representative sample of the region.
- Recently, the role of RNFS has increased because people are engaging themselves in part time occupations or can work in this sector during free time or can work in subsidiary occupation. But in most of the data available regarding these activities, less preference is given to the subsidiary occupation. However, NSS has tried to overcome some of the issues regarding subsidiary employment; still the data regarding the workers working in other areas except rural area for subsidiary occupation is missing or excluded. That is, the data regarding the daily commuters who engage themselves in employment is missing.

- Also the information regarding the small enterprises or small size self-employed enterprises is usually ignored while collecting the data.

For both analytical and policy purposes it is necessary to study this sector with much clarity and caution as its contribution to the income and employment generation is increasing day by day. Most of the definitions and concepts regarding this sector have fuzziness. And to avoid this debate and ambiguities, generally the simplest definition of the sector is used i.e. rural which is defined by the state/region/country and non-farm includes, industrial and services activities.

4.3. Classification for Estimation of RNF Employment

Keeping in view the aforementioned problems and views given by other economists for defining RNFS, the basis on which measurement is done, should be clear beforehand. In simple words, what is the unit or variable/determinant to estimate the RNFE? On the basis of vast review available, first we should make it clear what we have for calculating the share whether it is income, whether it is activity, whether it is type of employment or whether it is capital which is to be measured to estimate the share of the particular sector. The distinction among the scales of measurement also highlights the use of proper terminology for calculation i.e. whether we are going to examine **RNF employment or RNF Income**[8]. Thus, on the basis of different measurement scales, categorization can be done as follows:

According to Wiggins and Davis (2003), RNF economy can be classified by at least three categories: the activities undertaken; employment and the use of labour time; and incomes generated. These clearly overlap, particularly for incomes, since the majority of rural income arises from payments to factors used in activities and from employment. Choice of category depends in part on the subject of interest: those interested in sectors and enterprises development tend to choose activities; and those interested in welfare and poverty would look at jobs and incomes. Let us look briefly at employment classifications and then those for activities.

4.3.1. Activity Classification

The classification on the basis of activity clearly states the activities which come under the categorization of the RNF sector. For defining activity, it is important to know first about the sector and debates related to this. Majority of the scholars have opined or described Non-Farm as the activity outside agriculture hence in manufactures and services (Reardon et al,

[8]While estimating the employment, location of activity plays important role whereas while estimating the income location of person where he is getting the money, plays important role.

2007). In line with this, Central Product Classification (CPC) designed by the UN has defined the list of three sectors comprising activities: a) *Primary* includes Agriculture, forestry, fishing, mining and quarrying, energy and water, b) *Secondary includes* Food, drink, tobacco, textiles, leather, Wood, fuels, chemicals, rubber, glass, furniture, metals, machinery, equipment and c) *Tertiary* includes construction, distributive trade, accommodation, transport and utilities, wholesale and retail distribution, food and accommodation, transport, utility distribution, financial and related services, business and professional services, community, social and personal services (Wiggins and Davis 2003).

In Indian context, National Industrial Classification (NIC) provided by Government of India, provides list of categories for activity classification. As per farm, non-farm classification we can use this list to categorize under the subheads as described in Figure 3.3 in chapter 3.

4.3.2. Income Classifications

Income classifications have the advantage that they include sources that do not derive from activity and employment, such as transfers and rents, and if one is only interested in strictly local and rural elements of the RNFE, remittances as well (Davis and Bezemer 2003).

By defining rural economic diversification as all rural income generation other than food production, a great heterogeneity in the activities undertaken by, or sources of income of, rural households and enterprises is implied (Start, 2001). This 'bewildering diversity' (Haggblade et al., 2002) presents problems of concepts and definitions relating to both the unit of measurement and the definition of incomes and activities (Barrett *et al.*, 2001; Reardon *et al.*, 2007). In response, many dichotomies or categorizations have been used in empirical research to address the above problems of defining and measuring the RNFE, such as off/ on-farm, business/wage income, local/urban activities, earned/non-earned income, tradable/ non-tradable, activity-based/income-based, etc (Wiggins and Davis 2003). According to Davis and Pearce (2001), RNF sector can be defined on the basis of income classification which mainly includes income from non-farm enterprises, non-agricultural employment, non-home farm agricultural employment and unearned income (pensions, dividends and interest etc.) (refer, Figure 3.4 in chapter 3).

Accordingly, incomes accruing to the members of the households residing in the rural areas and pursuing all such non-farm activities are rural non-farm incomes. Islam (1997) shows that different sources of rural non-farm incomes can be distinguished as i) income earned from non-farm activities in rural areas, whether earn within the household or

outside, in self-employment and wage employment; ii) income earned by rural households through commuting to work in towns or cities; iii) income obtained through remittances from household members migrated to other cities or states or countries.

Unfortunately, the NSS does not collect data on income from self-employment. Since the self-employed workers make up 50 percent of the rural nonfarm workforce, that makes it impossible to analyze changes in the income of the nonfarm workforce. Also the figures for unearned income are not given in the data. Our discussion is perforce restricted to the employed nonfarm workforce.

4.3.3. Employment Classifications

On the basis of employment categories the RNF economy may be defined as comprising all those non-agricultural activities which generate income to rural households (including income in-kind and remittances), either through waged work or in self-employment (Davis and Bezemer 2003).

Lanjouw and Lanjouw (2001) distinguish the activities in the non-farm sector in terms of productivity. According to them there are two different groups of occupations within the non-farm sector: low labour productivity activities serving as a residual source of employment and high labour productivity activities. Low return activities can maintain households above the poverty line; they usually do not foster growth. In the present chapter, we have taken into account the activity classifications as the income data cannot be captured through NSS dataset. The data regarding income of specific employment type along with non-earned income is difficult to estimate from the provided dataset.

The estimation process of RNF employment on the basis of different approaches has been explained through different stages. At first stage we have explained the definitional ambiguities in defining the term Rural, Non-farm, Off-Farm and On-Farm. At second stage, the meaning of narrow and broad definition on the basis of literature review is described to have an understanding about the concept. At third or final stage, the estimation on the basis of four parameters is defined and further calculation is done to show the inadequate estimation of the particular sector.

4.4. Rural Non-Farm Sector: Ambiguous and Imprecise

The word itself is heterogeneous as it consists of two words depicting the heterogeneity of meanings i.e. Rural+ Non- Farm. The literature contains heterogeneous definitions of *'Rural'* along with heterogeneity in defining *'Non-Farm'* at international as well as national level. Thus, in order to understand the full meaning of RNFE, we must know what does

Rural and *Non-Farm* comprise. The meaning of 'rural' in rural non-farm employment is critical in understanding its nature; importance and viability (Lanjouw and Lanjouw, 1995).

The terminologies used for defining RNFS has not remained the same. But the need for proper specified sector is essential as the economy develops and role of this sector goes on increasing. There are certain reasons behind defining the RNF inappropriately for measurement purposes and depicting the ambiguities in what this sector comprises or what not? Sometimes, it is termed as non-agriculture and other times it is called as non-farm. It becomes important to clarify some concepts related to non-farm which are synonymously used for this particular sector. This gap in our knowledge is the product of the sector's great heterogeneity, coupled with inadequate attention at both the empirical and theoretical level (Lanjouw and Lanjouw 2001).

The standard definition of this sector is not there because the criteria to fix what 'Rural' is?, is not there at any of the levels i.e. national or international in the literature. It is not surprising that the term 'rural' does not have a conventional definition, unlike 'poverty line' whose definition has been made easier by the World Bank (although some countries still have their own poverty benchmarks). While 'poverty' or 'poverty line' could be easily monetized, 'rural' or 'rurality' cannot. This, thus, makes it expedient for each country to have its own rural threshold, using its self-determined criteria. The term rural evades consensual definition to the extent that even within some countries, there are differing definitions of 'rural'(Adisa, 2011).

The heterogeneity in defining *'Rural'* is listed in Table 4.1. In essence, rural could be defined in varying contexts depending on where and what criteria are used. Using some sociologically idealized models of differentiation, Ekong (2010) identifies 'very general' differences in the rural-urban typology by stating that rural communities apt to be inhabiting in a smaller size of area with smaller number of inhabitants and being less heterogeneous than the urban counterparts. Rural tends to be closer to the physical environment elements comprising soil, wind, radiations, microorganisms and parasites. In rural communities, farming and other primary production occupies center stage unlike commerce and industry in urban counterparts. Rural areas tend to have unmixed culture, lesser trends for high fashion, music and literature. Rural dwellers move slowly form one level to another while their urban counterparts move rapidly. Rural areas are made of several similar independent units having very little division of labour and specialization. There is greater internalization of social values in rural areas showing higher levels of social control, while their urban counterparts rely more on formal institutions.

The definition of Rural in Asia is associated with the settlement of population 5000 or less. In Latin America this cut off point is 2000 to 2500 persons. OECD (1996) defines predominantly rural area where more than 50 percent of the population live in rural community and significant rural areas where this proportion of inhabitants in rural communities varies between 15-50 percent. In the Indian context, however, apart from the statutory municipal towns, 'urban' is define based on demographic and economic criteria of settlements with population of more than 5000, a density of 400 persons per square km and 75 percent of male workforce in the non-agricultural sector. All the residual areas which do not fall under the above definition of urban are treated as rural (Islam 1997).

Table 4.1: National and International Definitions of Rural Area

Author/Institution/ Authority	Country	Rural Area
NABARD, 1994	India	Include settlements having 20000 or fewer inhabitants
Census of India (2011)	India	Rural is defined in reference to urban area and Urban Area is defined as: 1. All places with a municipality, corporation, cantonment board or notified town area committee, etc. 2. All other places which satisfied the following criteria: i) A minimum population of 5,000; ii) At least 75 per cent of the male main working population engaged in non-agricultural pursuits; and iii) A density of population of at least 400 persons per sq. km.
Haggblade et al. (2002)	Developing Countries of Third World: Africa, Asia (West Asia and North Africa) and Latin America	Concentrations of 5000 or less. Specifically Latin America-2000 to 2500 persons Asia- the settlement with population 5000 or less
Kilby and Liedholm (1986)	Guatemala, Thailand, Sierra Leone, South Korea, Pakistan, Nigeria, India, Uganda, Afghanistan, Mexico, Colombia, Indonesia, Venezuela, Kenya, Philippines, W. Malaysia, Iran, Taiwan	Used definition by United Nations stating 20,000 inhabitants or less
Lanjouw and Lanjouw (1995)	Asia and Africa	less than 3000 and 2500 inhabitants in Mali and Zimbabwe
Kaija (2007) adopted the Uganda Bureau of Statistics (UBOS)	Uganda	areas that do not fall under the jurisdiction of a city, municipality, town or urban boards
US Census Bureau	USA	Rural areas comprise open countryside and settlements with fewer than 2,500 residents.

Davis and Bezemer (2003) used definition by OECD (1996)		Predominantly Rural areas: more than 50% of the population live in rural community Significant Rural Areas: proportion of inhabitants in rural communities varies between 15-50%.
Haggblade et al. (2007)	Africa, Asia and Latin America	Official cut-offs refer to concentrations of 5,000 people or less. Because of important functional linkages between small towns and surrounding rural farms and settlements, study adopts a more expansive definition of "rural regions," which include not only rural households but also small settlements and towns closely linked to their surrounding agricultural areas. Where data permit, discussion in this book encompasses nonfarm activity in rural regions of the developing world, including the many nonfarm enterprises operating in small regional towns

Source: Author's Own Compilation based on the Literature

In an analysis of 18 developing countries, Liedholm (1973) observes that the definitions of rural and urban areas vary widely from country to country. In Ghana, for example, the threshold population for an urban area is 5,000 inhabitants, while in Kenya and Nigeria the figures are 2,000 and 20,000 respectively. For reasons of simplicity and comparability, however, the author has adopted the standard definitions of urban and rural used by the United Nations according to which those with fewer than 20,000 inhabitants are defined as rural.

According to Gordon and Craig (2001), rural is another term that is subject to a lot of debate that hinges on three aspects namely: whether towns in predominantly rural areas are classified as rural or urban; at what size a rural settlement becomes urban; and the treatment of migration and commuting between rural areas and towns. There is no firm rule that resolves these issues but researchers should always ensure that the definition adopted is clearly stated. In their study, the definition of rural is adopted from the Uganda Bureau of Statistics (UBOS). Rural areas are defined to include areas that do not fall under the jurisdiction of a city, municipality, town or urban boards. This kind of definition eliminates the urban rather than narrating what comprises a rural area (Kaija 2007) whereas according to Haggblade et al. (2002) **r**ural regions also include small towns closely linked to surrounding agricultural areas.

4.4.1. Defining Rural India

For the Census of India 2011, the definition of urban area is as follow:

1. All places with a municipality, corporation, cantonment board or notified town area committee, etc.

2. All other places which satisfied the following criteria:

i) A minimum population of 5,000;

ii) At least 75 per cent of the male main working population engaged in non-agricultural pursuits; and

iii) A density of population of at least 400 persons per sq. km.

The first category of urban units is known as Statutory Towns. These towns are notified under law by the concerned State/UT Government and have local bodies like municipal corporations, municipalities, municipal committees, etc., irrespective of their demographic characteristics as reckoned on 31st December 2009.

NSSO also defines the rural and urban area. The definition of the urban area is as defined by the census of India. The areas other than the urban are termed as rural areas. Whole villages as well as part villages[9] make the rural areas according to NSS definition. During inter-census periods some rural areas may be urbanised and some urban areas may be categorized as rural. According to survey procedure, if by chance area survey as rural is urbanized; would not be surveyed again as urban area and vice-versa. Such cases, however, are extremely rare. So the classification defined already at the time of survey will be used. For instance for 2004-05 and 2009-10 survey, 2001 census classification is used for defining the rural area.

Thus, there are number of studies to quote for depicting the dissimilarity in defining rural areas. The definition of '*Rural'* areas cannot be altered because it is classified on the basis of country's own geographical and population classification rather focus will be on altering the definition of non-farm sector. Hence, to define the rural non-farm sector, the rural area will be used as per the country's own definition and main debate will be on estimation of RNF employment. In this chapter for estimating the RNF sector, we have used the definition of rural as per NSSO[10] because the whole procedure of estimation is based on EUS datasets provided by NSSO.

Before stating the existing definitions of the RNFS, there are some terminologies which should be taken care of while studying RNFE. Without having conceptual clarification of such terms may cause serious problems in accurate estimation of the sector and employment existing in the sector. These are- off-farm, on farm and non-farm; non-agriculture and non-farm; agriculture and farm. Thus, difference among these terms should be made clear before starting.

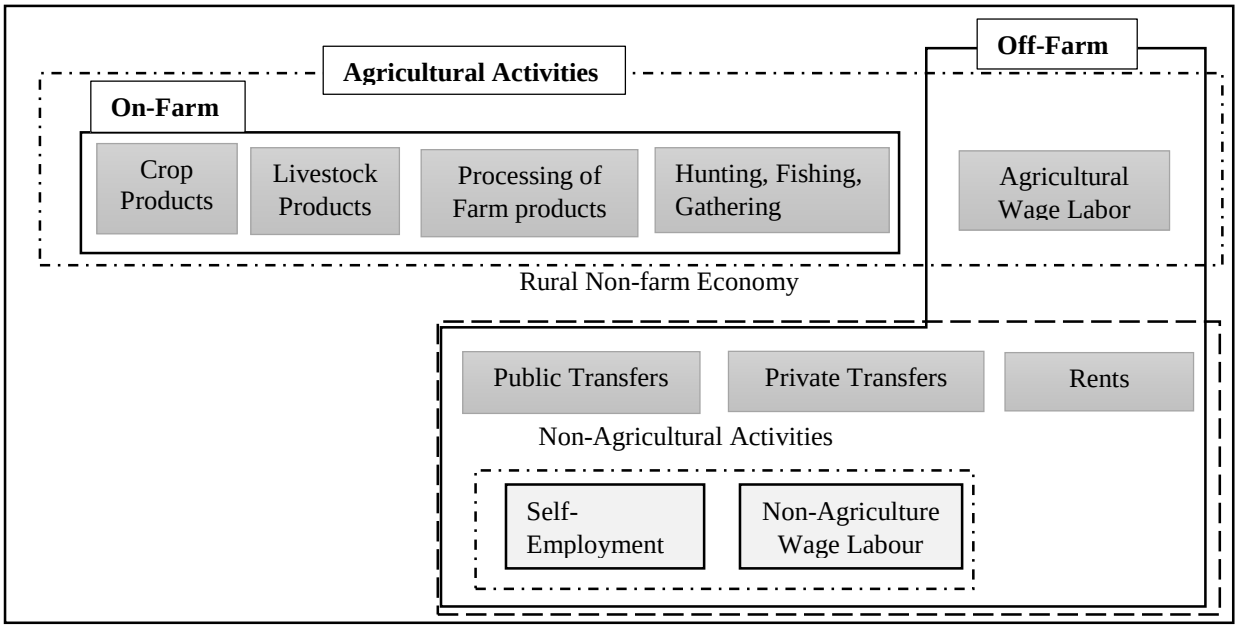
[9]A villages comprises hamlets and rural part of the revenue hamlet is termed as part village

[10] The classification of urban area is based on Census of India, 2001 and 2011, Government of India.

4.4.2. On-Farm, Off-Farm and Non-Farm

Two related definitions sometimes cause confusion and therefore merit explicit distinction. Many studies have focused solely on rural manufacturing, which they refer to as RNF industry. Since manufacturing constitutes only one component of total rural non-farm activity, it forms a small part of the overall RNF employment. Likewise, some agriculturally focused studies measure 'off-farm' income or employment. By this, they usually mean 'off the owner's own farm'. Consequently, off-farm income includes wage employment in agriculture earned on other peoples' farms together with non-farm earnings. RNF income earned in the RNFE is thus smaller than total off-farm income by the amount of wage earnings in agriculture (Haggblade et al. 2002). An on-farm employment indicates the involvement in agriculture only, that is, mainly related to crop plantation related process from sowing to harvesting which need to be performed on farm only. Furthermore, the casual work for wages can be in agriculture or non-agricultural activities, but it would definitely not be on the own farm. Income from wages and receipts from non-farm businesses are together grouped as off-farm income of farmers (Jha, 2011).

Figure 4.1: Classification of Rural Activities and Income



Source: Losch et.al. (2012), (p- 120)

The term 'non-farm' should not be confused with 'off-farm'. The latter generally refers to activities undertaken away from the household's own farm, and some authors (e.g. Ellis, 1999) use it to refer exclusively to agricultural labouring on someone else's land, so 'off-farm' used in this sense would not fall within the normal definition of 'non-farm' (Kumar 2008).

The terms non-farm and off-farm employment are frequently used synonymously, but, in fact have different definitions. RNFE includes local non-farm employment but also urban jobs, unearned income from pensions and alike, as well as remittances from intra-national and international migration (Start, 2001). Ellis (1999) defines off-farm employment as wage labour on other farms, whereas Barrett, Reardon and Webb (2001) refer to it as all activities away from the farmer`s own property (spatial definition). According to Barrett et al. (2001), off-farm employment includes all activities defined under the term RNFE as well as wage labour on other farms. For better distinction, however, the majority of scholars use the term non-farm employment such that it excludes wage labour on other farms (Buchenrieder, 2005).

4.4.3. Farm and Agriculture

In addition to differences in location, there is also the question of what is considered a nonfarm activity. The rural activities are divided into six categories: (1) crop production, (2) livestock production, (3) agricultural wage employment, (4) non-agricultural wage employment, (5) non-agricultural self-employment, and (6) transfers (private and public) (Davis et al., 2007). The first three categories are considered "agricultural" activities, while the last three are "non-agricultural" activities. Further, the first two categories are "on-farm" activities, while categories 4 and 5 are "non-farm" activities. Agricultural wage labor is always considered an "off-farm" activity, but that term can be misleading. Sometimes it is used exclusively to apply to agricultural wage labor, and other times it is used to refer to all activities that are not conducted on a household's farm.

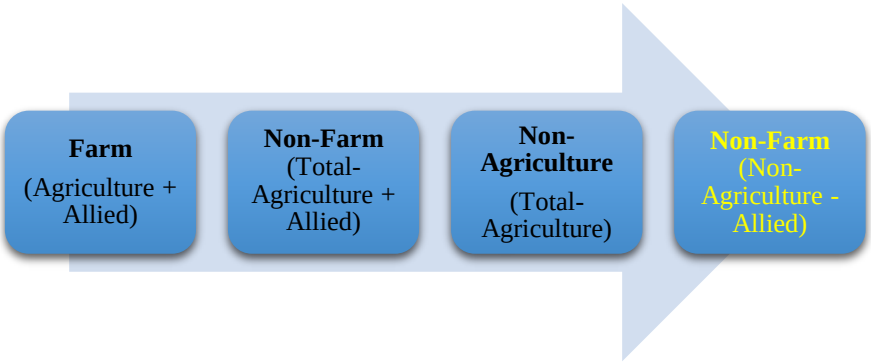
Data on the various components of the rural non-farm sector are often not given separately but are lumped together. In literature, RNFS is synonymously used with non-agriculture sector. But it is not true as farm is a broader term than agriculture as it is the addition/summation of the agriculture and other allied activities. Thus, non-farm explicitly includes industrial and service activities (excluding agriculture and allied activities) (Saith, 1992).

The RNF economy might include agro-processing, the setting up of a small business, or the receipt of transfer payments such as interest, dividends or remittances from temporary, seasonal or permanent migration. The RNFE incorporates jobs which range from those requiring significant access to assets, such as education or credit, to self-employed activities such as the roadside 'hawking' of commodities which have low barriers to entry and low asset requirements (Davis and Pearce, 2001). As regards to the concept itself, it could be argued that the term 'RNFE', although in common usage is technically incorrect, as non-

agricultural activities may actually take place on farms (refer, Figure 4.2). Thus, although the *rural non-agricultural economy* would be a more accurate definition, the terminology confirms to usage in the literature, where the focus is often on 'farm' versus 'non-farm' or 'on farm' versus 'off-farm' activities (Davis and Bezemer 2003).

'Agriculture' is here taken to mean all primary production of food, flowers and fibres, thus it includes growing crops, rearing livestock, horticulture (flowers, fruit and vegetables), forestry and fisheries. It excludes any food processing (although this may take place on-farm), agricultural services (whether technical or commercial) and other primary sectors, such as mining or quarrying.

Figure 4.2: Non-farm and Non-agriculture



Source: Author's Own Compilation on the basis of Literature

Thus, it is clear from the above discussion that logically non-farm should not be synonymously used as non-agriculture as there is difference between the both and the non-agriculture is wider term than the non-farm. Hence, if we are talking about non-agriculture, we should include the allied activities (forestry, fishing, hunting etc.); otherwise composition of only rural industry and rural services should be termed as non-farm.

4.4.4. Definition of Rural Non-farm Sector

The literature is beset with confusion and ambiguity as definitions of 'rural non-farm', 'non-agricultural', or indeed, 'employment' are rarely made explicit. Thus, there is, for example, ambiguity as to whether non-farm employment refers to employment anywhere by rural households, or solely rurally-located employment. Chadha (1997) notes that while NSS data show what percentage of the rural workforce are employed in different gainful activities, or the share of rural workers in total workforce in each production sector, there is no indicator of whether employment is in rural, semi-urban, or urban areas. Thus, while every effort has been made to maintain consistency here, ambiguity in the literature must be recognized.

The location of activities is itself suggested by the name i.e. non-farm activities which are performed within the vicinity of rural area but what is rural (as discussed above)

is itself a question because definition of rural is not uniform across nations or within the nation. Some of the scholars have taken a narrow definition of RNFS (Fisher and Mahajan 1997; Panda, 2012; Start and Johnson 2004; Davis et. al 2007; Lanjouw and Lanjouw 2001), while others are focusing upon broader perspective by taking linkages into consideration (Saith 1992; Haggblade et al. 2007; Islam 1997; Barrett and Reardon 2000; Davis and Bezemer 2003).

Table 4.2: Narrow Definition of Rural Non-Farm Sector

Sr No	Year of Study	Author/Authors	Definition
1	1972	Byerlee and Eicher	Non-farm rural economic activities include both monetized and non-monetized sectors. Those that are monetized include a) consumer goods manufacturing trading and services (e.g. crafts, bicycle repairs), b) marketing and processing of agricultural products and c) manufacture of agricultural inputs, such as hand tools. Those activities that are performed within the household and are therefore non-monetized include house construction, food preparation, firewood collection, etc.
2	1973	Liedholm, Carl	The widely used ILO "International Standard Classification of Occupations," for example, subdivides the nonfarm occupations as follows: (1)professional, technical administrative; (2)sales workers (traders); (3)miners and quarrymen; (4)transport and communication workers; (5)craftsmen and production process workers ("industrial" workers); and (6)service workers [I.L.O., 1970, p. 275].
3	1979	Chuta and Liedholm	In terms of the Standard Industrial Classification categories, the most important components are manufacturing, services, and commerce activities.
4	1986	Kilby and Liedholm	Shows "the composition of non-farm activities derived mainly from census data. While there is considerable variation between the nine countries, the three major components are manufacturing (including agricultural processing and repair activities), trading and services. Since trading is the most common secondary occupation, it is likely that this category is understated."
5	1991	Hazell and Haggblade	Emphasizes that when rural towns are included in employment calculations, the share of the rural labor force employed primarily in non-agricultural activities rises sharply.
6	1995	Lanjouw and Lanjouw	Indicates that while definitional and data-related uncertainties remain, the rural non-agricultural sector is both large and, on aggregate, has been growing over time.
7	1997	Lanjouw and Lanjouw	All those income generating activities (including income in kind) that are not agricultural but located in rural areas are RNF activities.
8	1997	Fisher and Mahajan	Uses three dimensions to define RNF sector i.e. Sub-sectoral, spatial and scalar. RNF sector comprises all non-agricultural activities- mining and quarrying, household and non-household manufacturing, processing, repairs, construction, trade, transport and other services –in villages and rural towns of upto 50000 population, undertaken by enterprises varying in size from household 'own-account enterprises' all the factories.
9	1998	Lanjouw, P.	Rural off-farm employment has been traditionally seen as a low productivity sector, producing low quality goods.
10	2001	Lanjouw and Lanjouw	A common view is that rural off-farm employment is a low productivity sector producing low quality goods, expected to wither away as a country develops and incomes rise.
11	2004	Hossain	RNFE includes only non-agricultural activities. "It excludes non-crop production activities such as livestock, fisheries and forestry. Some of the commercial livestock and fisheries activities are, however, vertically integrated encompassing production, processing and marketing activities. Therefore they deserve to be included in the broader definition of RNFE."

12	2004	Lanjouw and Shariff	Rural households can, and do participate in a wide range of non-agricultural activities, such as wage employment and self-employment in commerce, manufacturing and services, alongside the traditional rural activities of farming and agricultural labour.
13	2006	Davis, Junior	The rural non-farm economy (RNFE) may be defined as all those activities associated with waged work or self-employment in income generating activities (including in-kind income) that are not agricultural but located in rural areas. Thus, rural non-farm activities might include manufacturing (i.e. agro processing) and be accumulative (e.g. setting-up a small business), adaptive, switching from cash crop cultivation to commodity trading (perhaps in response to drought), coping (e.g. non-agricultural wage labour or sale of household assets as an immediate response to a shock), or be a survival strategy as a response to livelihood shock.
14	2007	Davis et.al	Defines RNF activities which are non-agricultural wage employment and non-agricultural self-employment has not considered transfer incomes as a part of these activities.
15	2007	Haggblade et al.	The 'rural nonfarm economy' includes all rural economic activities outside of agriculture. Nonfarm activity may take place at home or in factories or be performed by itinerant traders. It includes small- and large-scale activities of widely varying technological sophistication.
16	2007	Haggblade, Steven	Activities range from humble home-based cottage industries to private health, education, and transport services to the marketing and processing activities of sophisticated multinational agribusiness firms.
17	2008	Lanjouw and Murgai	The sector is highly heterogeneous and can be crudely divided into three sub-sectors comprising: regular, salaried non-farm employment; casual wage labor in the non-farm sector; and non-agricultural self-employment activities. The former sub-sector is most clearly associated with relatively high and stable incomes, while the latter two are more heterogeneous and can comprise both productive as well as residual activities.

Source: Author's Own Compilation on basis of the Literature

Table 4.2 explains the narrow definition of the RNF sector under which the authors have not taken into account the location linkages with urban area and activities are performed within the vicinity of rural areas only.

On the other hand, there are the studies which takes the linkages with the urban areas also while estimating RNF employment and RNF income. Such kind of definition used comes under the broader definition of RNF sector (refer, Table 4.3). Davis et al. (2007) have defined RNF employment as non-agricultural wage and self-employment and excluded the transfer incomes from these activities. According to Lanjouw and Lanjouw 1997, all the income generating activities (includes income in kind) which are located in rural areas, but not agricultural are RNF activities. According to Haggblade et al. (2007), "rural non-farm economy includes all rural economic activities outside of agriculture. Non-farm activity may take place at home or in factories or be performed by itinerant traders. It includes small and large-scale activities of widely varying technological sophistication".

According to Barrett and Reardon (2000), RNF includes all activities other than agricultural activities i.e. all secondary and tertiary and non-agricultural primary activities, irrespective of the location (local or elsewhere) and function (self or wage employment). Davis and Bezemer (2003) describe RNF activities as the agro-processing, small business

activities and as receipt of the transfer payments (interest, dividends or remittances from temporary, seasonal or permanent migration). It comprises earned (wage or self-employment) as well as non-earned income (pensions, social insurance and remittances etc.) and also the socio-economic infrastructure (schools, roads and hospitals etc.), which is an integral part of rural economy. Fisher and Mahajan (1997) have used three dimensions to define RNF sector i.e. Sub-sectoral, spatial and scalar. According to them, RNF sector comprises all non-agricultural activities (mining and quarrying, household and non-household manufacturing, processing, repairs, construction, trade, transport and other services) in villages and rural towns (of upto 50000 population) undertaken by enterprises varying in size of all the factories. Saith (1992) has given two approaches for defining RNF sector i.e. Location Approach and Linkage Approach. According to former, all those nonagricultural activities are included in RNF sector which are performed only in rural areas; whereas later also emphasizes upon those activities which are having linkages through remittances from urban area. The definition given by the different authors, institutions and authorities is given below as:

Table 4.3: Broad Definition of Rural Non-Farm Sector

Sr No	Year of Study	Author/Authors	Definition
1	1992	Ashwini Saith	Two approaches for defining RNF sector i.e. Location Approach and Linkage Approach. According to former, "all those non-agricultural activities are included in RNF sector which are performed only in rural areas whereas later also emphasizes upon those activities which are having linkages through remittances in urban area also."
2	1995	Singh and Singh	The non-farm sector include all non-land (non-crop) based commercially run enterprises. In their study, enterprises which were located in urban/rural towns are also included. In fact, a study of these kind of enterprises has its own significance in understanding the spread effects of rural growth which can be outside the rural areas/villages.
3	1997	Islam, N.	States the sources of rural non-farm income as income earned from non-agricultural activities in rural areas or small, rural towns, within the household or outside, in self-employment or in wage employment, by rural households through commuting to work in large cities, through remittances from household members located in cities or located overseas.
4	2000	Barrett and Reardon	RNF includes "all activities other than agricultural activities i.e. all secondary and tertiary and non-agricultural primary activities, whatever the location (local or elsewhere) and function (self or wage employment).
5	2000	Barrett and Reardon	It is essential to understand the role location plays in the rural non-farm sector. Barrett and Reardon (2000) highlight the difficulty in defining the RNFE from a spatial perspective. They note that "an activity can be 'local', with two sub-categories (a) at-home (or the more ambiguous term 'on-farm'); (b) local away-from-home, with sub-categories of (i) countryside or strictly rural; (ii) nearby rural town; and (iii) intermediate city". The distance from home can involve migration within the country or abroad. It is essential to identify the importance of locational aspects and understand this distinction with respect to the extent to which the household is dependent on local economy"

6	2003	Davis and Bezemer	Describe RNF activities as those activities which include agro-processing, small business, receipt of the transfer payments such as interest, dividends or remittances from temporary, seasonal or permanent migration. It is not only activity based (wage or self-employment), as it also includes non-earned income (social payments (pensions, social insurance etc.) and remittances) as well as the rural institutional framework (roads, schools, hospitals etc.), which are an integral part of rural economy.
7	2004	Davis, R.	The rural non-farm economy (RNFE) may be defined as comprising all those non-agricultural activities which generate income to rural households (including income in-kind and remittances), either through waged work or in self-employment. The RNFE is of great importance to the rural economy because of its production linkages and employment effects, while the income it provides to rural households represents a substantial and sometimes growing share of rural incomes.
8	2005	Kijima and Lanjouw	The sector is highly heterogeneous and can be crudely broken up into three sub-sectors comprising: regular, salaried non-farm employment; casual wage labour in the non-farm sector; and non-agricultural self-employment activities. The former sub-sector is most clearly associated with relatively high and stable incomes, while the latter two are more heterogeneous and can comprise b productive as well as residual activities.
9	2011	Himanshu et. al.	All rural employment activities other than agriculture and its associated enterprises comprise RNFE.
10	2013	Borkar, Anil S	Dairy farming, fishery, handicrafts, handlooms, metal works, wood works, transportation, Water Carrier, Shoe maker, Blacksmith, Carpenter, Potter, Mining, post service, Washer man, Barber, Idol-Dresser, Goldsmith, animal husbandry, poultry farming sugar factories etc (Non-agro non-farm works and Agro-related non-farm works). Usually in the rural area, without agriculture sector, other sectors are contained in nonfarm sector; as such that they are also closed related to the farm sector. As well as they are interdependent on each other, like carpenter making agro-instruments for farming, and farmer cannot cultivate farm without this instruments.
11	2013	All India Disaster Management Institute (AIDMI)	Potential sources of non-farm activities can be divided into three main components: non-agricultural employment; non-farm enterprise and unearned income. Rural non-farm activities include manufacturing (agro processing); switching from cash crop farming to commodity trading or taking up some non-agricultural job to support themselves financially. RNFE may be defined as comprising all those activities associated with waged work or self-employment in income generating activities that are not agricultural.

Source: Author's Own Compilation on basis of the Literature

According to Jatav and Sen (2013), the *RNFS*, though primarily located in rural areas, is not exclusive to it. The rural population working in the urban areas or in both rural and urban areas would also be included in the larger ambit of rural non-farm work. One more component of location which states "not-fixed" places of work constitute nearly one-fourth of the total non-farm work done by rural workers, while for females this proportion is much smaller, i.e. less than one-tenth.

Thus, definitions of the rural non-farm economy are problematic. There is no standard definition either internationally or within India as the sector is too diverse to allow neat classification (Fisher and Mahajan, 1997; Coppard, 2001). The rural non-farm economy defined in this study excludes primary agriculture, forestry, fisheries, but includes trade and

processing of these products, in addition to other goods and services, as secondary and tertiary sectoral activities (refer, Figure 3.2).

4.5. Synthesized Approach: Location of Activity Determines the RNF Employment

Keeping into account all the ambiguities of the sector and rural-urban linkages, we have tried to estimate the RNF employment using a new synthesized approach which uses the theoretical background defined by Saith (1992) (refer, Chapter 3) but with some alterations. Saith (1992) discusses development linkages of RNFS in terms of production or income. However, our dataset does not allow doing estimation on income or production basis rather to stick on employment. We have altered the linkages in terms of location of activity performed and have tried to capture the movement of the population from rural to urban and urban to rural areas during a specific time period. Although very few economists named Manmohan (2008), Chandrasekhar (2011), Chandrasekhar and Sharma (2012) and Sharma (2017) have discussed about rural urban linkages in terms migration and have stressed upon the argument that the internal migration taking location of workplace should be taken into account while estimating the employment; still the argument of estimating RNF employment incorporation location of workplace is missing in the literature. Thus, on the basis of these linkages, we have suggested a new method of calculating the share of RNFE based on NSS dataset. While estimation, two major heads are taken into consideration i.e. *Area and Activities* which further are elaborated on the basis of narrow and broad aspects (refer, Figure 4.4).

4.5.1. Area

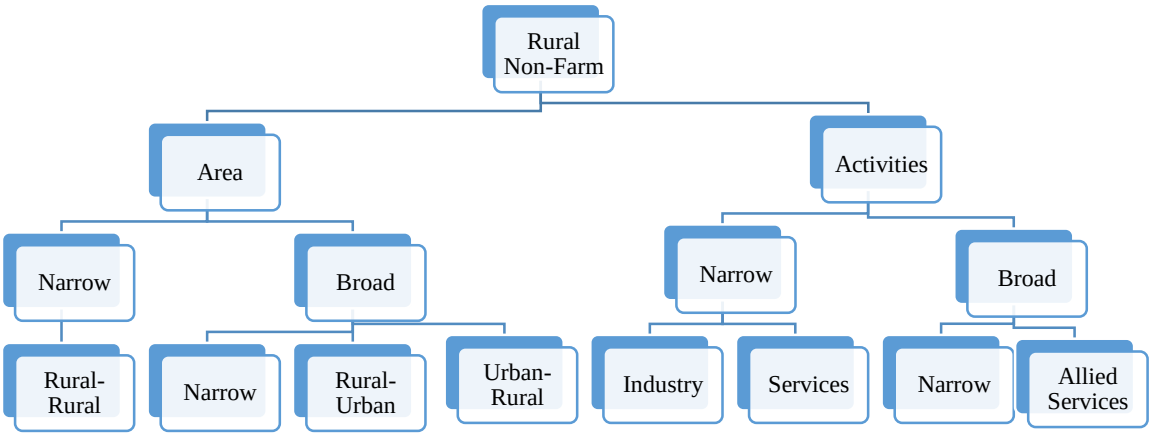
Area defines the location of activities performed and also the location to which the person belongs to. In NSS data, location of the activities is represented by the variable named "Location of workplace" whereas the location of the resident is presented in the form of sector i.e. Rural or Urban. For both the sectors, estimation of RNF employment is calculated on the basis of location of activity. The narrow aspect considers only rural areas but the broader aspect of area also reflects the linkages with the urban areas i.e. when rural person works on urban location or urban person works on rural location (refer, Figure 4.3).

4.5.2. Activities

The classification of activities in rural and urban areas as farm and non-farm and allied activities is done using Nation Industrial Classification (NIC) for different years i.e. NIC 1987, 1998 and 2008. Narrow aspect considers only industry and services in rural areas

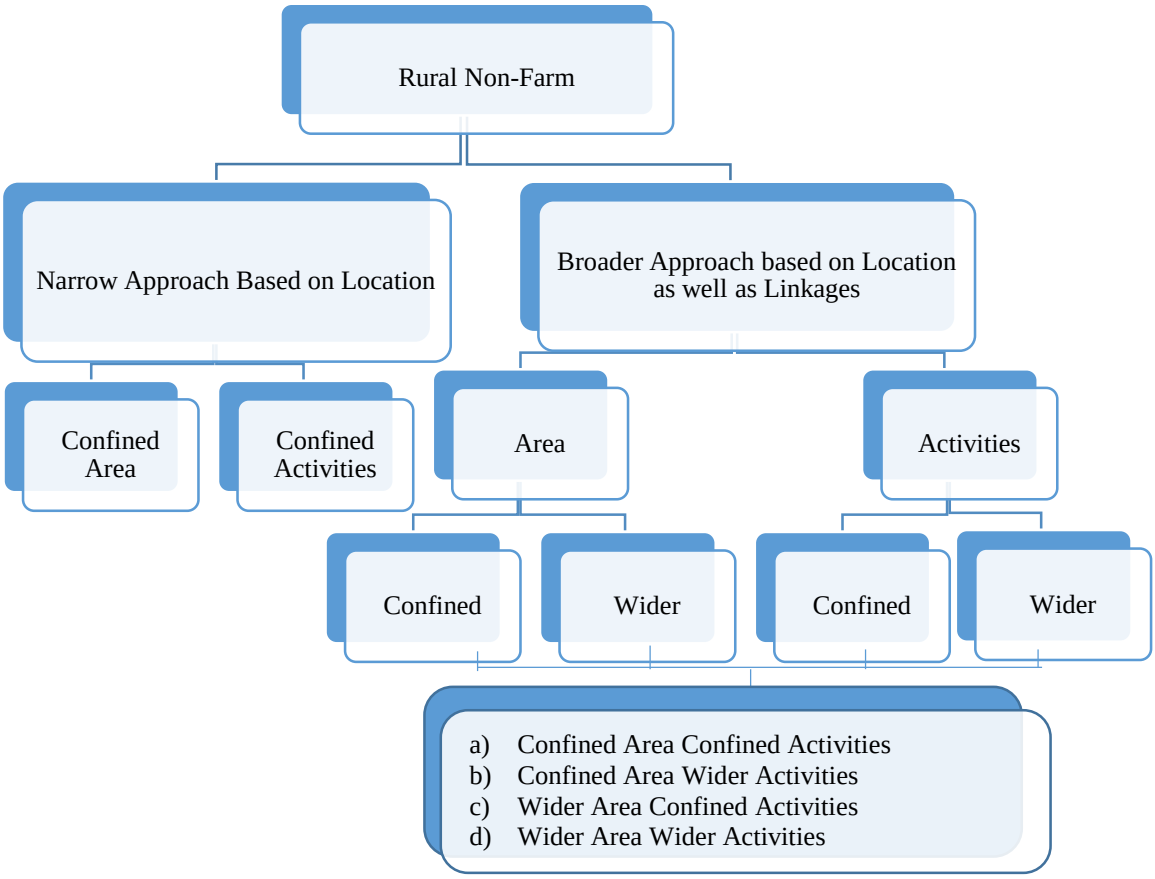
whereas broad aspect considers allied activities along with industry and services (refer, Figure 4.3).

Figure 4.3: Classification of Area and Activities



Source: Author's Own Compilation on the basis of Literature

Figure 4.4: Synthesized Approach: Rural Non-farm Sector



Source: Author's Own Compilation on the basis of Literature

For calculating the exact share of RNFE, area and activities are further classified into four categories (refer, Figure 4.4) as follows:

a) Confined Area Confined Activities (CACA)

b) Confined Area Wider Activities (CAWA)

c) Wider Area Confined Activities (WACA)

d) Wider Area Wider Activities (WACA)

The important point to note here is that, we have done the estimation only in case of RNFS, i.e., the estimation will be valid only for RNFE and not for farm employment (farm employment figures are used only to get the total of rural population). The variable 'location of workplace' provided in the dataset does not take into account the farm sector. It only considers the industry codes 2-99 which exclude the crop sector and includes allied and non-farm sector of the economy. Thus, the overall figures will also vary from the actual share which we used to calculate from the data irrespective of location of the workplace. The main motive of the study for doing this estimation is to suggest the methodology that linkages should be considered while calculating the share of RNF employment in the overall economy.

4.5.1.1.Confined Area Confined Activities (CACA)

This category comprises the basic narrow definition of the RNFS i.e. rural industry and rural services performed within the vicinity of rural area only. The activities performed and the area under which these are performed, both are limited. That is why the category is named as confined area and confined activities. The yellow and blue colours of the column under non-farm in rural sector shows the proportion according to confined area and confined activities (refer, Table 4.4).

Table 4.4: Classification of Confined and Wider definitions

Location of Activity/Workplace	Location to which Population belongs to			
	Rural		Urban	
	Farm	Non-farm	Farm	Non-farm
Rural	×	✓	×	✓
Urban	×	✓	×	✓
Not Fixed	×	✓	×	✓

Source: Author's Own Compilation on the basis of Literature

Confined (RL_RL)

Wider (UL_RL or RL_UL)

Wider (UL_UL)

Not Fixed Location (Common for confined as well as for wider)

Table 4.5: Estimation of Non-Farm Population based on Location of Activity and Location of Resident (in 000)-Confined Activities

Location of Workplace / Sector	2004-05					2011-12				
	Rural		Urban		**Estimation**	Rural		Urban		**Estimation**
	Farm	Non-Farm	Farm	Non-Farm	Non-farm Actual	Farm	Non-Farm	Farm	Non-Farm	Non-farm Actual
Rural	608	1,782	1	76	2,033	67	4,008	1	73	4,052
Urban	42	93	26	992		0	111	25	1,400	
Not Fixed	132	267	1	42	2,907	1	83	0	120	4,231
Total	782	2,142	28	1,109		67	4,202	25	1,593	
NER		2,142			2,924		4,202			4,269
Rural	4,999	9,053	36	566	10,761	779	20,776	20	660	21,119
Urban	341	779	288	8,705		34	1,400	96	11,378	
Not Fixed	1,457	1,921	49	707	18,338	47	1,083	132	1,078	23,378
Total	6,797	11,753	373	9,978		859	23,258	248	13,116	
ER		11,753			18,550		23,258			24,118
Rural	4,404	5,982	13	374	5,427	1,095	12,671	2	275	11,702
Urban	402	1,619	385	7,578		17	1,660	99	9,246	
Not Fixed	374	689	5	268	12,226	18	417	7	745	14,492
Total	5,180	8,291	403	8,220		1,130	14,748	108	10,266	
NR		8,291			13,470		14,748			15,878
Rural	5,650	15,919	38	1,012	15,877	2,446	22,547	33	983	21,793
Urban	332	2,055	690	19,691		23	2,457	411	26,000	
Not Fixed	657	1,001	64	645	24,572	213	719	98	1,812	26,932
Total	6,639	18,976	791	21,349		2,682	25,723	542	28,795	
SR					25,615		25,723			28,406
Rural	3,333	5,566	32	442	5,443	1,098	8,770	12	572	8,860
Urban	442	883	456	16,600		4	808	100	22,008	
Not Fixed	317	317	18	580	10,418	1	325	21	1,607	10,771
Total	4,093	6,766	506	17,622		1,103	9,904	132	24,187	
WR		6,766			10,859		9,904			11,007
Rural	6,106	8,560	81	677	9,250	1,146	20,596	8	852	20,396
Urban	695	1,036	510	12,359		9	1,967	199	15,142	
Not Fixed	1,034	1,050	45	643	18,122	23	915	28	1,389	23,541
Total	7,835	10,646	635	13,679		1,178	23,478	235	17,382	
CR		10,646			18,482		23,478			24,656
Rural	25,100	46,862	200	3,147	48,791	6,630	89,367	76	3,415	87,921
Urban	2,255	6,464	2,356	65,925		88	8,403	930	85,174	
Not Fixed	3,971	5,247	181	2,885	86,582	302	3,542	286	6,751	103,332
Total	31,326	58,573	2,736	71,957		7,020	101,300	1,292	95,339	
Rural India		58,573			89,900		101,300			108,320

Note: Total of Farm and Non-farm may vary from total Rural population due to round off
Source: Calculated from NSS EUS 61st and 68th Rounds (Government of India, 2004-05, 2011-12).

Table 4.5 shows that if we consider area and activities in simple terms according to general definition, 58573 (000) population will be counted as employed in RNF i.e. irrespective of location of activity. Here, location/sector of the resident (rural) is considered and activity is non-farm. According to CACA approach, this estimated share will be 52109 (000) population during 2004-05 and the difference between the both will be 6464 (000) population. This difference will increase to 8403 (000) population during 2011-12. Thus, without considering the location of the activity, overestimated share is represented for RNFE.

4.5.1.2.Confined Area and Wider Activities (CAWA)

When non-farm activities comprises the allied activities of the rural area but are performed within rural area only; the category is termed as confined area and wider activities. Yellow area in Table 4.4 will be same as depicted in above category; the only difference between CACA and CAWA will be the inclusion of allied activities under non-farm.

Table 4.6 shows that the RNFE estimation taking into account the wider activities i.e. non-farm comprises nonfarm and allied activities of rural area. Here, according to general definition, RNFE will be 59763 (000) population, i.e., irrespective of location of activity. Here, location/sector of the resident (rural) is considered and activity is non-farm. According to CAWA approach, this estimated share will be 53236 (000) population during 2004-05 and the difference between the both will be 6527 (000) population. This difference will increase to 8446 (000) population during 2011-12. Thus, without considering the location of the activity, the share of RNFE is overestimated.

4.5.1.3. Wider Area Confined Activities (WACA)

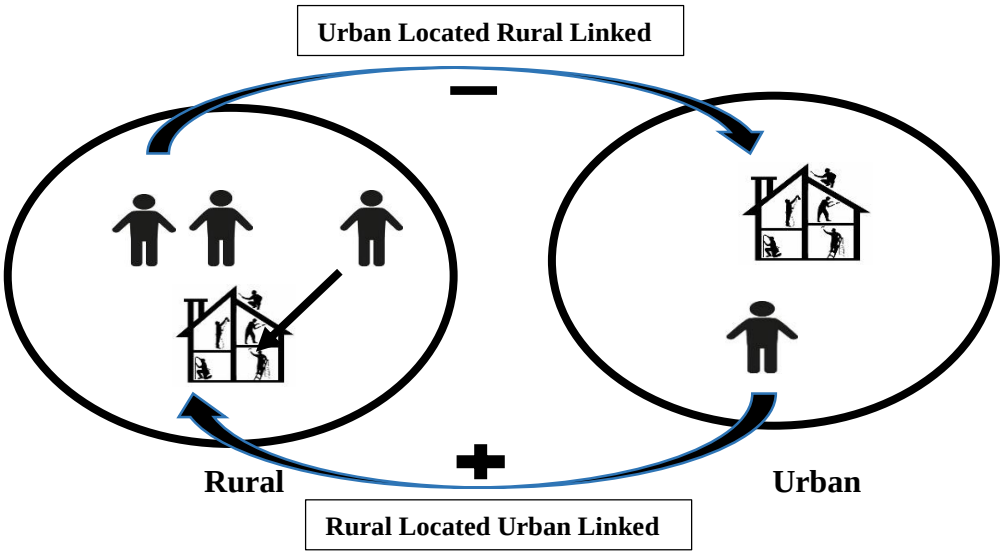
The third category describes the broader approach of defining RNFS. The activities taken are the rural industry and rural services but area is not the rural area only. Here we also include the activities performed on urban locations by rural residents and also the urban residents who perform work on rural locations. The location of activity plays important role here that the activities performed in rural areas either by rural residents or urban residents forms the part of rural area as these activities directly relate to the rural development, whereas the rural residents who are involved in activities performed on urban locations should be excluded from the estimation of RNFE because of the activities or works under progress in urban areas.

Davis (2006) also states that it is essential to identify the importance of locational aspects and understand this distinction with respect to the extent to which the household is dependent on local economy**.** In this context, Barrett and Reardon (2000) highlight the difficulty in defining the RNFE from a spatial perspective. They note that "an activity can be 'local', with two sub-categories (a) at-home (or the more ambiguous term 'on-farm'); (b) local away-from-home, with sub-categories of (i) countryside or strictly rural; (ii) nearby rural town; and (iii) intermediate city". The distance from home can involve migration within the country or abroad.

Keeping in view the importance of location, in our suggested estimation, location of the activity plays major role in calculating the share of RNFE. The WACA approach is

different from the CACA and CAWA approaches in term of location only. The major difference is when we consider the area as wider, i.e., incorporating the rural urban movement of the worker (refer, Figure 4.5). In earlier two approaches location of activity (i.e. whether worker works at rural location or urban location) does not play any role in estimation of RNFE; but WACA includes only those persons in RNFE who are working in rural areas only; irrespective of location/residence of the person. According to this approach, the RNF population will be 48791 (000) during 2004-05 which in CACA approach is 52109 (000). The RNF population will be calculated by adding the urban population working in rural area and deducting the rural population working in urban areas (46862+3147+5247-6464= 48791). Thus, the population, whose location of activity is rural will form the part of RNFS which will include both rural and urban population working in rural areas whereas the rural population whose location of activity is urban will be excluded from RNFS even though they are resident of rural areas.

Figure 4.5: Wider Area Confined Activities (Recommended Approach)



Source: Author's Own Compilation

This estimation also suggests the alteration in overall rural employment to calculate the percentage of RNFE from overall employment. According to this estimation, the same number which is added or subtracted from the non-farm population, will be added or subtracted from the overall population. Thus, the overall population which according to earlier estimation is 89899 (000) and 108320 (000), will be 86582 (000) and 103332 (000) as per WACA approach during 2004-05 and 2011-12 respectively (refer, Table 4.5).

4.5.1.4. Wider Area Wider Activities (WAWA)

The fourth category takes broader aspects of both area and activities i.e. the RNFE incorporates wider area (both rural and urban population working on rural location of activity) and wider activities (allied and non-farm).

Table 4.6: Estimation of Non-Farm Population based on Location of Activity and Location of Resident (in 000)-Wider Activities

Location of Workplace/ Sector	2004-05					2011-12				
	Rural		Urban		**Estimation**	Rural		Urban		**Estimation**
	Farm	Non-Farm	Farm	Non-Farm	Non-farm Actual	Farm	Non-Farm	Farm	Non-Farm	Non-farm Actual
Rural	579	1,810	1	76	2,072	27	4,048	0	73	4,093
Urban	36	99	24	994		0	111	19	1,406	
Not Fixed	114	285	1	42	2,901	0	83	0	121	4,231
Total	729	2,194	26	1,112		27	4,242	19	1,599	
NER					2,924					4,269
Rural	4,801	9,251	35	567	11,126	541	21,014	17	662	21,360
Urban	327	793	241	8,752		0	1,434	76	11,398	
fixed Place	1,276	2,102	41	715	18,324	12	1,118	2	1,208	23,346
Total	6,404	12,147	317	10,034		552	23,565	95	13,269	
ER					18,550					24,118
Rural	4,380	6,006	13	374	5,458	1,076	12,689	2	275	11,723
Urban	402	1,619	371	7,593		10	1,667	88	9,257	
fixed Place	367	697	5	268	12,226	8	426	3	749	14,485
Total	5,149	8,321	388	8,235		1,095	14,782	93	10,281	
NR					13,470					15,878
Rural	5,339	16,230	32	1,018	16,384	1,798	23,195	16	1,000	22,605
Urban	305	2,082	589	19,792		22	2,458	311	26,100	
fixed Place	440	1,218	17	693	24,550	64	869	15	1,895	26,947
Total	6,084	19,531	638	21,503		1,884	26,521	342	28,995	
SR					25,615					28,406
Rural	3,246	5,654	32	442	5,535	1,019	8,849	12	572	8,939
Urban	434	891	394	16,663		4	808	77	22,030	
fixed Place	304	330	16	582	10,410	1	325	9	1,618	10,771
Total	3,984	6,875	441	17,686		1,024	9,983	98	24,221	
WR					10,859					11,007
Rural	6,074	8,592	80	677	9,287	987	20,754	8	852	20,554
Urban	689	1,043	500	12,369		9	1,968	180	15,161	
fixed Place	1,023	1,062	43	645	18,116	22	916	26	1,391	23,540
Total	7,786	10,696	623	13,691		1,018	23,638	214	17,403	
CR					18,482					24,656
Rural	24,419	47,543	193	3,154	49,863	5,449	90,549	57	3,434	89,275
Urban	2,192	6,527	2,118	66,163		45	8,446	751	85,353	
fixed Place	3,524	5,693	121	2,944	86,526	126	3,737	55	6,982	103,308
Total	30,136	59,763	2,433	72,261		5,620	102,700	862	95,769	
Rural India					89,900					108,320

Note: Total of Farm and Non-farm may vary from total rural population due to round off
Source: Calculated from NSS EUS 61st and 68th Rounds (Government of India, 2004-05, 2011-12).

According to the approach, RNF population for India as a whole will be 49863 (000) during 2004-05. The RNF population will be calculated by adding the urban population working in rural area and deducting the rural population working in urban areas (47543+3154+5693-6527= 49863). Thus, the population whose location of activity is rural

will form the part of RNF employment which will include both rural and urban population working in rural areas, whereas the rural population, whose location of activity is urban, will be excluded from RNF employment even though they are resident of rural areas.

This estimation suggests the alteration in overall rural employment (as mentioned earlier) to calculate the percentage of RNFE from overall employment (but in study we have given the numbers only). Thus, the overall population which according to earlier estimation is 89899 (000) and 108320 (000) will be 86526 (000) and 103308 (000) as per WAWA approach during 2004-05 and 2011-12 respectively (refer, Table 4.5).

Hence, the estimation suggests the methodology to account for location of the activity while estimating the share of RNFE. According to the new methodology, it can be concluded that the actual estimation based on rural sector without considering the location of activity performed, there can be overestimation of the RNFE. The accurate estimation allows us to form the policies accordingly and not to overestimate the share of a sector.

The major constraint which we find while estimating is inclusion of only certain activities according to the location of the activities. Both farm as well as non-farm activities are not recorded in the data according to location of activity. Whereas the general/traditional definition includes all the activities (farm as well as non-farm) for estimation of the employment. That is why the data vary if we calculate the figures according to the location of activity or without taking into account the location of activity (traditional definition). Thus, data do not permit us to compare the estimated figures with the overall figures calculated from the general definition. So, estimated figures are used only as a representative of the context of synthesized approach. These are not the final estimates to be used for further estimation. For using these figures for estimation, data regarding location of activity should be collected for every kind of activity (farm as well non-farm). Therefore, new methodology focuses on the estimation procedure (rather than proportions) to be followed for adequate estimation.

The short term migration or commute to work has become a regular phenomenon in present era. Thus, it becomes very important to capture those who regularly commute for work to the other places i.e. the place other than their residential area. In this way location of the activity/workplace plays an important role in estimation of employment. By capturing the count of such people the estimation process can result in better results in estimation accurate figures of RNF employment. Therefore, it is important to collect the information regarding the location of workplace of a worker irrespective of his/her residence along with the activity of work. Thus, detailed information regarding these workers or commuters

should also be part of employment unemployment survey (NSSO) and not just of migration survey (data collection for which is based on separate questionnaire).

4.6. Summing up

The whole discussion in the chapter revolves around the definition of the RNFE that is what should and what should not be included. On the basis of review of literature and own understanding, a new method to calculate the share of RNFE is suggested which is named as the synthesized approach of RNFS. It suggests the estimation procedure where location of the activity plays a major role in calculation, irrespective of the location of the resident. The new estimation process states that considering general definition, we overestimate the contribution of RNFE in the total employment.

CHAPTER-5 RURAL NON-FARM EMPLOYMENT AND POVERTY LINKAGES

5.1. Introduction

The issue of structural transformation and the upsurge of RNFS is not a new phenomenon. A number of studies have documented the positive effects of RNF activities on poverty reduction, employment generation, and enhanced market linkages (Binswanger-Mkhize, 2013; Dave and Dave, 2012; Haggblade et al., 2002; Himanshu et al., 2011; Pal and Biswas, 2011; Ranjan, 2009). However, a vast literature on the RNFS also reveals the other side of the story, that is, stunted transformation, casual and seasonal employment, low returns, informality, no job security and worst working conditions in the sector (Binswanger-Mkhize, 2013; Jha, 2006; Start, 2001). Moreover, the changing nature of the rural sector also suggests that simply being employed in RNFS is not sufficient for evaluating the rural livelihoods; rather the quality and sustainability of employment and incidence of poverty among employed is essential to understand the situation. Therefore, this chapter makes an effort to understand the impact of an increase in RNFE on rural poverty. It looks into whether the incidence of rural poverty declined over a period (from 2004-05 to 2011-12), is just because of increase in RNFE only or due to other developmental factors in rural areas.

The hype of RNFS for poverty reduction is generally for being a suitable alternative for unemployed or disguisedly unemployed and poor persons, but some issues concerned to this are essential to be answered such as: Which type of works in RNFS are workers/poor getting? Is the work opportunity provided temporary or permanent in nature? Are the workers better off after getting employment in RNFS? These issues become vital to assess the importance of RNF employment, especially in analyzing rural poverty because it has been observed that by changing the occupation is merely a shift from one low productive occupation to another low productive occupation (Binswanger-Mkhize, 2013; Jha, 2006). Therefore, keeping in view all these issues, the chapter estimates the region-wise poverty in farm and RNF activities; examines the types of employment provided by farm and RNFS to the rural poor in different regions; and identifies the factors responsible for increasing the probability of being poor in RNFS. The identification of poor is based on Tendulkar Expert Group (TEG) estimated state-specific poverty lines for the year 2004-05 and 2011-12 (Government of India, 2009, 2013) and the aggregation of poverty has been carried out by a measure of Headcount Ratio (HCR)[11].

[11] HCR is defined as proportion of poor below the poverty line with reference to overall population.

The chapter is divided into six sections. The second section explains the data, definition, and methodology used for evaluating the employment status among rural poor. The second section describes incidence of poverty in farm and non-farm sector and its further elaboration for different non-farm activities is done in the third section. The fourth section discusses type of employment provided by the rural farm and non-farm sectors. Finally, the last section examines the factors responsible for influencing the probability of being poor in rural and RNF sectors along with the description of the variables used.

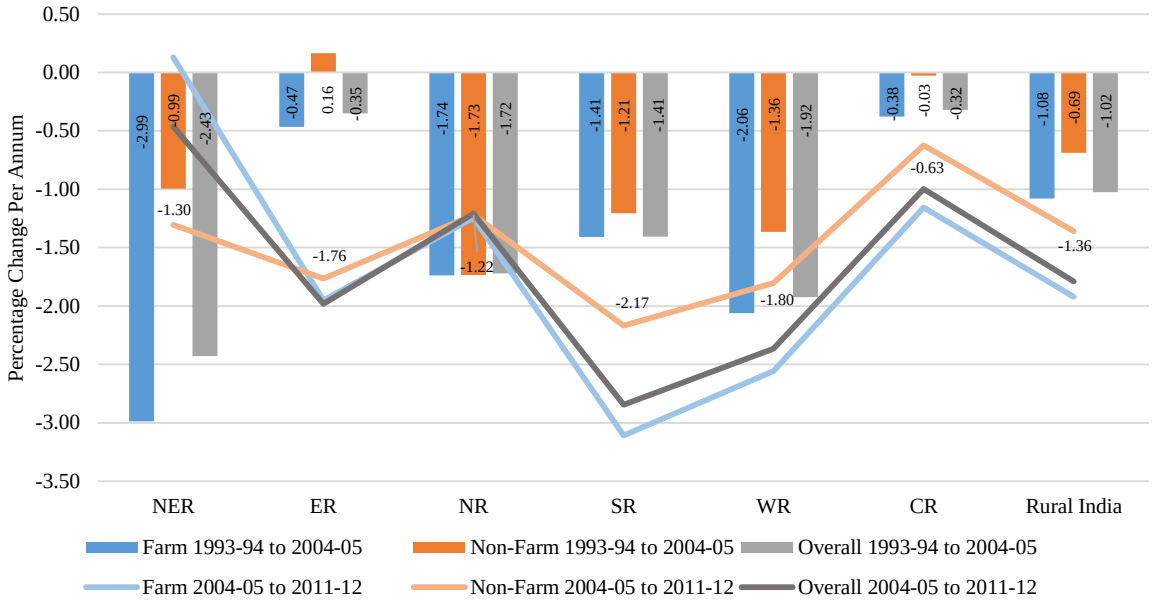
5.2. Rural Non-Farm (RNF) Employment: A Coping Strategy

Economic theory has long predicted the stagnation in agriculture (here, Agriculture and allied activities are clubbed together to represent farm) and its incapability to absorb the additional labour force (Binswanger-Mkhize, 2013; Chadha, 2008; Lanjouw and Shariff, 2002; Papola and Sahu, 2012). The situation of having unsustainable sources of livelihood has compelled (acted as push factor) the people to find out the persistent source of revenue within or outside the rural areas. Within rural areas, RNF sector has served its best to solve this problem for unemployed rural population, critically when the majority of them are poor (Chadha, 2008; Haggblade et al., 2002; Hazell and Haggblade, 1991; Jha, 2002; Ranjan, 2009). However, several experts also opine that non-poor and educated workforce are pulled to RNF sector due to growth factors such as agriculture growth; (Chadha, 1994; Davis, 2003; Dev, 1990; Harris-White and Janakarajan, 1997; Hazell and Haggblade, 1991; Jatav and Sen, 2013; Jayaranjan, 2013; Papola, 1994), higher level of education (Jatav and Sen, 2013; Jayaranjan, 2013) and infrastructure development, etc. (Davis, 2004; Jayaranjan, 2013; Singh, 2007; Unni, 1998). The discussion about push factors indirectly takes into account the compulsions and working condition of the poor employed in the farm sector and how the targeted sector (RNF) is contributing as a coping strategy for them, whereas pull factors highlight the role of education, technical know-how and skill, which motivate them to be a part of this sector. Although sufficient evidence is given regarding the pull factors; still the growth of this sector is largely associated with the distress kind of situation, that is, push factors. The main evidence of this can be linked to the high participation of poor households in RNF activities which are casual, low remunerative and less productive in nature.

As depicted in Table 5.1, employment share in RNF sector has increased by 5.8 percent points and 6.8 percent points during 1993-94 to 2004-05 and during 2004-05 to 2011-12 respectively. This simply means that people are moving out of farm sector and shifting towards industrial and service activities. The movement of the workforce from farm to non-farm has also led reduction in the incidence of rural poverty (50.59 percent in 1993-

94 to 39.33 percent 2004-05 and further to 26.80 percent in 2011-12). The annual decline in poverty is sharp during 2004-05 to 2011-12 (1.79 percent) than that during 1993-94 to 2004-05 (1.02 percent). The rate of poverty decline is faster in farm sector than non-farm sector which means around 0.70 percent point annual decline in the workforce has gone along with 1.40 percent points annual decline in poverty during 1993-94 to 2011-12; whereas in non-farm sector, 0.70 percent points annual increase in the workforce has reported along with 0.94 percent points annual decline in poverty.

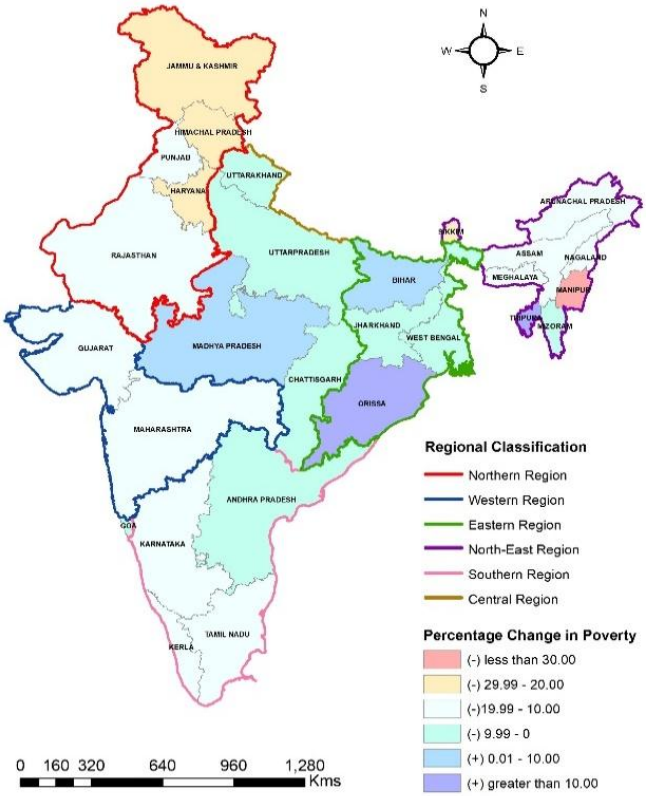
Figure 5.1: Incidence of Poverty (Percentage Change per Annum) in Farm and Non-Farm sectors



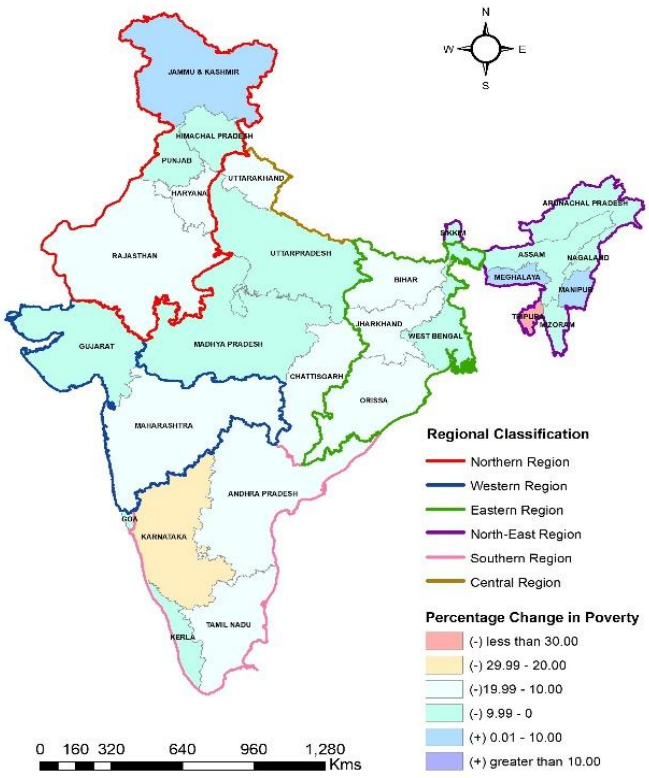
Source: Calculated from NSS EUS 50th, 61st and 68th Rounds (Government of India, 1993-94, 2004-05, 2011-12).

During the 11year period 1993-94 to 2004-05, the average decline in the poverty was 0.74 percentage points per year. It accelerated to 2.18 percentage points per year during the 7-year period 2004-05 to 2011-12. Therefore, it can be concluded that the rate of decline in poverty during the most recent 7-year period 2004-05 to 2011-12 was about three times of that experienced in the 11-year period 1993-94 to 2004-05. But the rate of poverty decline in RNF sector has remained comparatively lower than that of the overall rural poverty (refer, Figure 5.1).

Figure 5.2: State-wise Percentage Change in Poverty (1993-94 to 2011-12)

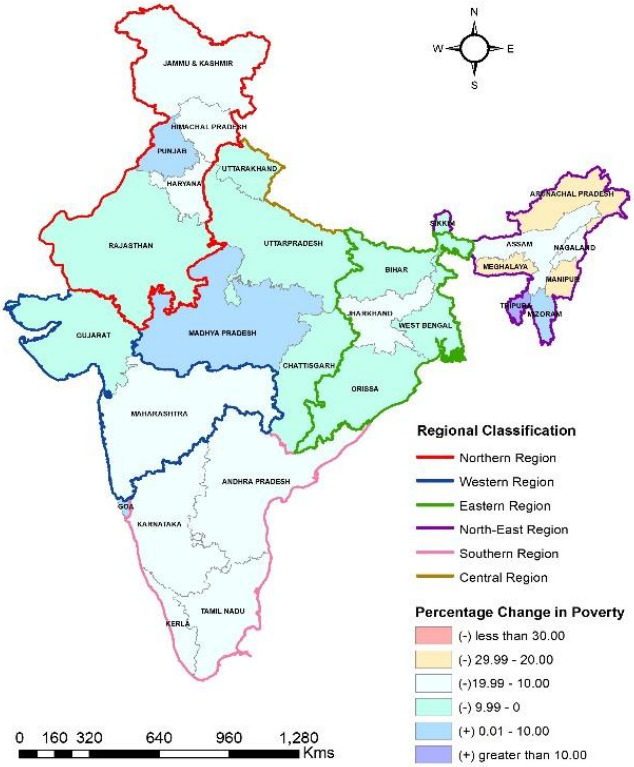


5.1a) RNF Poverty (1993-94 to 2004-05)

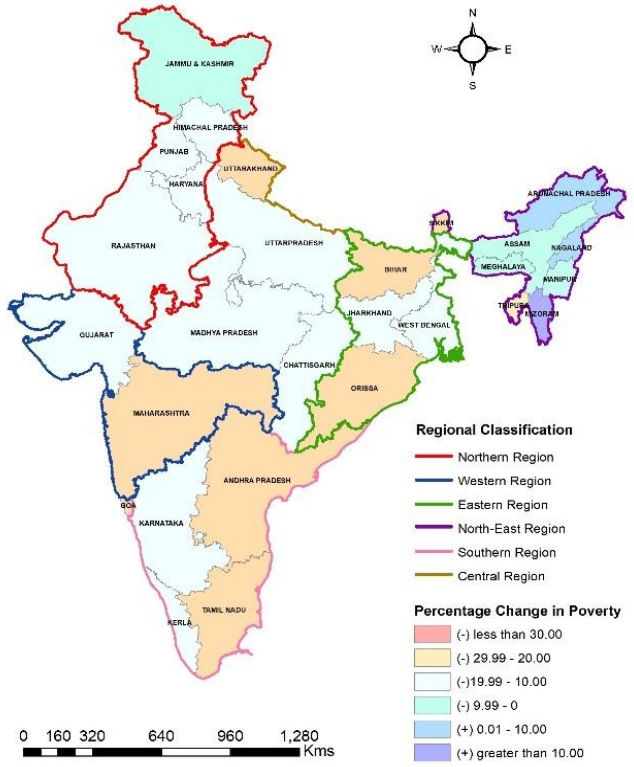


5.1b) RNF Poverty (2004-05 to 2011-12)

Source: Calculated from NSS EUS 50th, 61st and 68th Rounds (Government of India, 1993-94, 2004-05, 2011-12)



5.1c) Rural Poverty (1993-94 to 2004-05)



5.1d) Rural Poverty (2004-05 to 2011-12)

Source: Tendulkar Expert Group Estimates on poverty, Planning Commission, GOI, 2009, 2014.

The incidence of poverty at regional level shows that in terms of RNF employment NR has been the highest contributor (49.5 percent of the total workforce) during 2011-12, but rate of faster decline in poverty is reported by SR (2.84 percent points per annum). The proportions of poor households for farm and non-farm sector highlights the severity of incidence of poverty in CR as the rate of decline is less as compared to all the regions from 1993-94 to 2004-05 (0.38 and 0.03 percent points) and 2004-05 to 2011-12 (1.16 and 0.63 percent points) for farm as well as for non-farm sectors respectively.

The rural poor in India are highly concentrated in select states of the country viz., Chhattisgarh, Karnataka, Arunachal Pradesh, Meghalaya, Maharashtra, Assam, Bihar whereas RNF poor are concentrated in Uttar Pradesh, Bihar, Jharkhand, Madhya Pradesh, Chhattisgarh, Assam, Odisha during 2011-12 (refer, Figures 5.1a and 5.1b). The states, which show highest rate of poverty decline in rural areas i.e. more than 20 percent during 2004-05 to 2011-12, show less reduction in RNF poverty i.e. ranging between 0-9 percent or 10-19 percent (refer, Figure 5.2). It simply indicates that reduction in poverty is not linked only with RNF employment. There are many other factors which are leading to this sharp decline in rural poverty. Two crucial inferences can be drawn: a) the decline in farm employment may not have resulted in a decline in the incidence of poverty; and b) employment shift towards RNF sector has helped in reducing poverty, but at a slower rate.

Here the question arises if farm employment has not led to this fall and the non-farm sector has contributed very less to this fall, then something else has managed this poverty decline. The possible other reasons behind this documented in literature are higher agriculture production, an increase in rural wages, urbanisation, improved infrastructure and migration from rural to urban area (Government of India, 2012-13, 2014; Reddy et al., 2014). The migration patterns help a lot in reducing poverty as the net in-migration in Uttar Pradesh, Madhya Pradesh (part of CR) along with Bihar (part of ER) was found to be negative during this period which means out-migration was more than the in-migration (Government of India, 2012-13).

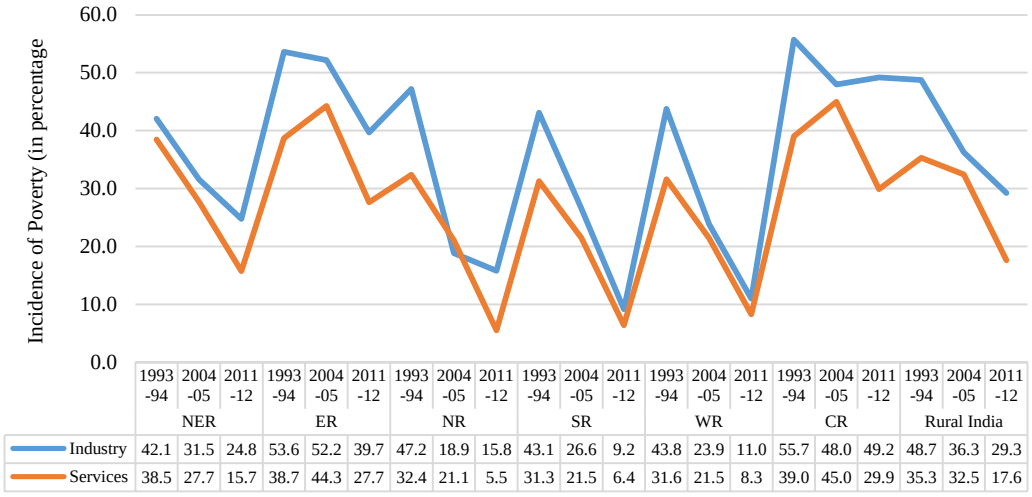
5.3. Industrial Sector Employment: Savior or Booster?

While talking about the rural poverty, the discussion must focus on the poverty status of households engaged in the farm sector, primarily because 61.5 percent of rural households are still employed in this sector. However, in the present era, with the structural transformation and rapid expansion of non-farm activities, employment in industry and services (explicitly called as RNF sector) also matter a lot in determining the poverty status

of rural households. It is, therefore, essential to explore the status and dynamics of the RNF activities in some detail. The pattern of employment in the RNF sector in terms of incidence of poverty is presented in Appendix Table A.5.2 and Table A.5.3.

The Appendix Table A.5.2 depicts that the proportion of people working in RNF sector has increased (2.15 percent point decline in industries and 8.15 percent point increase in services) during 1993-94 to 2004-05. The increase in RNF employment this time can be associated with increase in employment in services sector. Contrary to it, the industrial employment picked up hike during 2004-05 to 2011-12 with increase by 12.15 percent points and reported decline in employment in services sector by 5.39 percent.

Figure 5.3: Sector-wise Incidence of Poverty Across Different Regions of Rural India



	1993-94	2004-05	2011-12	1993-94	2004-05	2011-12	1993-94	2004-05	2011-12	1993-94	2004-05	2011-12	1993-94	2004-05	2011-12	1993-94	2004-05	2011-12	1993-94	2004-05	2011-12
	NER			ER			NR			SR			WR			CR			Rural India		
Industry	42.1	31.5	24.8	53.6	52.2	39.7	47.2	18.9	15.8	43.1	26.6	9.2	43.8	23.9	11.0	55.7	48.0	49.2	48.7	36.3	29.3
Services	38.5	27.7	15.7	38.7	44.3	27.7	32.4	21.1	5.5	31.3	21.5	6.4	31.6	21.5	8.3	39.0	45.0	29.9	35.3	32.5	17.6

Source: Calculated from NSS EUS 50th, 61st and 68th Rounds (Government of India, 1993-94, 2004-05, 2011-12)

While focusing on poverty reduction within the non-farm sector, the decline in poverty is more in industry (1.13 percent points per annum) than services (0.25 percent points per annum) on the other hand during 2004-05 to 2011-12 industry contributes higher proportion of poor and rate of decline (0.99 percent points per annum) is much lesser than the services (2.12 percent points per annum) meaning thereby that the activities offered to poor households in the industrial sector are not capable of moving them out of poverty completely (refer Table 5.3). Although the increase in productivity of the non-farm workers has resulted in increasing their income (which in turn increase their consumption expenditure); still it only helps to sustain their livings rather than to raise their level of livings (Chadha, 2008). Furthermore, the informal nature of some industries (especially construction) can absorb even low skilled and low educated working pool of the rural areas (Bieler, 2009; Chadha, 2008; Ellis, 1999; Papola and Sahu, 2012) who offer themselves for even very less productive and less remunerative activities of this sector as they cannot afford

to be unemployed. On the other hand, the services sector offers more regular and secure jobs as compared to casual and self-employment being offered by the industrial sector.

Region-wise analysis shows that industry contributes more within RNF sector as compared to services in all the regions during 2011-12. The industry has provided the highest share of employment in NR (31.1 percent) followed by CR (21.5 percent) and ER (20.1 percent) during 2011-12, but the maximum increase during 2004-05 to 2011-12 has been recorded by NER (8.6 percent). The main reason behind the increase in the share of industry is the contribution of construction sector which has recorded increase of 6-7 percentage points in all the regions except SR (3.05 percent points) and WR (2.41 percent points). The manufacturing sector has shown an increase in its share only in NER (2.5 percent points) and WR (1 percent point) among all the regions. Services' contribution has remained more or less same as that was in 2004-05 in all the regions. Wholesale and retail trade, and transport, storage and communication have shown a marginal increase only in NER (2 percent points) and SR (1.3 percent points), respectively. Thus, the analysis highlights the upsurge of these activities, which are seasonal and contractual. These activities offer low-quality employment and still concentration of poor in them is high (refer, Table 5.3 and Table 5.4). According to Unni and Naik (2011), the rise in share in share of traditional services such as trade and hotels and restaurants has also reported a rise during the period from 1993-94 to 2007-08. They also opined that the share of both income and employment in these new sectors was restricted to urban areas. Thus, much of this high-productivity, high-income growth of the services sector has not created structural transformation in rural India. The IT and BPO revolution is considered as the engine of the recent growth of the services sector. However, we noted that the rural workforce has not gained much from the labour market deepening in the IT sector. Thus, they argue that the benefits of rapid economic growth in the more productive and high-income-earning services were not obtained in rural areas.

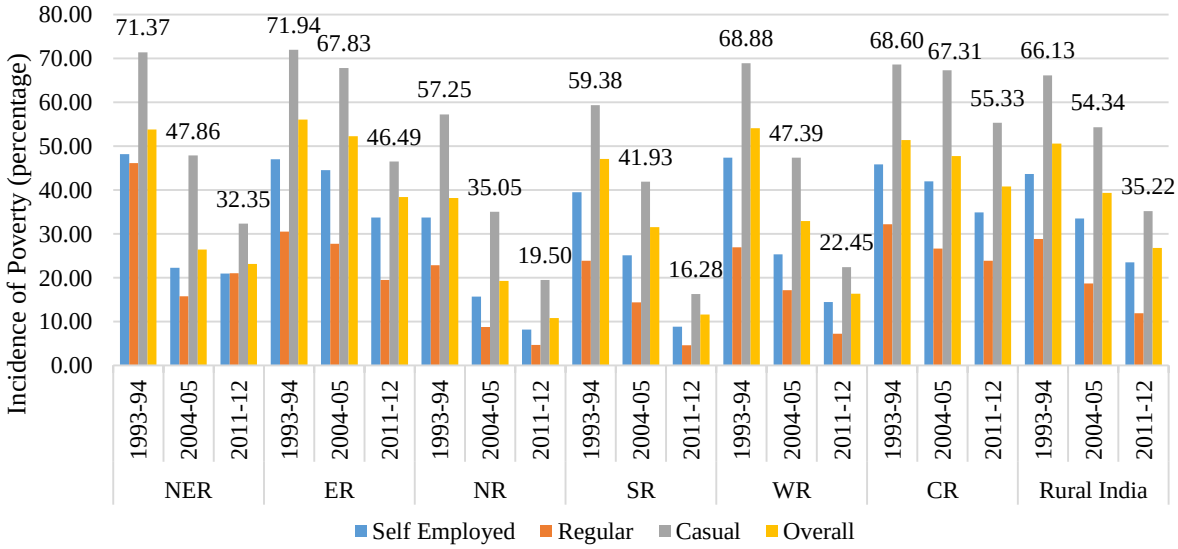
The in-depth analysis may bring out more relevant findings in this direction. The region-wise examination has been done to explore the incidence of poverty in different activities during 1993-94 to 2011-12. As evident from the past data and literature, the popular and flourishing activity in rural India within non-farm is largely construction and the incidence of poverty is as high as its popularity; it seems to be popular among poor only (Bhalla, 2011; Himanshu et al., 2011). Appendix Table A.5.3 shows that construction activities provide employment to the majority of the poor households. More than 60 percent poor households were engaged in one or other kind of construction activities in CR followed

by ER (44.21 percent) in 2004-05. Even after the decline in proportion (9.3 percent points), the incidence of poverty is high among the construction workers in CR (51.7 percent) as compared to other industrial activities during 2011-12. In manufacturing, CR also ranks highest as 54.8 percent of the poor people were working in the region during 1993-94 which was high as compared to other regions (ER-52.8 percent and NER- 45.8 percent). After almost two decades (18 years), the proportion of poor manufacturing workers still remains high in CR (43.3 percent) followed by NER (34.41 percent) and ER (33.77 percent) during 2011-12. Within services activities, transport and storage activities are also contributing more for CR as 39.19 percent of the population engaged in these activities are poor (during 2011-12). Other services, which consist of education, public administration, and defence activities, etc., also absorbed 27.31 percent of poor households in CR which is highest as compared to any other region (Table 5.4). Thus, CR is found to be the poorest region among all the regions as poverty incidence in this region is highest in all the activities during 2011-12.

5.4. Booming Casual Employment: A Serious Concern

Merely discussing about the proportion of poor does not reveal much about the nature of employment; the picture becomes clearer when the status of employment activities (such as self-employment, casual employment, regular employment, etc.) is taken into account as the status indirectly depicts the quality of employment and the working conditions associated with a particular type of activity (Bieler, 2009; Chadha, 1994; Ellis, 1999; Haggblade et al., 2002; Papola and Sahu, 2012; Sen, 1996).

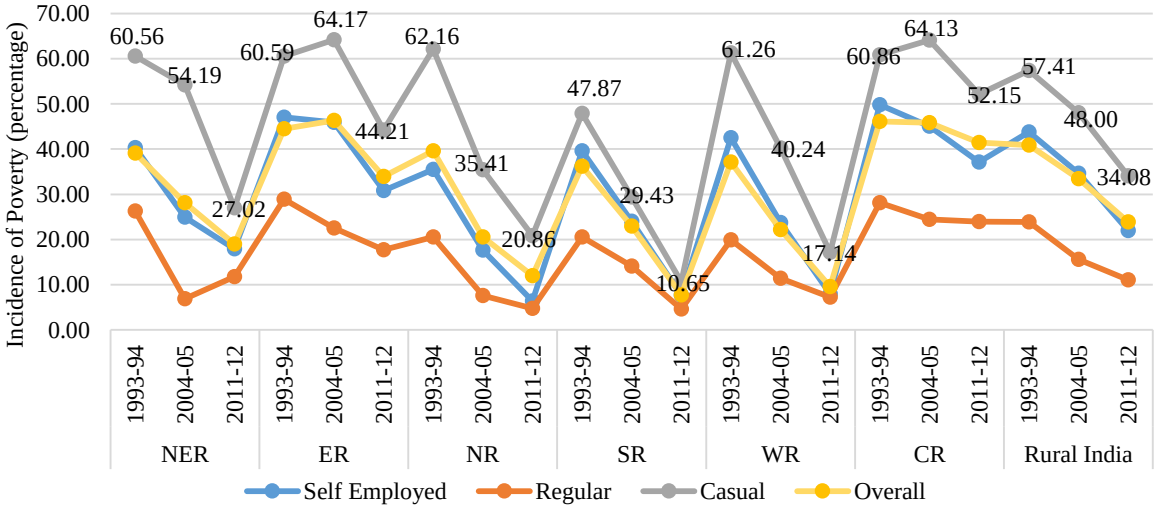
Figure 5.4: Employment Status-wise Incidence of Poverty Across Different Regions of Rural India



Source: Calculated from NSS EUS 50th, 61st and 68th Rounds (Government of India, 1993-94, 2004-05, 2011-12)

For rural India, the region-wise and overall status of employment during 1993-94 to 2011-12 has been shown in Appendix Table A.5.4 and A.5.5. The poverty estimates show that the proportion of poor is highest among casual labourer (35.22 percent), followed by self-employed (23.55 percent) during 2011-12 after the decline by 19.12 percent points and 9.98 percent points. It is also quite evident that casual employment followed by self-employment often results in low productivity along with low returns (Haggblade et al., 2002; Haggblade et al., 2005; Jha, 2006) and pushes people more into poverty trap. Casual and self-employment has also been considered as a coping strategy, which helps only to sustain the living rather improve the living (Jatav and Sen, 2013; Möllers and Buchenrieder, 2011). Moreover, the absorptive capacity of such kind of employment is more as they can hire more workers with low skill and low level of education. That is why poor people can easily join these activities and endure their livings. However, to say these help in getting out of poverty simply denies the reality (Bieler, 2009; Chadha, 2008; Ellis, 1999; Papola and Sahu, 2012). On the one hand, there are sufficient evidences to show the importance of regular employment to get rid of poverty and to raise the standard of living (Himanshu et al., 2011; Imai et al., 2012) but 20 percent of the poor households are engaged in regular employment too during 2011-12.

Figure 5.5: Employment Status-wise Incidence of Poverty in RNF Sector across Different Regions



Source: Calculated from NSS EUS 50th, 61st and 68th Rounds (Government of India, 1993-94, 2004-05, 2011-12).

The region-wise analysis for poverty incidence in different employment types also makes CR to top the list of poor households in every kind of employment be it casual (55.33 percent), self-employed (34.94 percent) or regular wage earner (23.88). The proportion of poor households as casual labour is extremely high (more than 50 percent) during 2011-12.

Such low quality of employment (Casual Labourers) is widely available for poor as they cannot afford to be unemployed and accept "less productive", low remunerative and less advantageous jobs with informality and no social security (Abraham, 2009; Bieler, 2009; Chadha, 2008; Ellis, 1999; Haggblade et al., 2002; Papola, 1994; Sastry, 2004). Some scholars such as Himanshu et al. (2011) and Imai et al. (2012) have also shown that the non-farm activities (especially Casual Non-agricultural Labourer) have helped the poor to manage their livings by providing employment and income and even to break the poverty trap. Nevertheless, this argument stands invalid in case of the present study as a proportion of poor in Casual Non-agricultural Labourer is highest in poorest CR (55.33 percent) and ER (46.49 percent).

The status of employment within non-farm sector also raise some severe issues regarding impoverishment across employed (refer, Figure 5.5). The analysis reveals that majority of the poor households are employed as casual labourer and they were highly concentrated in CR (64.13 percent) followed by ER (64.17 percent) and NR (62.16 percent) in 1993-94. Even during 1993-94 to 2011-12, the proportion of poor employed as Casual Labourer has witnessed a drastic decline in all the regions, but rate of decline is lowest in the case of CR (0.74 percent points per annum). The proportion of poor is also highest among self-employed (comparatively less than casual labourers) for which CR (34.94 percent) also stands out to be poorest, followed by ER (33.71 percent) and NER (20.97 percent) in 2011-12.

Thus, the employment status highlights the engagement of poor households as casual labours in rural India as whole and in rural non-farm sector specifically. The low productive and low remunerative nature of casual employment hints that poor involved in these kinds of employment are surviving on both ends meal basis and to come out of the poverty is very difficult for them.

5.5. Determinants of Poverty in Farm and Non-Farm Sector: A Logistic Regression Analysis

To analyse the possible determinants of rural poverty in farm and non-farm sector, a logistic regression has been used. The probability of being poor or getting out of the poverty line depends upon many factors which include micro as well as the macro factors. The present study considers micro factors (household level) such as, household size, land ownership, social group, education, age and gender of head of household, type of employment and skill level of the employed households etc as independent variables (refer, Table 5.1). It also examines the macro factors that affect the rural poverty for instance agricultural Net District Domestic Product (NDDP), rate of urbanisation, village electrification, proportion of RNF

employment and population density etc. For identifying micro factors logistic regression is applied and macro level factors are analysed using multiple regression model (OLS). The independent variables used in the analysis are described in Table 5.1, and the estimates of the micro and macro determinants are shown in Table 5.7 (micro) and Tables 5.8 and 5.9 (macro). The values of F-statistics indicate that all the models are fit to study the determinants of poverty.

Table 5.1: Description of the Independent Variables in the Logistic Regression

Variables Notation	Description	Categories	Expected relationship	Studies related to determinants
Macro Variables				
Agriculture NDDP	Net District Domestic Product (Agriculture)	Continuous	Negative	Warr, 2002; Virmani, 2007; Sharma and Kumar, 2011; Grewal, Grunfeld, & Sheehan, 2012;
Urbanisation	Proportion of urban population to total population	Continuous	Negative as well as positive	Calì and Menon, 2013
Electrification	Percentage of Village Electrified in a village	Continuous	Negative as well as positive	Banerjee, Barnes, Singh, Mayer, & Samad, 2015; Samanta, 2015
Agriculture Wages	Wages in Rs.	Continuous	Negative with Agriculture Wages	Lanjouw and Murgai, 2008; Himanshu, Lanjouw, Mukhopadhyay,& Murgai, 2011; Venkatesh, 2013
RNF Employment	Proportion of RNF employment	Continuous	Negative	Haggblade et al., 2002; Himanshu et al., 2011
Population Density	Population proportion per square km	Continuous	Positive	Shah 2013
Micro Variables				
Social Group	Social Group/ caste to which a household belongs	Scheduled Caste(SC), Scheduled Tribe(ST), Other Backward Classes(OBC), Others	Positive relationship with SCs and STs and negative with OBCs and Others	Meenakshi & Ray, 2000; Jha, 2002; Haggblade et al., 2005; Himanshu et al., 2011; Arora & Singh, 2015
Age	Age of head of the household (in years)	15-29, 30-59 and 60 and above	Positive with age group 15-29 and negative with age group 30-59. In addition, the relationship with 60 and above can be in both ways.	Anyanwu, 2013b
Skill Level	High and low productive occupations	Divisions have been classified in tune with the defined skill levels to accommodate Occupations- Level I, Level II, Level III, Level IV, Skill level not defined	Positive with occupations with low skill level (level IV and III) and negative with high skill level occupations (level I, II)	Ellis, 1999; Sastry, 2004; Bieler, 2009; Government of India, 2012b; Papola and Sahu, 2012
Education	Levels of educational attainment of the head of the household.	Not literate, literate without formal schooling, below primary, primary to middle, secondary to higher secondary, diploma/certificate course, graduate and above.	Positive with not literate and Negative with all other categories	Haggblade et al., 2002; Jha, 2002; Ranjan, 2009; Himanshu et al., 2011
Land	The size of land holdings (in hectares) owned by a household.	Landless Household = not own any Land, Marginal Land Owner= <1 hec, Small Land Owner= <2 hec, Semi-Medium Land Owner = 2-4 hec, Medium Land Owner =4-10 hec, Large Land Owner= 10 and above	Positive relationship with landless and marginal farmers and negative with rest of the four categories.	Haggblade et al. 2002; Jha, 2002; Chadha, 2008; Ranjan, 2009
Household Type	Employment status of the household	Casual Agricultural Labour (CAL), Self-Employed in Agriculture (SEA), Self-Employed in Non-Agriculture (SENA), Casual Non-agricultural Labour (CLNA), and Others.	Positive relationship with CAL, CNAL, and negative with other three categories.	Sen, 1996; Ellis, 1999; Haggblade et al., 2002; Chadha, 2008; Papola & Sahu, 2012
Household Size	Number of family members (including	in absolute terms	Positive	Lanjouw & Ravallion, 1995; Anyanwu, 2013b; Arora &

	children) in the household			Singh, 2015; Chauhan et. al., 2016;
Gender	Gender of head of household	0= if the head of the household is male; 1= if the head of the household is female	Positive relationship with Female and negative with Male	Meenakshi & Ray, 2000; Haggblade et al., 2002; Chant, 2006; Ranjan, 2009; Anyanwu, 2013b

Note: Dependent variable (BPL) is defined as 1= if the household is poor, 0= if the household is non-poor (for Micro Level Model)
Dependent variable BPL= District wise proportion of poor (for Macro Level Model)
Source: Author's Own Compilation

5.5.1. Macro Determinants of Poverty

5.5.1.1. Agriculture Growth

Agriculture growth plays an important role in poverty reduction of rural areas. It reduces poverty because of two reasons 1) high proportion of poor still depends upon agriculture for employment; and 2) poorest section with low assets and no skill find difficult to absorb themselves in RNFS and ultimately have to engage in agriculture to cope up with poverty (Sharma and Kumar, 2011; Virmani 2007). In line with the literature, our regression results presented in Table 5.8 also show the negative impact of agriculture growth on poverty i.e. with increase in agriculture NDDP by 1 percent point, proportion of poor decreases by 1.16 percent points in NER which is the highest effect among all the regions followed by SR (0.55 percent points) and CR (0.51 percent points) during 2004-05. The effect is declined during 2011-12 and CR (0.95 percent points) followed by WR (0.525 percent points) and ER (0.522 percent points). Thus, it is certain that agriculture NDDP helps in declining incidence of poverty but rate of reduction varies across regions.

5.5.1.2.Electrification

Electrification in rural areas also reduces the proportion of poor. According to the World Bank (2007) "Rural electrification in India has caused changes in consumption and earnings, with increases in the labour supply of both men and women, and promoted girls' schooling by reallocating their time to tasks more conducive to school attendance" (Cruz et al. 2015). According to our results, rural electrification impacts poverty more in NR as with increase in 1 percent point village electrification leads to reduce the incidence of poverty by 1.32 percent points followed by WR (0.559 percent points) and SR (0.166 percent points) (refer, Appendix Table A.5.7). The electricity impact the agriculture regions through promotion of high-yield varieties of crops and the spread of irrigated agriculture, facilitated by electric water pumps. Replacement of traditional methods of irrigation by electrical pump sets in electrified villages, resulted in increased agricultural productivity which in turn helped in poverty reduction. The CR shows least reduction (0.062 percent points) in poverty proportion with increase in electricity by 1 percent point during 2011-12.

In the Indian context, the access to electricity have more impact than installing grids in the villages. For instance, in India, 90 percent of villages have electricity, but only 40 percent of rural households have access (ESMAP 2002). In states like Uttar Pradesh (CR), even after the electricity connection to the grid, the electrification impact is unclear on livelihood of poor section, because of poor availability and quality of the service provision. Many poor households are not capable of purchasing electrical appliances to efficiently use the electricity.

5.5.1.3. Urbanization

Urbanization is described as the proportion of population living in the urban areas to the total population. As mentioned in the discussion earlier, the rate of urbanization can also have positive impact on poverty reduction especially in rural areas. In literature, two types of urbanization impact are mentioned which are both helpful as well as detrimental to the growth. There can be two major reasons behind high rate of urbanization: natural increase in population and rural to urban migration. The negative impact of increasing urbanization due to later effect can be congestion, environmental degradation and growth of slums etc. which can even led to increase in urban poverty in some cases. But on the other hand, the positive impact is on rural areas as: a) the migrated people constitute mostly the poor section of the rural areas b) getting employment though low productive or low remunerative helps in reducing poverty by transfer of remittances. Cali and Menon (2013) also support these positive impacts of urbanization through two rounds. First round is explained through the process of migration (direct effect) and thereafter second channel is described through the spillover effects of urbanization (indirect effect).

Our regression estimates show the negative and significant impact of urbanization on poverty i.e. with increase in rate of urbanization, the rate of incidence of poverty declines in rural areas for all the regions during 2004-05 to 2011-12; only the extent of impact varies across regions (refer, Appendix Table A.5.7). The impact of urbanization is highest for CR, which causes decline in poverty by 0.64 percent points with increase in rate of urbanization by 1 percent point during 2011-12.

5.5.1.4. Agriculture Wages

Along with agriculture growth, agriculture wages also plays important role in poverty reduction in rural areas. As shown in Figure 5.5 the largest share of the poor workers is among casual agriculture labour during 2004-05 as well as 2011-12. The reason can be casual work can absorb the people with low level of education and skill. Even then, there is decline in proportion of poor along with large proportion of casual agriculture labour. The

effect of slightly rise in wages can push them out of poverty. In support to this, Lanjouw and Murgai (2008) observes the role of rising agriculture wages in poverty reduction and confirm that only RNFE is not directly and independently related to poverty reduction. Even it is also evident in case of India that agricultural real wages have growth faster as compared to RNF wages (Venkatesh 2013). However, expansion of RNF employment can be associated with increase in agriculture wages. Himanshu et al. (2011) also speak about the indirect effect of RNF sector on poverty reduction through rising agriculture wages (specifically in case of Uttar Pradesh). The regression estimates of our study show that, agriculture wages turn out to have statistically significant impact on the poverty reduction However, the role of wages is found significant in poverty reduction for all the regions except WR in 2011-12 (refer, Appendix Table A.5.7).

5.5.1.5.RNF Employment

While analyzing the RNF sector as a boon it only acts as a coping strategy as it helps the poor to get employment and offset the income fluctuations when there is dearth of other coping institutions. Thus, it helps in lowering down the poverty up to some extent but it does not essentially improve the rural income distribution (Islam 1997). It has been also observed that rich people get the benefit from the formal or regular sector jobs in RNF sector rather low income groups are dependent on wage labour only (Haggblade et al. 2007).

Table depicts that, for rural India the impact of RNF employment on poverty is significant but negative i.e. it helps in reducing the proportion of poor by 0.49 percent points in 2004-05 which has even declined to 0.12 percent points in 2011-12. But region specific analysis shows mixed results. During 2004-05, RNF employment increases the poverty by 1.73 percent points in WR followed by 1.43 percent points in CR, with increase in proportion of RNF employment by 1 percent point. On the other hand proportion of poor declined by 0.56 percent points in ER followed by NER (0.40 percent points) and NR (0.27 percent points) with increase in RNF employment by 1 percent point. However, for CR, ER and NER, RNF employment is found to be significant positively associated with proportion of poor during 2011-12. The highest proportion of casual labours (52 percent, 44 percent and 27 percent in Figure 5.5) in these regions can be one of the reason for not lowering down the incidence of poverty because such kind of employment usually involve low returning and low productive activities (refer, Appendix Table A.5.7).

5.5.1.6.Population Density

Population density also plays an important role in determining the growth level of extent of development in an area as the growth distribution will be shared by more number of persons living in a particular area. With increasing urbanization and higher congestion this phenomenon is now growing more in urban areas. Higher the rate of population density implies greater crowding or social goods spread, among more and more people. This could influence the environment in a number of ways - overgrazing of crops or fishing pools, increased susceptibility to disease, more pressure on geological/natural processes, etc. Since the population density acts as the positive factor for poverty but negative for poverty decline. The population density is increased during a decade period (2001-2011) and hence our results also find to be positive and significantly associated with incidence of poverty. It has contributed in increasing the incidence of poverty in CR (1.023 percent points) as compared to other regions with increase in person per square km (refer, Appendix Table A.5.7).

5.5.2. Micro Determinants of Poverty

5.5.2.1. Household Size

Household size (the total number of members in a household) is a major factor in determining the likelihood of being poor. A number of studies have highlighted the positive association between the household size and poverty (Anyanwu, 2013; Arora and Singh, 2015; Chauhan et al., 2016; Lanjouw and Ravallion, 1994). Lanjouw and Ravallion (1995) explained that with an increase in the household size, the burden of consumption expenditure increases and without increment in additional income source, the burden of distribution of same income among more members raises the probability of getting into the poverty. Anyanwu (2013) also shows the positive correlation between poverty and household size, while specifying the household size, that is, having seven members in a household, the probability of being pushed into poverty is more than having one member in a household. In line with the literature, the regression estimates of the present study also reveal a positive and significant association between household size and odds of being poor for rural India (1.234 in 1993-94 and 1.364 in 2011-12). However, the odds ratios of being poor are higher for NER (1.474) and SR (1.445) during 2011-12 which is higher than the estimates for rural India (refer, Appendix Table 5.6).

5.5.2.2. Land Owned

One of the most valuable assets, which rural people can have, is land. Its ownership can strongly be associated with the lesser probability of being poor. In rural areas, landless,

marginal, and small landholding households constitute the largest block of rural poor, and the likelihood of sinking more into the poverty fades away with the increase in the size of land holdings (Chadha, 2008; Haggblade et al., 2002; Ranjan, 2009). The regression estimates reveal that probability of being poor is very less for large land owners (>10 hec) followed by medium (6-10 hec) and semi-medium (4-6 hec) land owners in comparison to landless households. The likelihood of being poor for marginal land owners is higher for CR (1.683) during 2004-05 but during 2011-12 the probability is lower in comparison to landless households for all the regions. However, as comaperd to landless during 2011-12 for all the regions (refer, Appendix Table A.5.6). The point to note here is that even the small piece of land (marginal and small land holdings) offer some sort of security to the owners and they have lower chances of being poor as compared to those who don't own any land. As the size of land holdings increases (from small to medium then to large) , the chanches of being poor become lesser in reference to landless, holding other factors constant. The medium and large landowners continue to enjoy economies of scale as cultivating on large size land holdings involve only a marginal rise in cost and therefore a lower financial burden.

5.5.2.3.Social Group

The social group/ caste of a household plays an important role in determining the level of poverty across them (Arora and Singh, 2015; Lanjouw and Shariff, 2004; Ranjan, 2009). Sometimes, due to specific social group obligations, a person has to follow the profession or job which the ancestors of that group were doing since ages. Thus, certain social groups, SC and ST, in particular, form disproportionately large sections of the poor. Moreover, discrimination, weak asset base, and restrictions on geographic and occupational mobility all conspire to limit the access by key disadvantaged social groups and move to even less remunerative rural non-farm activities and are having less probability of getting out of the poverty in which presently they are (Haggblade et al., 2002; Haggblade et al., 2005; Himanshu et al., 2011; Jha, 2002; Meenakshi and Ray, 2000). The regression estimates show that odds of being poor are less for SCs for all the regions except NER (2.43 in 2004-05 and 1.41 in 2011-12) followed by OBCs and Others in comparison to STs. As they are less capable of being employed in high productive non-farm activities, their probability of being poor is less than the STs (refer Appendix Table A.5.6).

5.5.2.4. Education of head of the household

The negative relationship between the education level of household head and poverty is extensively documented while highlighting the role of education in poverty reduction. Being

more literate, they are more aware of the job market opportunities than their illiterate counterparts (Jatav and Sen, 2013; Möllers and Buchenrieder, 2011; Ranjan, 2009). Education also enhances the labour productivity and makes the rural poor capable of availing those opportunities which earlier they were not even thinking of. The regression estimates also show that heads of households with no education have a higher probability of being poor than those with at least primary education and the likelihood of being poor decreases as the level of education of head of household increases from primary to secondary and then graduation and above, holding other factors constant. It is, in fact, least among the diploma holders, that is, the odds ratio is 0.160 and 0.187 during 2004-05 and 2011-12 respectively in rural India (refer, Appendix Table A.5.6). The higher level of education makes them aware of the better available employment opportunities, technical know-how, and their rights and obligations (Jha, 2002). Thus, after being a graduate, the household's head has even lesser probability of being poor in the all the regions.

5.5.2.5. *Age of head of the household*

Age of head of the household also has an impact on the probability of being poor. It is also assumed that age of the household's head is not linearly related to the poverty and has more probability of being poor at the initial stage of the life and less probability of being poor at a later stage of life as compared to working class of age group 30-59. Regression estimates shows that, workers of age group 30-59 are having less and significant likelihood of being poor (0.899 in 1993-94 and 0.705 in 2011-12) in rural areas as compared to person of age group 15-29. Most of the youth (15-29) in India participate in the labour market at an early stage. Being a head of the household, they cannot afford to remain unemployed for long and, hence, pick up activities characterized by low labour productivity (Mitra and Verick, 2013). So, chances of being poor increases as compared to working class of age group 30-59. However, as they become the part of working population, expertise in a specific task helps them to move to another secure kind of job, which increases earnings and helps them in getting out of the poverty. Furthermore, more age adds experience to the job and helps in earning more (refer, Appendix Table A.5.6). Moreover, the sample consists of only employed elderly (60 and above) of both the sectors so due to the absence of old dependency (which is the main reason of poverty among the elderly) also reduces the chances of being poor (Möllers and Buchenrieder, 2011).Thus, the chances of getting being poor with age group 60 and above are less (0.411 in 2011-12) as compared to age group of 15-29.

5.5.2.6.*Gender of head of the household*

The gender of the head of the household also influences the likelihood of being poor. It has been argued even worldwide for women empowerment to encourage the economic growth and also to reduce poverty because the female has remained the disadvantageous group even in the developed world but the phenomenon is more prominent in the developing world. Even being the head of the household, social and cultural obligations and child rearing responsibilities also hinder their growth and participation in the labour market (Haggblade et al., 2002; Ranjan, 2009). Therefore, they get fewer chances to expose themselves and take the advantages of growth opportunities and consequently are more likely to be poor. Moreover, due to a lower level of education and lack of ownership of assets (such as land) poverty is more prevalent among the female headed households[12] (Anyanwu, 2013; Meenakshi and Ray, 2002) and they are also tagged as '*Poorest among the poor'* (Chant, 2006). The regression estimates shown in Appendix Table A.5.6 highlight that the female headed households (odds ratio: 1.1) are comparatively more poor in reference to male headed households in non-farm sector particularly during 2011-12, keeping other factors constant. However, in the case of the farm sector, female-headed households possess the lesser likelihood of being poor in 2004-05 as well as in 2011-12 (odds ratios: 0.882 and 0.887). Possibly, it may be due to the feminization of agriculture during that period when most of the females in rural areas were working in field, and male members of the household were shifted to urban areas for employment (Kanchi, 2010; Sharma and Saha, 2015).

5.5.2.7. Household Type

To know which type of employment helps households to get rid of poverty or pushes them into poverty, different kinds of employment have been taken into account (refer, Appendix Table A.5.6). For rural India, probability of being poor for casual labourers is higher as compared to any other kind of employment during all the periods i.e. from 1993-94 to 2011-12, keeping self-employed in farm as reference. Within casual employment, casual labour in farm has more likelihood of being poor as compared to casual labour in non-farm. At regional level, self-employed in non-farm also have the probability of being poor for SR (1.534), followed by CR (1.342) during 2011-12. The existence of small enterprises and own account self- employment in non-farm raises the chances of being poor as compared to self-employed in farm. Thus, regression estimates are in tune with the fact that casual labour in

[12] It must be noted here that the term 'female headed household' is used for those female who are socially accepted by the members of the household as its head, usually the senior-most, not necessarily who economically supports the family- Meenakshi & Ray (2000).

farm is the most crushing burden of the rural poverty (Chadha, 2008; Haggblade et al., 2002; Sen, 1996). The high incidence of poverty among the Casual Non-agricultural Labourer in RNF has been reported earlier in section 5.4. The reason for this can be well associated with the absorption of more workforce in either casual labour in non-farm or low productive self-employed in non-farm, which acts only as a coping strategy for the poor households (Bieler, 2009; Ellis, 1999; Papola and Sahu, 2012).

5.5.2.8.Skill Level

The returns on employment activity depend upon the level of skill required in a particular sector. Banerjee and Duflo (2007) observe that poor people are involved in the businesses (particularly in non-agriculture) that require relatively low level of skill or specialization resulting in low earnings. They also quote example from a survey done in Hyderabad during 2005 where non-farm activities include 11 percent tailors, 8 percent fruit and vegetable sellers, 17 percent small general stores, 6.6 percent telephone booth operators, 4.3 percent auto owners, and 6.3 percent milk sellers. Out of this, only tailoring requires the high level of skill that is acquired after a long time and thus associated with higher returns.

In the present study, different kinds of occupations are classified into four categories on the basis of level of skill acquired. Legislators, Senior Officials and Managers are not classified under any of the category as skills for executing task and duties of these occupations vary to such an extent that it would be impossible to link them with any of the four broad skill levels (NCO, 2004). Thus, this classification indicates indirectly the type of employment and the returns associated to it.

The logistic regression estimates show that the chances of being poor declines with improvement in levels of skill. The proportion of poor in level II is highest among all the higher levels, thus chances of being among poor are more (0.879 in 2011-12) than level III (0.621) and level IV (0.842) during 2011-12. Level II includes the clerks, service workers and shop & market sales workers, skilled agricultural and fishery workers, craft and related trades workers, plant and machine operators and assemblers etc. whereas level I constitutes the elementary occupations, according to NCO-2004 classification of India (refer, Appendix Table A.5.6). The regression estimates reveal that as workers acquire higher level of skill, they have less likelihood of being among poor. From this analysis, it is clear that working poor are mainly concentrated in level I and level II as for getting employment under these categories, low level of skill and education is required. Thus, poor people who cannot afford being unemployed usually offer themselves for work under these two categories of work.

5.5.3. Other Factors

The argument related to a positive relationship between RNF employment and poverty reduction has been given by a number of scholars through an increase in the income and employment worldwide[13]. Based on some evidence, simply assuming it as the only factor behind this decline will not be judicious. The evidence have also been given where poverty has risen along with the expansion of RNF employment, but generalisation may not be viable. Because the growing non-farm sector may not be driving down poverty and it is quite possible that poverty would have risen markedly along with a constant share of the non-farm sector. It is also possible that both poverty and the non-farm sector were driven by third forces, such as migration patterns or technological change in agriculture[14] or remittances from urban areas (Haggblade et al., 2005; Kanchi, 2010; Sharma and Saha, 2015). Population growth, leading to declining per capita land holdings and environmental degradation[15], could be a powerful force in rising poverty if offsetting factors, such as, an expanding non-farm sector or growing agricultural productivity were not present. Again, the relationship between poverty and the non-farm sector may be more understated than initial impressions would suggest. So, to simply generalise the positive relationship is not possible (Haggblade et al., 2010). Thus, this remains an issue of concern whether rural poor are actually benefitting from the growth of RNF sector or other factors along with RNF employment help during the benefiting process.

5.6. Summing up

The broad picture, which emerges from these findings, is that non-farm activities appear to be strongly associated with declining incidence of poverty but in-depth analysis shows that the poor face significant pressure to explore opportunities in the RNF economy. The lack of their human (such as, education and skill), financial, and physical (such as land ownership)

[13] Majority of the rural households in Southern Africa (around 40%), South Asia and Latin America (around 60%) are dependent on RNF incomes (Haggblade 2007) and in Balkans and Central and Eastern Europe, 30-50% of their income is derived from non-farm sources (Pearce and Davis 2000). In India, between 1999-2000 and 2004-05, rural non-farm employment increased by 16 million (UPS), of which 8 million (nearly 50 percent) was in the form of self-employment, 5 million as casual employment, and 3 million as regular employment (Himanshu, 2011).

[14] Indeed, Ravillion and Chen (2004) argue that agriculture growth played a more important role in explaining the decline in rural poverty in China during past two decades than did expansion of secondary or tertiary sector.

[15]According to Liu, Y. (2017), Households in areas with bad natural condition are possible to join non-farm activities because of high risks on agricultural production. On the other hand, households in the areas with good natural condition are also attracted to involve in non-farm activities in order that they could earn more money to help them free from the budget or loan constraint.

assets often confines them to low productive, low remunerative and low-growth labour market segments, of which there are few pathways out of poverty, simply a means of bare survival.

The regression analysis identifies the macro and micro level determinants of rural poverty. At macro level, agriculture NDDP, urbanization, agriculture wages and rural electrification along with RNF employment turn out to be the significant factors in reducing poverty. But role of RNF employment is mixed (negative as well as positive) at region level. For regions with high proportion of casual employment, RNF employment increases the proportion of poor. At micro level, illiteracy, low skill level, casual employment and landlessness are found to be the significant factors in increasing the probability of being poor.

6.1.Introduction

The hype of RNF sector is generally due to being the adequate alternate for unemployed or disguisedly unemployed persons but some issues concerned to the sector are yet to be answered, such as: which types of jobs are workers getting? Is the work opportunity provided temporary or permanent in nature? Are workers better off after involving in the alternative opportunities of employment? These issues become vital to assess the importance of RNF employment because in some cases it has been observed that by changing the occupation, workers do not get benefits i.e. there is merely a shift from one low productive occupation to another low productive occupation. The changing nature of the rural sector also suggests that simply being employed in RNF sector is not sufficient for evaluating the rural livelihoods; the quality and sustainability of employment is also important. The population is being shifted to the RNF activities which are often seasonal, irregular and low paid, informal and insecure, and without the benefits of health and unemployment insurance and pensions along with no employer-employee relationship (Jha 2006; Lanjouw and Shariff 2004; Start 2001; Binswanger- Mkhize 2012). Thus, this new form of structural transformation in India has been stated as stunted (Binswanger- Mkhize 2013).

High quality jobs are usually more productive and require high skill and training from workers. It is true that, improvement of quality entails some costs (for e.g. provide training to the workers) but poor quality of employment can lead to a range of less than positive outcomes for employees, society and for the whole economy (Johri, 2005). The quality of worker's job has a direct impact on her standard of living and well-being. Moreover, it can also be an important driver of labour force participation, productivity growth and aggregate economic performance. Hence, improving the quality of employment deserves attention of policy makers and the government.

This chapter deals with the measurement of quality of employment provided by RNF sector. The section 6.2 starts with introducing the concept and definition of quality of employment with elaboration of how concept changed overtime from quality of working life to individual wellbeing and further to quality of employment. The next section deals with the measurement of quality of employment using the considered indicators which is elaborated by individual indicators and then aggregation.

6.2. Quality of Employment: Concept and Definition

Quality of employment is not defined through a single indicator or variable it comprises the subjectivity and multidimensionality and hence, to define in a straightforward way would be very difficult. Johri (2005) states that 'Quality of employment includes the objective characteristics related to employment (both specific to the occupation and general relating to the wider labour market), characteristics of the employed, the match between employed workers and characteristics of employment, and the subjective evaluation of the worker'. Thus, it emphasizes upon the individuals own satisfaction along with the labour market conditions. Alois, (2002) agrees the argument by saying that it implies "work organization adapted to the needs of both business and individuals".

The concept of decent work is also related to the quality of employment. As introduced by the ILO in 1999, decent work is defined as 'opportunities to obtain decent and productive work in conditions of freedom, equity, security and human dignity (for both men and women)', (Anker et al 2003). It also signifies that at the aggregate level; laws, regulations and institutions enable a growing number of people in all societies of the world to work without harassment, in reasonable security and with steadily improving opportunities for personal development, while earning enough to support themselves and their families (Standing, 2002). Thus, along with income earned by the worker, individual development and conducive working conditions also play important role. Anker et al (2003) describe six dimensions of decent work namely: opportunities for work; work in condition of freedom; productive work; equity in work; security in work; and dignity at work. The first two dimensions focus on the availability of work and the remaining four dimensions focus on the decency of the work itself. Several statistical indicators are used to represent the above dimension to construct Employment Quality Index (EQI).

Similarly, Ghai (2003) envisages the factors that are important in determining the decency of work. He argues that at the macro level, a country provides decent work when there are sufficient employment opportunities, remunerative employment, safe working conditions, social security, no forced or child labour, no discrimination at work, freedom of association in the work place, collective bargaining and economic democracy.

The recent estimation regarding quality of employment highlights the indicators for measuring the quality of employment provided by United Nations (2015). The report provides more than 30 indicators divided into 7 dimensions which deals with major aspects related to quality such as: safety, monetary and non-monetary benefits, security, skill development and work life balance, working time and collective bargaining etc.

6.3. Quality of Employment: Changed Importance Over Time

The section explains that terminology which imbibes the quality parameters of employment is very confusing. The expressions such as 'quality of working life' (predominantly linked to workers' own evaluations of one's job), 'job quality' or 'quality of work' (often focussing on the job content and work environment) and 'decent work' and finally 'quality of employment' are often used interchangeably and without clear definitions. This reflects the complexity of the issue of quality of work. The complexity arises because of inclusion of not only multiple facets of jobs, but also multiple levels on which jobs can be analysed, ranging from a particular work environment to broad labour market systems in which jobs are performed. It also reflects the fact that different academic disciplines have focused on different aspects of the quality of employment (refer, Table 6.1).

Table 6.1: Evolution of Concept of Quality of Employment

Concept	Time	Focus of the time	Authors/Instititions
Quality of working life	Late 1960s and 1970s.	The nature and quality or non-pecuniary aspects of work were added to economic dimensions (GDP or employment) for quantifying the living conditions.	(Bauer, 1966) (Land, 1975) (Noll, 2004) (Seashore, 1974; Biderman, 1975; Davis, 1977)
Subjective well-being (job quality)	Start of the 1970s	Focused on task characteristics, such as variety, challenge, meaningful work, autonomy and teamwork attributing to subjective well-being.	(Hackman and Oldham, 1975).
New health hazards and the replacement of physical effort by psychological stress directed attention to health outcomes and control over the work process	1980s	Emphasised on skill levels, the degree of job control, and participation at work and job security. The focus was on the aspects that are influenced by the type of production regime.	Dhondt *et al.* (2002)
General measures of job satisfaction as well as specific measures of workers' contentment	1980's	Encompassed both general measures of job satisfaction and specific measures of workers' contentment.	(Land, 1975; Staines & Quinn, 1979; Kalleberg and Vaisey, 2005; Krueger *et al.*, 2002).
Individual's self-development and autonomy	Neo-Marxist tradition	Focused simplification of work tasks by de-skilling and decentralizing by enhancing the separation between head and hand or the planning and execution of work	
Job satisfaction as an important part of the quality of life			Wnuk-Lipinski (1977)
Work-life balance	1990s	Focused attention on the scheduling and duration of working time	

Quality of employment	globalization and deindustrializatio n	The quality of employment dimension started emerging in context of globalization and deindustrialization as it began to effect employment conditions in developed countries, particularly in the USA.	(Bluestone and Harrison, 1984; Loveman and Tilly, 1988; Rifkin, 1995).
Good job based on workers' own evaluations		Job that is valued by the worker and lead to job satisfaction	
Decent Work	1999	To promote opportunities for women and men to obtain decent work and productive work in conditions of freedom, equity, security and dignity. The important question was that how such a broad approach could be operationalized.	ILO, Rodgers and Rodgers, 1989
Quality of jobs	2000, Lisbon Treaty.	Almost in parallel to the ILO's launch of Decent Work, the EU began to focus more explicitly on the quality of jobs. Lisbon development agenda included 'sustainable economic growth with more and better jobs'.	(EUROPA, 2001)
Quality of Employment	Prepared by the Expert Group on Measuring Quality of Employment United Nations, 2015	Safety and ethics of employment, Income and benefits from employment, Working time and work-life balance, Security of employment and social protection, Social dialogue, Skills development and training, Employment-related relationships and work motivation.	Handbook on Measuring Quality of Employment, United Nations Economic Commission For Europe

Source: Author's Own Compilation based on the Literature

6.4. Measurement of Quality of Employment

Measurement of quality of employment is not straightforward. Because of its subjective and qualitative nature; it is difficult to measure it by a single index. However, past researchers made attempt to measure it by using an indicator, by using a range of indicators or by constructing a composite index (Standing, 2002; Ghose, 1999).

In the context of India, there are some studies (Ghose, 1999, 2016; Government of India, 2014) that consider the shares of various types of employment in total employment to construct an Employment Quality Index (EQI). Here, mode of employment is used as a broad indicator of assessing the quality of employment. The study reveals that, at the aggregate level, the quality of employment deteriorated in the sense that the share of low-quality employment in total employment increased. The growing casualisation of employment implies that the level of underemployment has also been increasing. The decline in the labour force participation rate of females must also be regarded as a negative trend.

IHD (2014) uses Employment Situation Index (ESI) to measure the quality of employment in India on the basis of unemployment rate, wages, incidence of poverty among self-employed, trade union density etc. It ranks the states in terms of proportion of the indicators and finally got the index of 'Employment Situation'.

Ghose (2016) uses Employment Structure Index to represent the quality of employment through six types of employment in organized as well as unorganized sectors such as regular employment in organized sector; regular employment in unorganized sector; self-employment in organized sector; self-employment in unorganized sector; casual employment in organized sector and casual employment in unorganized sector.

However, no attempts have been made to measure quality of employment of RNF sector particularly in Indian context. This is specifically important as, such analysis may help to provide precise policy measure to improve the quality of RNF sector.

Table 6.2: Review of Literature of Quality of Employment Indicators

Sr No	Study	Author and Year	Country	Indicators
1	A proposal for internationally comparable indicators	María Ana Lugo (2007)	Africa	"Informal employment; income from employment (including self-employment earnings); occupational hazard; under/over employment; multiple activities; and discouraged unemployment. Protection: 1. Informal employment Income: 2. Income from employment (including self-employed earnings) Safety: 3. Occupational hazard (accidents, illnesses and workplace exposures) Time: 4. Under/over employment (prefer to work more/less than at present) Quantity: 5. Multiple activities (number of income-generating occupations) 6. Discouraged unemployed (prefer to work but have stopped searching)"
2	A multidimensional employment quality index for Brazil, 2002–11	Huneeus et. al. (2015)	Brazil	"They considers three dimensions: earnings, formality measured by the existence of an employment (contract and social security contributions) and job tenure."
3	Quality of Employment and Job Satisfaction: Evidence from Chile	Cassar (2010)	Chile	"Three indicators of quality of employment: job protection, occupational hazard and procedural utility from independence v/s hierarchy."
4	Better Jobs Index: An employment conditions index for Latin America	Inter-American Development Bank (2017)	Latin America	"Multidimensional Employment Conditions Index for Latin America called "Better Jobs Index". Indicators are based on quantity and quality aspects. a) Quantity-Labor force participation, Employment; b) Quality-Formality, Living wage jobs."
5	The Road to Economic Self-Sufficiency: Job Quality and Job Transition Patterns after Welfare Reform	Johnson and Corcoran (2003)	Michigan	Hours worked, Salary and Health benefits;

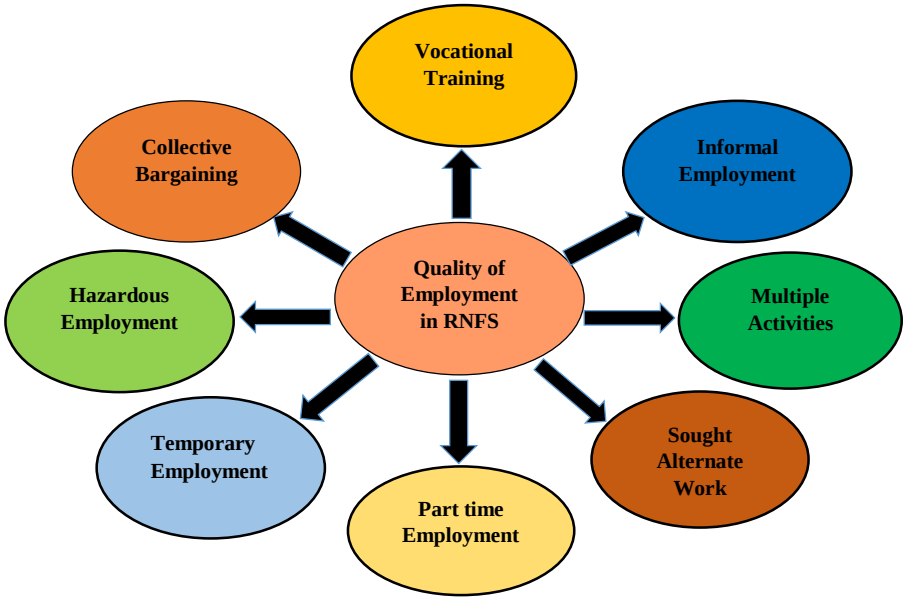
6	The quality of employment and decent work: definitions, methodologies, and ongoing debates	Sehnbruch et. al 2013	Latin America	Income, Contractual Status, Tenure and Vocational training;
7	Measuring the Quality of Employment in the Informal Sector	Floro and Messier 2011	Ecuador	Income, Working Hours, Number of jobs, Job Security and Non-wage Benefits
8	What Determines Job Quality in Nursing Homes?	Hunter (2000)	Massachusetts	"Conducive to workers' well-being, such as employer contributions to health plans, education, compensation plans, provision of child care programs or high wages and promotion opportunities."
9	What Is a Good Job? A New Measure of Labor-Market Success	Jencks et al. (1988)	America	Index of Job Desirability
10	Quality of Employment	Körner et al. (2009)	Germany	Quality of employment seven-layer model
11	Trends in job quality in Europe	Green and Mostafa (2012)	EU member states	"Four dimensions of job quality: Earnings, Job prospects, Working Time Quality and Intrinsic Quality of the job"
12	World Employment Report	ILO 2001	Latin America	"Seven indicators related to employment (unemployment, informality), Income (industrial wage, minimum wage and the wage gap between men and women) and workers' social protection (social security coverage and hours worked)."
13	Decent work and the informal economy	(ILO, 2001, 2002; Lanari, 2005)		"Four new strategic dimensions were incorporated into the index in 2002: compliance with labour standards, quality of work, social protection and social dialogue."
14	Seven indicators to measure decent work: An international comparison	International Labour Review, 2003	Costa Rica, Iran, Japan, Jordan, Macau/China, Mexico, Switzerland and the United Kingdom	Measurement of Decent Work Anker et al. (2003) Bescond et al. (2003) Bonnet et al. (2003)
15	Measurement of decent work	ILO 2008	Tripartite meeting of experts	"The meeting proposed a new set of 19 core indicators, 25 additional indicators and another 8 variables related to the socio-economic context of member countries"
16	Employment Quality Indicators	Central Statistical Office	Warsaw	"31 indicators divided into five thematic groups; 1) Safety And Ethics Of Employment 2) Income From Employment 3) Working Time And Work-Life Balance 4) Security Of Employment 5) Skills Development"

Source: Author's Own Compilation on the basis of Literature

6.4.1. Quality of Employment: Rural India and RNF Sector

The Quality of Employment is measured using the selected indicators (refer, Chapter 3 for detailed explanation of Indicators). Figure 6.1 describes all the selected indicators used to measure the quality of employment in RNF sector. The review of literature related to different indicators of quality of employment used by other studies is presented in Table 6.2.

Figure 6.1: Indicators to Measure Quality of Employment in RNF Sector



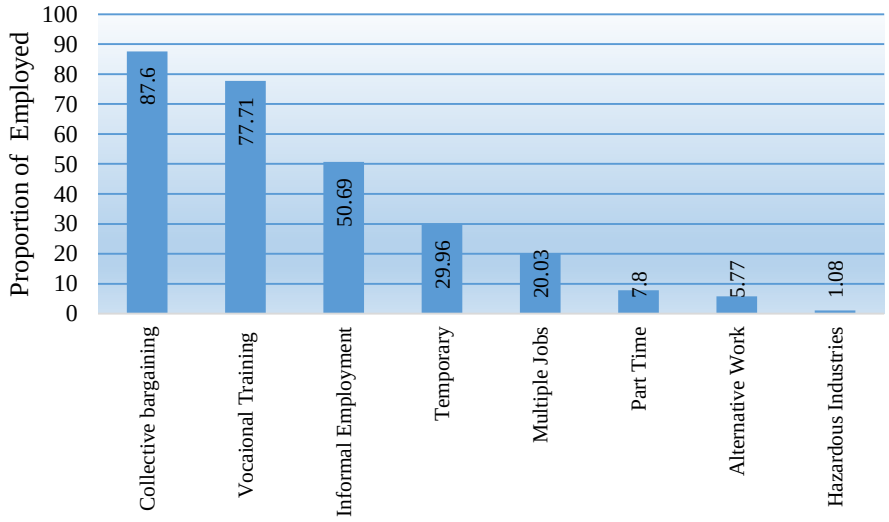
Source: Author's Own Compilation

The overall quality of employment is shown by Figure 6.2 for rural India (for both the sectors). From quality point of view, the highest proportion of the poor state of indicator is absence of collective bargaining i.e. there is no trade union for a particular activity. Total 87.6 percent rural population lack collective bargaining in their activity during 2011-12. The second highest proportion is absence of vocational training. In rural India, 77.7 percent employed workers are engaged in employment activities without any vocational training. It can be the reason why rural population is concentrated in low productive and low remunerative jobs.

In rural India, lack of economic freedom also contributes in lowering the quality of employment along with vocational training. Informality means if person is a casual worker; he is working without any contract; if he is employed as regular wage/salary earner; he does not have any paid leave entitlement and if he is self employed; and he is handling his business or work at his own which means he is an own account worker. If such condition exists, then we say that worker is not enjoying the economic freedom. For rural India, more than 50

percent workers are not having economic freedom. Thus, informality indirectly indicates the low productive and unstable employment type and low quality of employment thereof.

Figure 6.2: Quality of Employment in Rural Sector



Source: Compiled from NSS EUS 68th Round (2011-12)

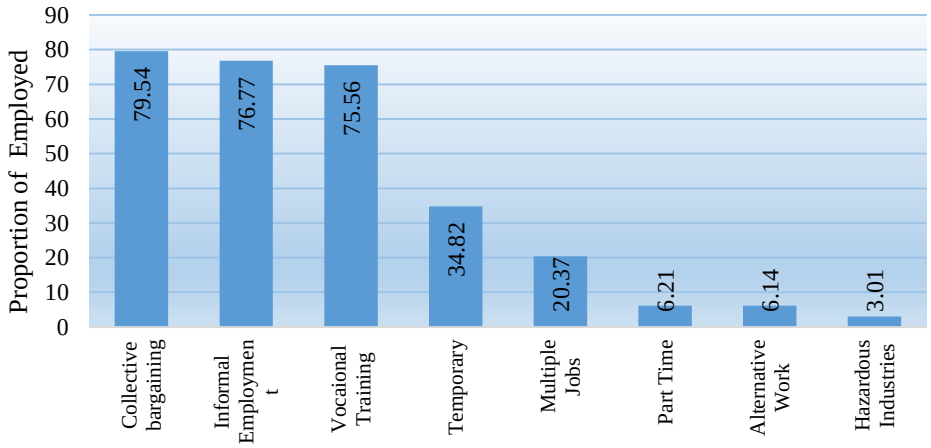
Analysing further, the proportion of temporary employed in rural areas is 30 percent i.e. those who don't have permanent source of income. According to the literature, temporary employment falls under the bottom category of employment i.e. least preffered employment. Thus, our analysis represents it as a parameter of low quality employment as it comes without any social security.

Holding more than one job is also an indication towards the lower quality of employment according to our analysis and thus 20 percent of the rural employed population is under lower quality of employment according to this indicator. An individual is involved in more than one occupation when his principal work is not renumerative enough and he needs support to supplement his earnings. And second job generally involves the engagement in temporary or part time employment which is an indication of low quality employment.

Another important indicator representing the poor state of working condition of employment type is seeking alternative job. In rural India, 6 percent of the total employed population is not happy with their current employment and seeking to go for alternative work. Analysing further the reasons for wanting alternative job was an another indication of the quality of their current employment. More than 58 percent of the rural employed think that present work is not renumerative enough for meeting their day to day needs. Out of the total population, 14 percent are not satisfied from their present job and 10 perecnt want

salaried job and want to leave the current job, whereas, 8 percent of the workers are not happy because they don't have any security or the workplace is too far.

Figure 6.3: Quality of Employment in RNF Sector



Source: Compiled from NSS EUS 68th Rounds (2011-12)

While analysing the quality of employment specific to RNF sector, the absence of collective barganing also signals towards lower quality of employment. According to this indicator, nearly 80 percent of the total population in RNF sector is employed in lower quality of employment. The working conditions in RNF sector are worse than the overall rural sector because 77 percent of the employed population in the sector are informally employed; the proportion of which is 26 percent higher than in rural India during 2011-12 (refer, Figure 6.3). The higher proportion of no economic freedom in RNF sector clearly shows that the type of employment in which population is engaging themselves is at the bottom level of the employment ladder.

The proportion of employed population in lower quality of employment group is also higher as per lack of vocational training. The lack of skills and any kind of training also contraints the population to grab the opportunities of high quality employment and they are left with the lower quality jobs which require low level of skills and education level. Another indicator of concern is engagement of 34.8 percent of the employed population in temporary kind of occupations which lowers the quality of employment. Approx. 20 percent of the total employed population in RNF sector is under lower quality of employment according to the indicator of working in more than one occupations (multiple jobs). Further, rest three indicators seeking alternative work, part time employment and emeployment in hazardous industry consititute the share less than 10 percent of the employed population. Thus, major three indicators, which represent the lower quality of employmnet in RNF sector, are

absence of collective bargaining, Informality and absence of vocational training because proportion of employed population for these indicators was more than 75 percent during 2011-12.

6.4.2.Quality of Employment: Indicator-wise Analysis

The quality of employment is also analysed through various indicators which are first identified on the basis of literature. Each individual indicator plays an important role in identifying quality of employment in rural India and specifically in RNF sector. Total 9 indicators are selected on the basis of literature but the process of retention of indicators constraints it to 8 indicators i.e. Vocational training[16] (only for 2011-12), Informal Employment, Collective Bargaining, Multiple Activities, Temporary Employment, Hazardous Employment, Part-Time Employment, Sought Alternate Work.

6.4.2.1. Vocational Training

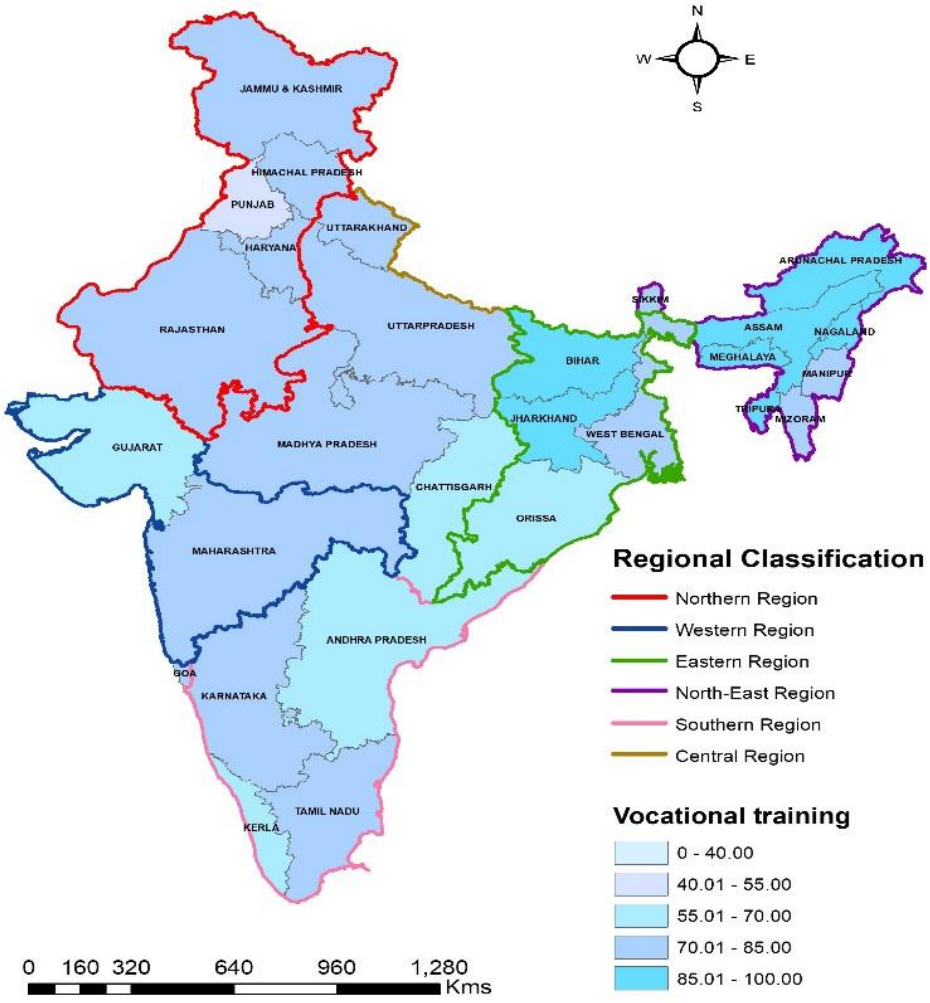
Vocational education and training prepares the persons, especially the young age group, for the world of work and make them employable for a broad range of occupations in various industries and other economic sectors. The person with vocational training has more chances of being employed in productive and high remunerative jobs are higher. Vocational training plays a crucial role in increasing the employability of a person and to grab the opportunities for engaging in very specific fields of employment through provision of significant 'hands on' experience in acquiring necessary skill in the specific vocation or trade.

For state-wise analysis, the proportion of employed who don't have any kind of vocational training in RNF sector is highest in Meghalaya (95.3 percent) in NER, Jharkhand (91.3 percent) in ER, Goa (82.5 percent) in WR, Uttar Pradesh (81.4 percent) in CR and Rajasthan (81.06 percent) in NR during 2011-12. Among all the regions, NER turns out to be the region with lower quality of employment in RNF sector according to the indicator of vocational training as all the seven states of the region are having more than 80 percent of total RNF employed population.

Figure 6.4 depicts that ER comes second in this line with two states having more than 90 percent of the population without vocational training. Thus, vocational training is the primary indicator among all the indicators which measures the proportion of workers working in lower quality of employment.

[16] The point here is to note that information regarding the variable vocational training in NSS data gives more missing information in 2004-05. During 2004-05 the information of Vocational Training is given for 15-29 age group but during 2011-12, this information is given for 15-59 age group.

Figure 6.4: Percentage of RNF Workers without having Vocational Training (2011)



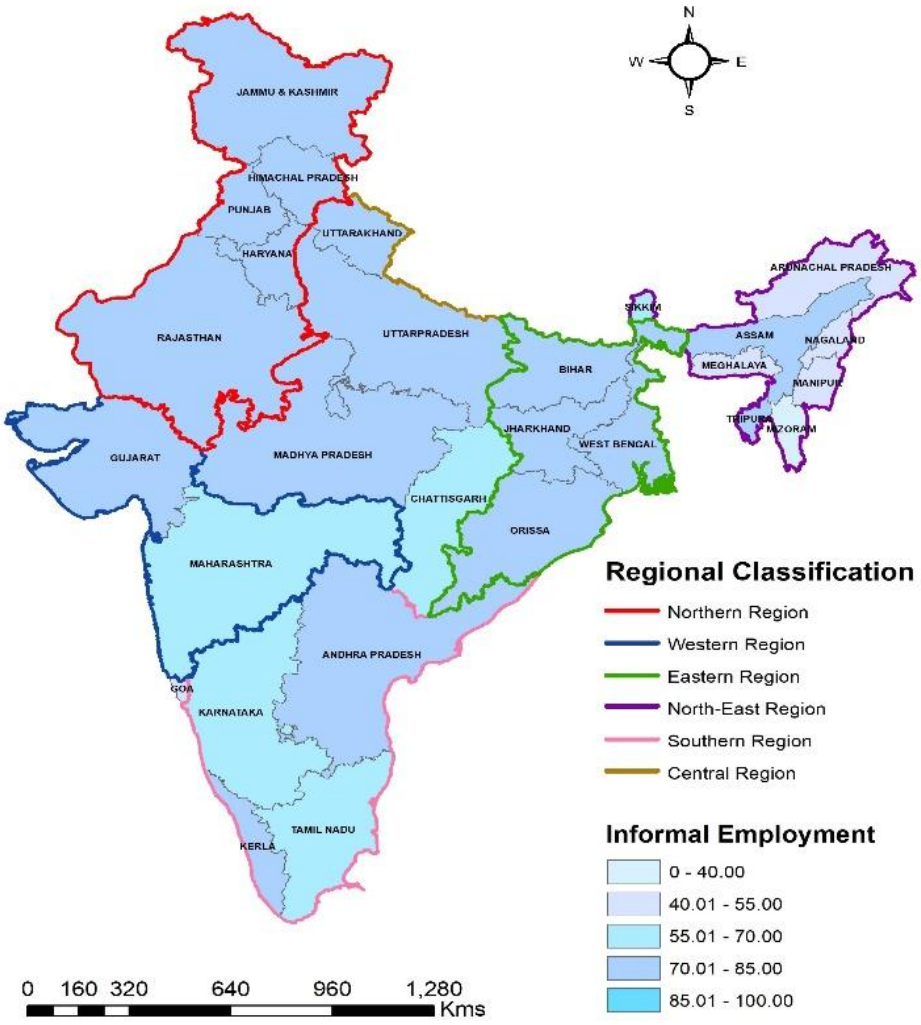
Source: Compiled from NSS EUS 68th Round (Government of India, 2011-12)

6.4.2.2. Informal Employment

"Security of employment essentially refers to how likely a person is to lose his or her job. It involves information on the degree of permanence and tenure of the work, the status in employment and the formal or informal nature of employment. Information on the perceived job security is an important element to complement information available on other objective indicators regarding security of employment, for example, the percentage of fixed-term contracts or of persons employed. As demonstrated by recent research, security of employment is a very important dimension for quality of employment. For example, out of all the dimensions, job security and job prospects have the largest impact on the well-being of the worker**".**

In our study, informal employment is captured through type of employment and associated entitlements with the respective employment. Informal employed is classified as: a) those regular employed who don't have any paid leave entitlement b) those casual employed who don't have any written contract for their job and c) those self-employed who have own account enterprises.

Figure 6.5: Percentage of RNF Workers with Informal Employment (2011)



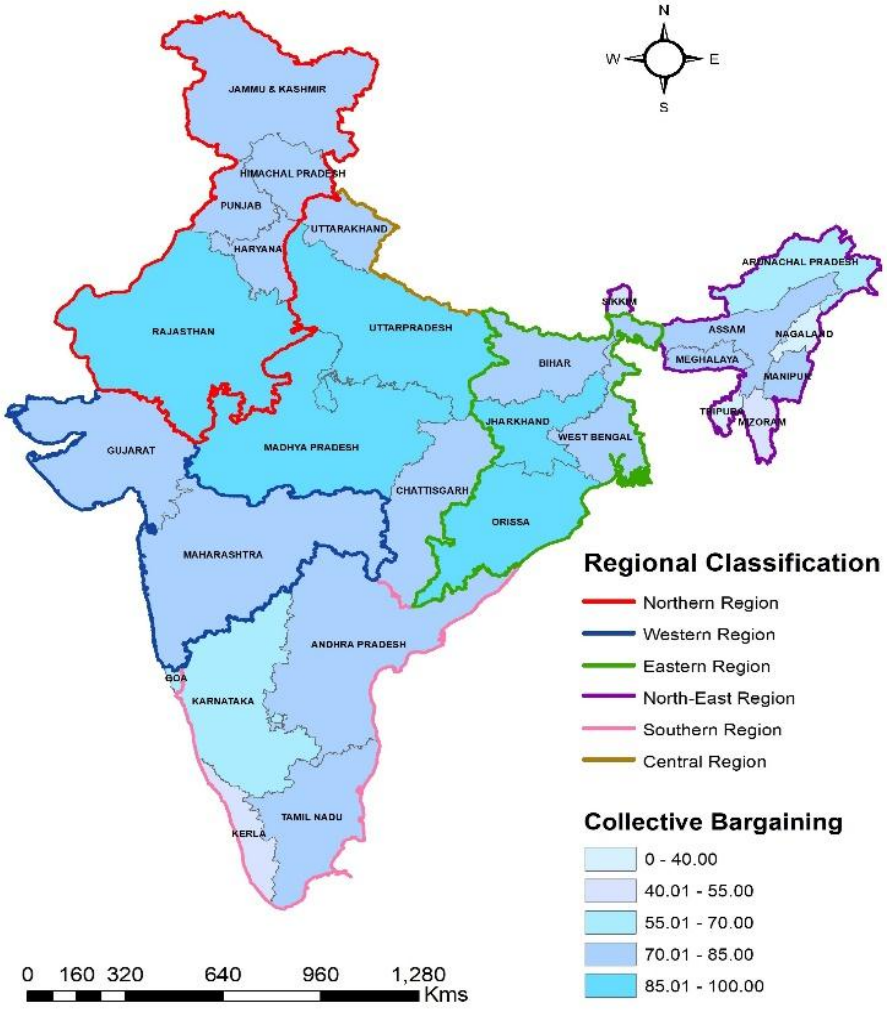
Source: Compiled from NSS EUS 68th Round (Government of India, 2011-12)

The informality among the employed in RNF sector is highest in Jharkhand (83.4 percent) in ER, followed by Uttar Pradesh (83.4 percent) in CR, and Punjab (81.4 percent) in NR during 2011-12. Thus, proportion of RNF workers having informal employment is another important indicators depicting the lower quality of employment during 2011-12 (refer, Figure 6.5).

6.4.2.3. Collective Bargaining

Another indicator, which measure the lower quality of employment is the absence of collective bargaining i.e. presence of trade union for a particular activity RNF workers are engaged in. Uttar Pradesh (91.47 percent) and Jharkhand (89.93 percent) are the top two states lacking in the indicator. In other states, the proportion of employed not having any trade union for their activity is more than 65 percent (Nagaland, Mizoram, Tripura and Kerala being exception) during 2011-12.

Figure 6.6: Percentage of RNF workers with absence of Collective Bargaining (2011)



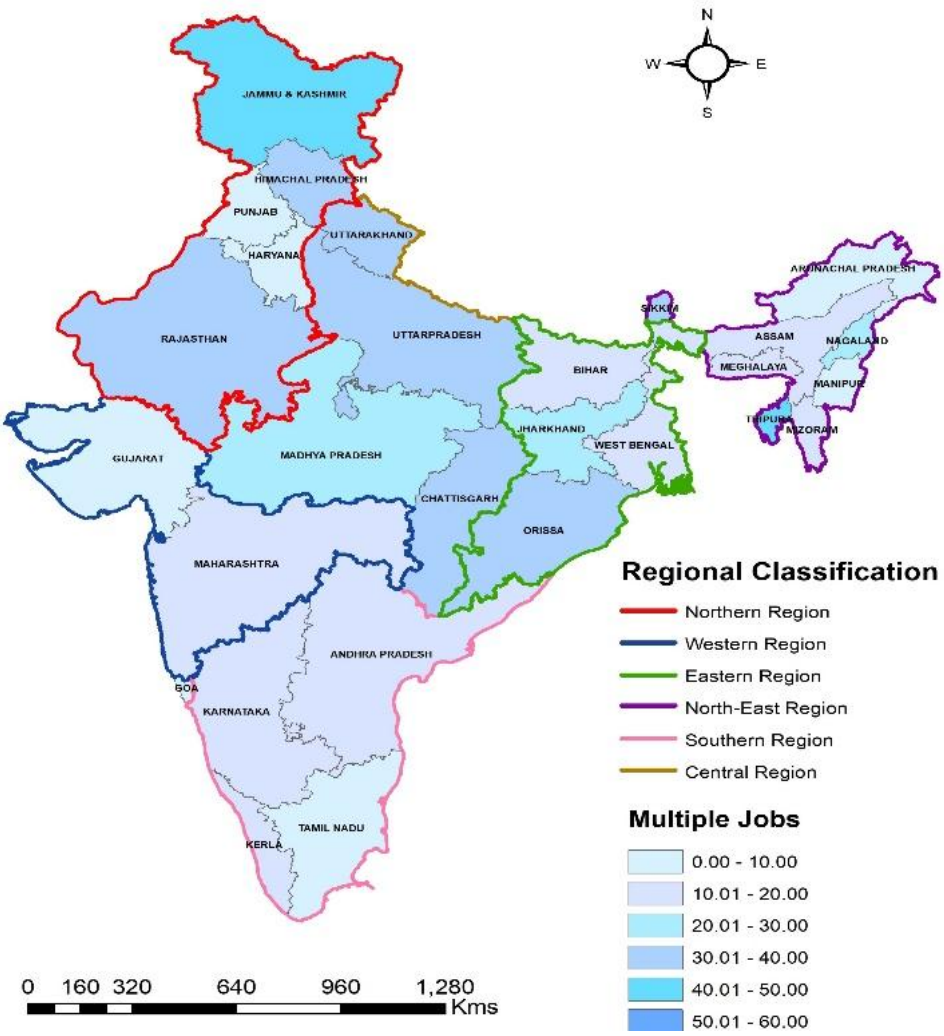
Source: Compiled from NSS EUS 68th Round (Government of India, 2011-12)

6.4.2.4. Multiple Activities

Multiple job-holding while difficult to quantify, a major distinguishing feature of many developing countries, relative to developed countries, is that work in developing countries is often characterized by multiple job-holding. Workers engage in different economic

activities to supplement the inadequate earnings accruing from just one. Although RNF activities might not generate high incomes, during periods of seasonal or permanent underemployment, any such utilization of labour can raise incomes. RNF sectors can also provide a source of income to the landless poor and those who are unable to participate in agricultural activities. RNF activities enable people to supplement their incomes when there is no agricultural employment and provide them with a risk-reducing, coping mechanism in the process. In fact, much non-farm activity is secondary, providing a good means of smoothing out the flow of income in slack farming seasons and stabilizing total earnings by diversifying the sources of income. However, RNF employment could result in increasing rural inequality, as a body of evidence suggests that the highest non-farm earnings accrue to the better-off farmers.

Figure 6.7: Percentage of RNF Workers with Multiple Jobs (2011)



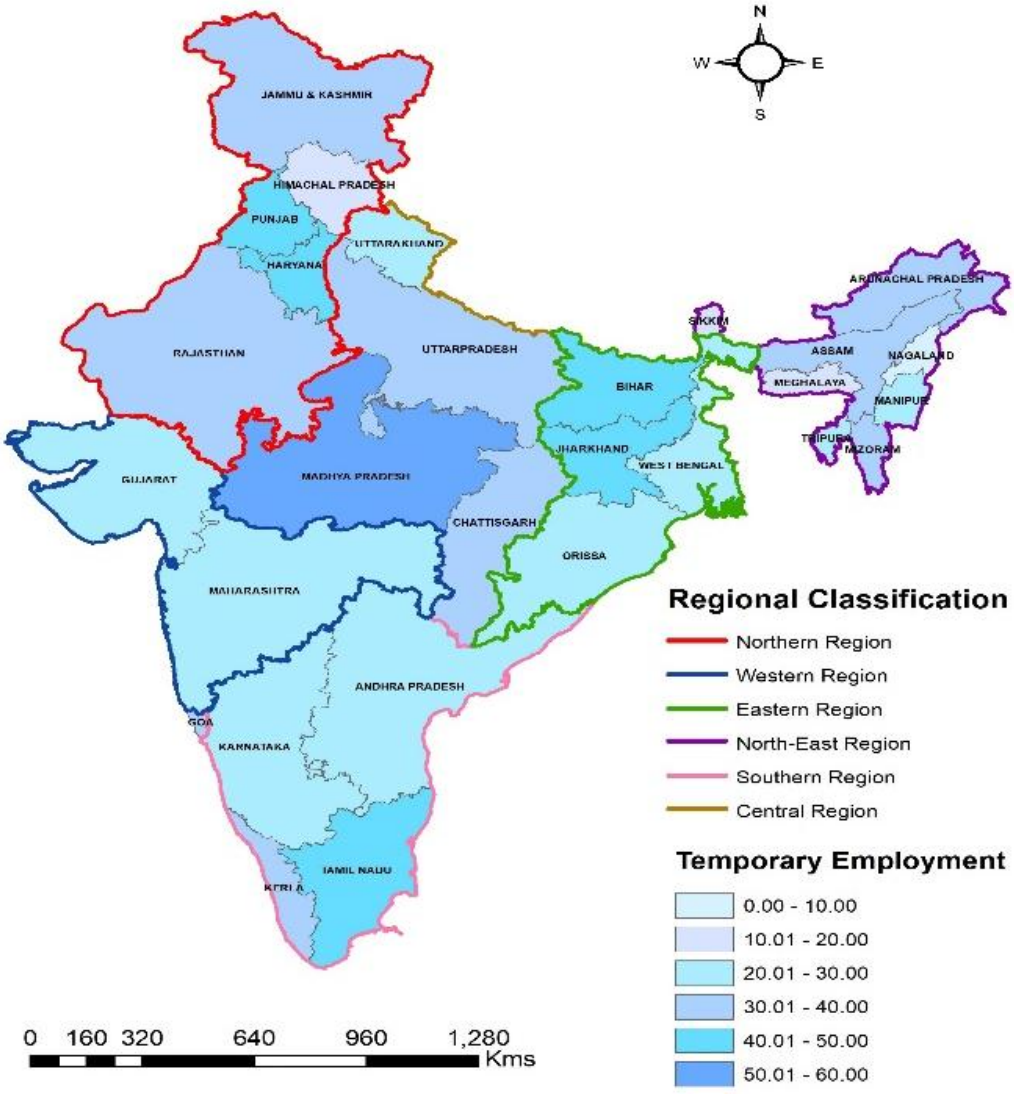
Source: Compiled from NSS EUS 68th Round (Government of India, 2011-12)

It is found that proportion of multiple jobs holders is highest for hilly states such as Jammu and Kashmir (42.04 percent), Himachal Pradesh (38.39 percent), Tripura (40.29 percent) and Uttarakhand (30.75 percent) during 2011-12 as it is very difficult in hills to survive only on agriculture (refer, Figure 6.6).

6.4.2.5. Temporary Employment

One central challenge is associated with the persistence and growth of varied forms of non-permanent waged work – what is conventionally called *temporary work*. Temporary work is best seen as an umbrella category that comprises several different forms of wage labour, eg fixed-term contracts, seasonal employment, casual employment, employment with temporary agencies, and certain types of government employment and training schemes. Their persistence and growth can be seen as one aspect of a broader process of labour market fragmentation (OECD, 2002; Standing, 1999).

Figure 6.8: Percentage of RNF Workers with Temporary Employment (2011)



Source: Compiled from NSS EUS 68th Round (Government of India, 2011-12)

Figure 6.8 depicts that engagement in temporary kind of employment also makes the RNF workers under lower quality of employment. Madhya Pradesh has highest proportion of RNF workers who are temporary employed followed by Haryana (48.86 percent) and Bihar (44.62 percent) during 2011-12.

6.4.2.6.Hazardous Employment

The safety and ethics of employment focus on physical safety and conditions at work, physical health and mental well-being, as well as the rights and treatment of the person in employment. In this way, it is a fundamental component of quality of employment, as physical well-being and the application of internationally accepted human rights and labour conventions are essential to ensure high quality employment.

Table 6.3: State-wise Quality of Employment during 2011-12

States	Hazardous Employment	Informal Employment	Part Time	Multiple Jobs	Alternative work	Temporary	Collective Bargaining	Vocational Training
				NER				
Sikkim	0.43	55.45	0.24	34.2	2.16	12.76	48.18	84.88
Arunachal Pradesh	0.23	50.76	8.78	4.55	7.57	31.9	67.62	93.03
Nagaland	0	45.63	1.36	26.58	7.88	11	34.81	87.32
Manipur	0.2	52.95	8.84	9.6	4.23	24.86	74.10	81.29
Mizoram	0	37.93	22.51	11.04	15.47	33.22	53.25	82.44
Tripura	0.04	72.13	6.55	40.29	7.26	26.06	28.20	91.03
Meghalaya	4.99	54.39	3.34	20	1.67	18.01	71.44	95.30
Assam	0.24	77.83	4.18	10.94	8.61	34	70.2	90.24
				ER				
Bihar	0.88	79.44	4.77	10.61	12.67	44.62	84.22	90.63
West Bengal	1.68	82.7	14.36	18.86	12.16	29.51	78.11	71.11
Jharkhand	4.85	84.05	7.12	20.88	5.17	41.63	89.93	91.39
Orissa	3.16	75.97	8.55	38.82	8.1	27.75	88.98	64.89
				NR				
Jammu & Kashmir	2.08	77.04	4.16	42.04	12.01	32.38	76.45	77.21
Himachal Pradesh	1.77	71.28	2.61	38.39	6.54	15.53	76.28	75.18
Punjab	3.47	81.44	7.07	4.41	5.68	45.49	79.87	42.07
Haryana	2.06	75.97	3.41	3.32	4.64	48.86	76.13	79.32
Rajasthan	1.55	79.6	6.13	33.02	4.75	37.45	86.97	81.06
				SR				
Andhra Pradesh	2.23	75.46	4.56	15.85	1.95	25.08	79.56	68.48
Karnataka	5.49	69.73	2.76	11.92	2.91	22.88	69.57	76.32
Kerala	4.6	76.35	4.84	11.70	5.03	35.56	43.78	61.05
Tamil Nadu	3.75	66.62	3.39	7.37	1.85	40.32	76.24	71.87
				WR				
Goa	7.7	54.51	3.31	1.86	6.50	38.27	67.11	82.51
Gujarat	9.65	73.83	4.88	4.69	3.05	26.18	81.41	68.07
Maharashtra	5.02	68.94	4.01	19.28	3.25	25.72	75.94	78.89
				CR				
Uttaranchal	3.35	76.56	3.6	30.78	5.65	25.22	78.38	79.14
Uttar Pradesh	2.24	83.41	5.83	33.48	6.24	37.78	91.47	81.45
Chhattisgarh	3.37	68.06	9.16	33.66	5.27	33.21	78.91	59.61
Madhya Pradesh	2.38	77.45	8.77	25.39	7.39	50.98	88.66	80.13
Rural India	**3.01**	**76.77**	**6.21**	**20.37**	**6.14**	**34.82**	**79.53**	**75.56**

Source: Compiled from NSS EUS 68th Round (Government of India, 2011-12)

The proportion of RNF workers employed in hazardous industries also indicates the lower quality of employment as it is very risky to work in such places. Working in industries

using hazardous substances or involve hazardous processes may cause the health problems and sometimes risk to the life too. The list of Hazardous industries (refer, Appendix table A.6.1) is identified on the basis of Factory Act, 1948 and Amendment Act, 2014.

Hence, even lower proportion of the employed in such industries will indicate towards the lower quality of employment. Gujarat (9.05 percent) is the state showing highest proportion of employed in hazardous industries during 2011-12 as this state have highest number of hazardous waste generating industries among all the states.

6.4.2.7. Part Time Employment

It may be mentioned that the data on employment map those reporting at work uniquely into sectors by major time criterion. When self-employment and casual labour dominate in work force especially in low-productivity occupations, a sector or industry of attachment may keep shifting even across one-digit groups for the same person over time. Moreover, the same person at work may not get full time gainful employment from the sector of attachment by major time criterion and may be attached to more than one sector on a part-time basis but would not get classified against these other part-time activities. Thus, those engaged in agriculture and allied activities on a major time basis may well be engaged in certain non-farm activities during the year (Sundaram and Tendulkar 2002).

The rural people who are not able to get the full time job, they get engaged themselves in part time employment to avoid the uncertainties of income. Among all the states, Mizoram (22.5 percent) has reported highest proportion of part time workers in RNF sector, followed by West Bengal (14.36 percent) and Chhattisgarh (9.16 percent) during 2011-12.

6.4.2.8. Alternate Work

The proportion of people working in RNF sector, who sought alternative work also indicates that present job is of lower quality. The possible reasons for being unhappy with the current job is that they are getting insufficient remuneration for their work; they want to leave the current job; lack of job security; and they are not satisfied with their current job. Among all the states, Mizoram (15.47 percent) indicates the highest proportion of employed in RNF sector who sought alternative work during 2011-12 (refer, Table 6.3).

6.4.3. Quality of Employment by Aggregation

After identification of the quality of employment by individual indicators, we have also used the aggregation technique to show the aggregated results. The aggregation is done by

summing up the number of indicators i.e. the person is in poor state of employment due to lack in how many indicators (number) out of total. For RNF sector as a whole the aggregation shows us that during 2004-05, the 16.29 percent of population is in lower quality of employment due to deprived in any one of the indicators but deprivation due to any of two indicator cover the more population (33.5) in RNF sector. This means the 33.5 percent (1/3rd of the population) employed in RNF sector is working in lower quality of employment due to deprivation in any of the two indicators. However, the deprivation in number of activity increased during 2011-12 i.e. earlier 1/3rd population was deprived in any of the two indicators, now that population is deprived in any of the three considered indicators[17]. This indicates that quality of employment has lower down from 2004-05 to 2011-12. Furthermore, if we take half of the considered indicators, still 25.6 percent population is working in lower quality of employment. More surprisingly, if we take any of the six indicators, still 1.23 percent of the population exists who are deprived in 6/8 indicators. Thus, these people are at the bottom of the quality ladder.

Table 6.4: Quality of Employment by Deprivation in no of Indicators

Deprived in indicator	2004/05	2011/12
0	6.87	1.38
1	16.29	9.66
2	33.5	20.24
3	30.05	33.58
4	10.83	25.59
5	2.24	8.23
6	0.22	1.23
7	0	0.09
8	0	0

Source: Compiled from NSS EUS 61st and 68th Rounds (Government of India, 2004-05 and 2011-12)

6.4.4. Quality of Employment by Aggregation: State-wise Analysis

The aggregation of indicators is also done for different states. During 2004-05, majority of the states lies under the category where most of the RNF population is in poor quality due to deprivation in any of the two indicators. The highest proportion of the employed population in RNF, working in lower quality of employment due to deprived in two indicators, is in Meghalaya (NER) (43.22 percent) followed by Andhra Pradesh (SR) (40-13 percent). Most surprising fact is revealed from the Table 6.6 that all the states of CR fall under the category where RNF population is working in lower quality because of deprivation in any of three indicators.

[17] The proportion of the individual indicators is shown in the earlier section of the chapter.

Table 6.5: Quality of Employment by Deprivation in no of Indicators (2004-05)

State	0	1	2	3	4	5	6	7
NER								
Sikkim	23.94	21.07	23.79	25.08	5.69	0.44	0	0
Arunachal Pradesh	23.74	37.76	21.08	11.1	4.4	1.92	0.01	0
Nagaland	25.19	34.96	22.34	11.42	4.45	1.35	0.29	0
Manipur	14.89	23.71	35.72	19.1	6.07	0.51	0	0
Mizoram	40.96	22.29	22.08	10.4	2.91	1.36	0	0
Tripura	11.47	24.68	37.11	20.2	6.01	0.35	0.2	0
Meghalaya	10.41	22.66	43.22	14.4	7.25	1.23	0.82	0
Assam	9.48	17.88	31.93	27.41	10.75	2.51	0.04	0
ER								
West Bengal	5.12	15.07	30.68	30.2	15.36	3.18	0.39	0
Jharkhand	3.23	7.43	28.99	34.88	17.52	6.72	1.09	0.14
Bihar	3.74	12.66	37.62	32.45	11.42	1.88	0.23	0
Orissa	6.29	14.33	28.69	30.69	14.79	4.77	0.44	0
NR								
Jammu & Kashmir	6.78	19.45	26.8	30.63	13.2	3.07	0.06	0
Himachal Pradesh	13.08	14.9	21.66	30.71	13.87	4.81	0.97	0
Punjab	7.76	17.66	37.24	31.48	5.15	0.59	0.11	0
Haryana	5.86	16.24	34.44	33.16	8.54	1.7	0.06	0
Rajasthan	5.01	9.91	30.08	32.49	17.64	4.47	0.39	0
SR								
Andhra Pradesh	7.18	21.69	40.13	25.37	5.17	0.37	0.09	0
Karnataka	8.6	17.91	38.29	28.21	5.71	1.18	0.1	0
Kerala	10.1	26.89	31.3	21.84	8.16	1.52	0.19	0
Tamil Nadu	10.68	23.97	38.89	22.5	3.71	0.27	0	0
WR								
Goa	11.93	17.04	25.37	37.99	6.15	1.51	0	0
Gujarat	8.97	14.28	34.07	26.18	13.17	2.97	0.36	0
Maharashtra	10.99	15.67	34.54	28.35	9.48	0.93	0.04	0
CR								
Uttarakhand	12.07	15.03	31.67	32.28	6.94	1.8	0.22	0
Uttar Pradesh	3.05	12.16	32.22	36.71	13.54	2.19	0.12	0
Chhattisgarh	7.4	16.55	29.14	35.21	8.61	3.09	0	0
Madhya Pradesh	5.81	12.28	30.09	36.74	11.65	3.21	0.23	0

Source: Compiled from NSS EUS 61st and 68th Rounds (Government of India, 2004-05 and 2011-12)

The proportion of the population is highest in Madhya Pradesh (36.74 percent) followed by Uttar Pradesh (36.71 percent), Chhattisgarh (35.21 percent) and Uttarakhand (32.28 percent). While analyzing the deprivation in any 6 of the indicators, Jharkhand is the only state with some significant percentage of population (1.09 percent). This state also shows the highest proportion (6.72 percent) when number of deprived indicators are taken as 5. Furthermore, for any 4 deprived indicators the proportion stands out to be 17.52 percent followed by 34.88 percent for any 3 deprived indicators. Thus, during 2004-05, Jharkhand shows lowest quality of employment among all the states because there exists significant proportion of RNF population which is deprived in any three, four, five or six indicators.

Table 6.6: Quality of Employment by Deprivation in no of Indicators (2011-12)

State	0	1	2	3	4	5	6	7	8
NER									
Sikkim	0.64	22.87	33.54	26.2	13.98	2.77	0	0	0
Arunachal Pradesh	3.59	15.42	21.4	37.65	17.34	3.89	0.58	0.14	0
Nagaland	2.76	35.47	23.27	24.81	11.39	1.55	0.37	0.37	0
Manipur	1.17	14.02	30.56	38.5	13.67	1.72	0.36	0	0
Mizoram	6.82	27.83	13.41	18.56	21.86	11.22	0.02	0.26	0
Tripura	0.81	14.51	26.66	33.59	19.57	4.53	0.33	0	0
Meghalaya	0.42	18.96	23.32	32.09	19.09	5.83	0.29	0	0
Assam	1.24	11.74	17.75	35.22	28.26	4.65	0.93	0.2	0
ER									
West Bengal	1.05	8.67	21.41	32.78	24.33	9.25	2.47	0.04	0
Jharkhand	0.1	2.56	12.81	34.12	39.45	9.34	1.39	0.23	0
Bihar	0.72	5.8	12.51	38.99	31.04	9.78	1.13	0.02	0
Orissa	1.26	7.41	17.77	34.46	27.42	9.92	1.67	0.08	0
NR									
Jammu & Kashmir	0.66	11.09	17.95	22.13	32.92	13.19	2.06	0	0
Himachal Pradesh	1.33	14.55	21.7	28.89	26.65	5.04	1.67	0.16	0
Punjab	3.67	11.6	27.98	30.3	21.46	4.8	0.18	0.02	0
Haryana	1.61	11.07	17.48	36.61	28.85	3.82	0.56	0	0
Rajasthan	0.51	6.57	15.76	32.14	30.39	13.42	1.11	0.09	0.01
SR									
Andhra Pradesh	1.84	10.94	27.35	35.98	20.06	3.62	0.21	0	0
Karnataka	1.83	15.28	26.59	35.25	17.95	3.01	0.08	0	0
Kerala	3.72	20.13	28.53	29.87	13.39	3.8	0.39	0.17	0
Tamil Nadu	2.06	12.22	25.2	36.75	20.63	2.83	0.31	0	0
WR									
Goa	0.11	24.28	16.79	28.23	25.23	3.88	1.49	0	0
Gujarat	3.51	11.54	25.75	36.79	14.8	6.47	1.13	0	0
Maharashtra	1.93	14.89	21.93	32.12	20.96	7.06	0.96	0.15	0
CR									
Uttaranchal	0.55	13.59	17.22	33.05	25.12	7.85	2.54	0.08	0
Uttar Pradesh	0.1	3.88	15.06	33.49	32	13.57	1.69	0.2	0
Chhattisgarh	3.2	12.65	20.65	30.56	20.54	10.93	1.45	0.01	0
Madhya Pradesh	0.78	5.84	15.57	26.76	34.97	12.61	3.36	0.11	0

Source: Compiled from NSS EUS 61st and 68th Rounds (Government of India, 2004-05 and 2011-12)

During 2011-12, there is some change in the quality indicators. The highest proportion of population employed in RNF sector is working in lower quality jobs because of deprivation in any of the three indicators in majority of the states. This simply means that quality of employment has deteriorated during 2004-05 to 2011-12. But Jharkhand (39.45 percent) followed by Madhya Pradesh (34.97 percent) and Jammu and Kashmir (32.92 percent) have their highest proportion of RNF population in lower quality employment due to deprivation in any of the four indicators. During 2011-12, Madhya Pradesh has 3.36 percent population (the highest and significant proportion) in RNF employment who are working in lower quality because of deprivation in any of six indicators. Also, around 13 percent population employed in RNF with lower quality of employment is deprived in any

of the five indicators. Thus, during 2011-12, Madhya Pradesh stands out to be the state with lowest quality of employment among all the states.

Thus, the quality of employment analysis shows that even the proportion of employed in in RNFS is high; they are not working in quality jobs. The absence of collective barganing, vocational training and presence of informality are the three major indicators which represent the lower quality of employment because proportion of employed population for these indicators is more than 75 percent during 2011-12.

The aggregation of indicators shows that quality of employment has degraded during 2004-05 to 2011-12. Total 1/3rd of the employed RNF workers are working in low quality of employment because of deprived in any of three indicator. Furthermore, if we take half of the considered indicators, still 25.6 percent population is working in lower quality of employment. More surprisingly, if we take any of the six indicators, still 1.23 percent of the population exists who are deprived in 6/8 indicators. Thus, these people are at the bottom of the quality ladder.

The state-wise analysis reveals that during 2004-05, Jharkhand shows lowest quality of employment among all the states because there exists significant proportions of RNF population who are deprived in any three, four, five or six indicators. But during 2011-12, Madhya Pradesh stands out to be the state with lowest quality of employment among all the states.

6.5.Summing up

The main indicators, which lower the quality of employment in RNF sector, are absence of collective bargaining, economic freedom and vocational training which constitute more than 75 percent of the employed population in RNF sector. Aggregation of the indicators also signals towards the severity of the deprivation in terms of quality indicators in RNF sector. Total 1/3rd of population is working in lower quality employment in RNF sector due to deprivation in any of the three indicators.

7.1. Introduction

Although agriculture occupies a pivotal place in the rural economy in terms of its contribution to employment generation; however, disaggregating rural employment growth in terms of farm and non-farm sectors would demonstrate that non-farm employment growth had been significantly higher than that of the farm sector over a period of time. Even though proportion of employment provided by the RNF sector is an indicator of reduction in unemployment rate (directly) and increase in rural development (indirectly), still both the aspects are missing in the rural areas if we observe the RNF sector from the perspective of permanent employment, high productivity, lowering inequality and sustainable growth (Jha 2006; Lanjouw and Shariff 2004; Binswanger-Mkhize 2012; Start 2001). Thus, it is essential to understand the nature and pattern of employment in the RNF sector so that policy for employment generation may be designed accordingly.

When a rural economy diversifies, the workers may rise in status either as self-employed workers (at large scale) or as regular employees. At the same time, it is also possible that their status may be lowered to that of casual labours. While in most developed nations workers move to regular jobs or become self-employed; in developing countries like India, they may move to the less advantageous position of casual labours (Government of India 2014a). So, mere shifting from one lower-paid occupation to another lower paid occupation may not improve the employment situation rather may indicate to distress kind of employment. Moreover, it is also important to know why an individual leaves his/her previous occupation and enters into the non-farm sector or simultaneously works in both the occupations. Such issue of occupational diversification is undoubtedly complex, and its determinants are difficult to identify (Buchenrieder and Mollers 2006). However, an effort has been made to examine the determinants of rural diversification and opting non-farm occupations.

The heterogeneity of RNFS is clear from the occurrence of different stages at same time and space. This sector encompasses highly well-paid and profitable activities (mainly regular wage employment) at the top, whereas the bottom is predominated with menial and low productive and poorly paid jobs (mainly traditional artisanal skills and manual labour). Though it is not possible to evaluate the impact of each type and stage of RNF activity on the livelihoods of households; it is important to identify the spectrum and type of impacts. In order to differentiate between high and low remunerative activities within RNF sector, a

simple categorization can be done between the strategies that people enter into through choice called as 'pull' strategies or 'positive adaptation' (Davies, 1996), and that people enter into through force called as survival or coping strategies or 'push' strategies or 'negative adaptation,'. (Davies, 1993). Theories of structural transformation equate this diversification with growth and development, yet theories on livelihood coping and deagrarianisation (Davies, 1996; Bryceson and Jamal, 1997; Scoones, 1998; Francis, 2000) associate diversification with a more negative phenomenon, in which the RNFE makes up a 'residual sector' or 'bargain basement' (Saith, 1992; Start, 2001).

Against this backdrop, this chapter examines the patterns of employment diversification in rural area and also the factors responsible for choosing a particular type of employment among all kinds of employment (Self-employed in farm, Self-employed in non-farm, Casual labour in farm, Casual labour in non-farm, Regular wage earner). The chapter is organised into four sections. Section 7.2 examines the pattern of rural diversification and elaborate the different types of diversifiers. Section 7.3 differentiates between push and pull strategies and how they impact the rural diversification. Section 7.4 throws light on the main factors (micro as well as macro) responsible for occupational diversification i.e. whether push or pull strategy dominates the rural diversification or both works simultaneously towards the rural diversification.

7.2.Pattern of the Employment Diversification

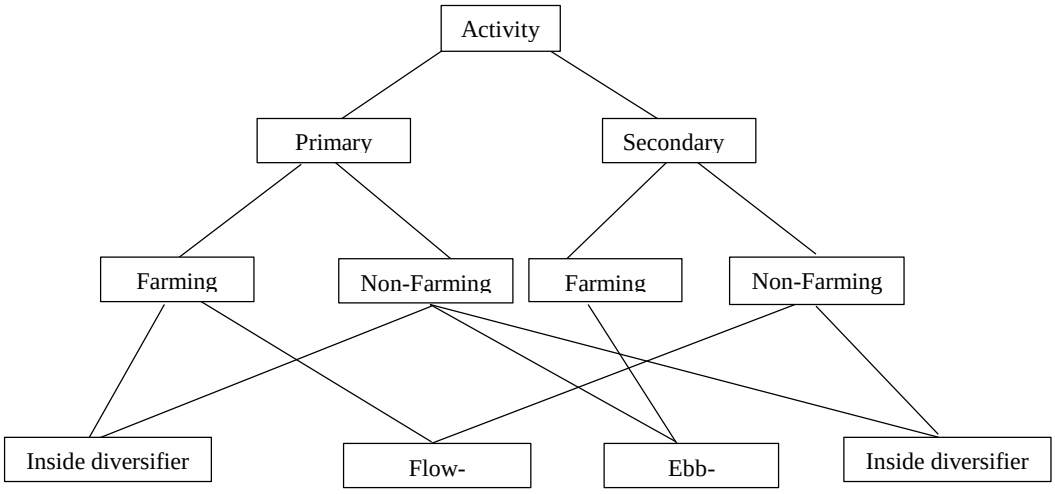
The pattern of diversification displays how the rural people tend to diversify. The diversification may function as a household strategy to manage risk or overcome market failures, or represent specialization within the household deriving from individual attributes and comparative advantage. It allows a better understanding of the relationship between the various economic activities that take place in the rural space. Therefore, diversification can be into either high or low-return sectors, reflecting push or pull forces, and representing a pathway to raise or sustain current well-being. Davis and Bezemer (2003) identify three patterns of diversification in the non-farm economy as: a) Inside diversifiers b) Ebb diversifiers and c) Flow diversifiers. But there can be one more category which can be classified specifically in Indian context, i.e. d) Complete diversifiers.

7.2.1. Inside Diversifiers

The inside diversifiers are those who choose a second job in the same domain as their primary activity, which may be in the farm sector or in the non-farm sector. For example, a farmer running an agricultural processing activity is an inside diversifier. This would be

most common in the case of low capital endowments (financial or human), or among those rural inhabitants who are not prepared to take risk entering into a different activity domain. According to Table 7.2, inside diversifiers have intensified (more than double) especially in case of within farm diversification rather than non-farm from 2004-05 (26.33 percent) to 2011-12 (58.04 percent) at all India level. At regional level, maximum change during the 7 years period is registered by SR (41.65 percent) followed by NR (34.8 percent) and CR and ER (32 percent each). This kind of diversification mainly occurs in agriculture predominant areas where people have scope to be in farm activities as their primary source of income and also to supplement their income they remain in this sector only.

Figure 7.1: Diversification Patterns



Source: Davis and Cristoiu, 2002

The type 2 inside diversifiers are those who have non-farm as their principal as well as secondary occupation; the proportion of such diversifiers has declined drastically.

7.2.2. Ebb Diversifiers

The ebb diversifiers are those whose primary activity is in the non-farm domain and who choose a second activity in the agricultural sector. A predominance of ebb-diversifiers indicates a situation where either non-farm income does not cover subsistence needs, forcing people back into agriculture (Davis and Bezemer, 2004). This situation can occur when there are distorted agricultural prices (either high due to low levels of agricultural productivity and efficiency, or low due to state policies protecting low income consumers in urban areas but with a concomitant de-capitalizing impact in farming communities). The ebb and flow terms, signal towards possibly unstable (fluctuating) labour market where people will use farming as a temporary buffer or safety net during unemployment periods or temporary lack of

opportunities in their main expertise domain. Thus, they may return to their main job when they identify an opportunity to do so. For e.g, an unemployed factory worker will temporarily move into agriculture to cover his/her basic needs but on identifying an opportunity to return to their job at a factory, will flow-out of agriculture (unless the agricultural income is higher than the income they would obtain at the factory).

The proportion of ebb diversifiers has declined for rural India as well as for regions except (NER- increase by 11.27 percent) during 2004-05 to 2011-12. The negligible increase is also reported in WR (0.72 percent).

Table 7.1: Proportion of Diversifiers and Non-Diversifiers in Rural Economy

Region	Diversifiers				Non-Diversifiers			
	2004-05		2011-12		2004-05		2011-12	
	Farm	Non-Farm	Farm	Non-Farm	Farm	Non-Farm	Farm	Non-Farm
NER	12.11	7.38	8.68	7.21	58.08	22.42	50.82	33.29
ER	19.76	9.74	13.65	9.04	49.39	21.11	46.72	30.59
NR	15.63	10.36	13.19	11.75	47.20	26.81	40.37	34.69
SR	20.33	5.41	15.45	4.86	48.02	26.24	45.60	34.09
WR	26.28	6.72	13.90	3.57	51.34	15.66	60.48	22.05
CR	26.53	10.50	14.58	11.42	48.05	14.92	50.85	23.15
Rural India	21.95	8.33	14.05	8.08	49.02	20.70	48.90	28.98

Source: Calculated from NSS EUS 61st and 68th Rounds (Government of India, 2004-05 and 2011-12)

7.2.3. Flow Diversifiers

Flow diversifiers are those with a primary activity in agriculture and a second activity in the non-farm economy (refer, Figure 7.1). These are the demand driven, risk-taking diversifiers, often having a better financial or human capital endowment, hence better equipped to take advantage of market opportunities, and thus are able to diversify. It may also be the case that these flow-diversifiers cannot find opportunities for diversification within agriculture and, therefore, try to re-orient their activities (or sources of income) to non-farm activities. The surprising fact come across from the analysis is that proportion of flow diversifiers is declined as against the expectation in case of India during 2004-05 to 2011-12 (refer, Table 7.2). The main reason of this can be the increase in proportion of non-diversifiers during 2011-12. Form Table 7.1, it is clear that proportion of diversifiers, particularly in non-farm, has declined or remained same as before in 2004-05. Those, who diversified during 2004-05, have now opted that diversified activity as their main occupation and have not further diversified to another activity.

7.2.4. Complete Diversifiers

Moreover, there is one more category that is found in context of India specifically, i.e., complete diversifiers, who left the previous primary occupation and has completely opted for secondary occupation and made it as their primary occupation. That is, there is no secondary occupation in that case. There is complete shift from one primary occupation to another occupation. This situation generally happens in case of households who completely/ permanently shift to the other places from their paternal house for their job. In such cases, the father used to do farming or other small occupation at the paternal place but when the child become independent, he finds job in a metro city in another developed state and move to entirely a new place. After settling down there the share of income from his job start increasing and soon the parents are also shifted with the son. The previous occupation is completely abandoned and the primary activity shifted to the son's occupation which can be completely different activity from the earlier adopted by the father.

In Table 7.1, the increased proportion of non-diversifiers from 2004-05 to 2011-12 can be described as the proportion of complete diversifiers who were among the flow diversifiers during 2004-05 but during 2011-12 they choose not to diversify further rather opted their activity as principal activity.

Table 7.2: Proportion of Different Types of Diversifiers in Rural Economy

Region	Farm (sub)				Non-Farm (sub)			
	2004-05		2011-12		2004-05		2011-12	
	Farm	Non-Farm	Farm	Non-Farm	Farm	Non-Farm	Farm	Non-Farm
	Insider	**Ebb**	**Insider**	**Ebb**	**Flow**	**Insider**	**Flow**	**Insider**
NER	9.43	23.07	41.91	34.34	45.19	22.30	20.24	3.52
ER	23.59	32.83	47.43	30.28	36.57	7.01	19.54	2.75
NR	10.20	38.52	45.01	37.45	42.68	8.60	15.13	2.42
SR	25.93	15.85	67.58	16.57	50.07	8.16	11.47	4.37
WR	57.68	18.39	66.03	18.48	21.87	2.06	13.57	1.91
CR	25.80	36.59	58.06	25.94	30.28	7.33	13.60	2.40
Rural India	26.33	29.11	58.04	24.66	37.12	7.45	14.45	2.85

Source: Calculated from NSS EUS 61st and 68th Rounds (Government of India, 2004-05 and 2011-12)

The pattern of diversification shows that there is an increase in proportion of non-diversifiers in non-farm sector and inside diversifiers in farm sector from 2004-05 to 2011-12. The increase in proportion of non-diversifiers hints towards the increase in proportion of complete diversifiers who opted the non-farm activity during 2004-05 and falls under the category of flow diversifiers, but during 2011-12 they have chosen the opted activity as their

principal activity and have not decided, to diversify further. Furthermore, the proportion of the population who diversify within farm sector increased during 2004-05 to 2011-12.

7.3.Push and Pull Strategies

The diversification process is backed by certain set of factors covered under two types of strategies (Pull and Push) which play decisive role in choice of individual's occupation. The variations of geographical characteristics, natural endowments, level of infrastructural development, and population sub group division, poverty incidence, etc., play prominent role in development of RNF sector. The workers are forced or pulled; decided by some of the endogenous factors. In poor rural areas some households will make a positive choice to take advantage of opportunities in the rural non-farm economy, taking into consideration the wage differential between the two sectors. However, other households are pushed into the non-farm sector due to a lack of opportunities on-farm, for example, as a result of drought or small size of land holdings. This may result in a similar pattern of rising non-farm incomes, but the motivations are quite different. For policy makers, it is important to understand why an individual is entering the non-farm rural market. These two types of factors are examined as follows:

7.3.1. Pull Factors

'Pull' factors are those which lure the rural workers towards high productive activities/areas where relative returns to labour are higher. A vibrant non-farm sector is a major 'pull' factor. The diversification occurs due to pull factors is D*emand-pull diversification.* D*emand-pull diversification* is a response to new market or technological opportunities. Islam (1997) suggests that factors that lead to demand-pull diversification include the increased income of lower and middle-income households and increased demand from urban areas for rural products. Agriculture-led-employment school of thought propagates that the most important 'pull' factor in luring the rural workers towards non-farm pursuits is the emergence of a vibrant and productive rural non-farm sector caused by dynamic agriculture through a variety of production and consumption linkages. The effect of urbanization, irrigation, agriculture growth, high literacy levels, electrification, high skill levels etc. signals towards the RNF expansion due to pull factors (Hossain, 2004; Chadha, 1986; Haggblade et al. 1989; Hazell and Haggblade, 1990).

7.3.2.Push Factors

When rural workers are joining the non-farm sector even if wages here either are equal to or lower than agricultural wages, they are said to be pushed by the farm sector. It may be due

to non-availability/access to land, fragmentation, marginalization and unviable farm holdings or may be due to incapacity of agricultural sector to absorb increments of labor force. The diversification associated with push factors is *distress-push diversification* which is driven because there are no opportunities on-farm. Islam (1997) identifies successive droughts that depress income and hence increase the need for alternative incomes offering low-skill income as a distress-push factor. As evidence of distress-push, marginal wages or incomes are likely to be lower in the non-farm rural economy than on farm agricultural earnings (Davis, 2004).

While highlighting the role of push factors for observed increment in RNF employment Vaidyanathan (1986) emphasizes that there is a significant and positive relation between rural unemployment rate and the incidence of non-agricultural employment and this association is much stronger than in the case of all other explanatory variables on which he established an importance of rural non-agricultural employment in total employment in rural India. This gives credibility to the notion that non-agricultural activities in rural areas may be acting to some extent as a residual sector absorbing labour which cannot find work in agriculture. Similar findings have been reported by Basu and Kashyap (1992), Ghuman (2005) and Ranjan (2009) who emphasize that it is mainly the increased helplessness and marginalization of rural workers in the wake of increased landlessness and fragmentation of land holdings, grossly unequal land holdings and sinking growth rates of agricultural output and employment. Under these circumstances, rural non-farm occupations are nothing but refuge activities towards which workers are pushed to avoid deprivation.

There is no unanimity as to whether it is the operation of 'pull' factors which is behind the observed movement of rural workforce from agriculture to non-agricultural activities or they are pushed out of agriculture. The actual reality always lies in the middle of these two contrasted situations. It is the simultaneous and complex interaction of both push and pull factors which are the reason behind observed expansion of rural non-farm employment. Urbanization, especially the preponderance of small and medium typed towns, also pulls the rural workforce for joining the rural non-farm sector. White (1991) argues that the conceptual frame work of "pull versus push" factors, in fact, does not explain much and the debate on the relative importance of pull and push factors is not very productive as different groups of rural society and households enter into different kinds of rural non-farm pursuits for different reasons, producing all-together different outcomes.

Thus both the factors should be studied all together but should be examined at different levels. According to World Bank (2007) the determinants can be classified at two levels as:

a) At Participation Level
b) At Performance Level

a) Decisions made by rural households concerning the form and extent of their involvement in the RNF activities generally depend upon two main factors: 1) Incentives offered such as relative profitability and relative risk levels in farm and non-farm. 2) Households capacity to undertake such activities (Reardon et al, 2007; Gordon and Craig 2001; FAO, 1998). The **micro level indicators** such as age, education, gender, training, landholding size, household size etc. determine the level or extent of participation in the particular sector.
b) One of the most important determinants of performance of RNF activity is the investment climate. Eg investment climate includes factors that are incentives or disincentives for starting or running a business such as financial services, infrastructure, governance, regulations, taxes labour and conflict resolutions. The determinants mainly dealt at **macro level** are the performance indicators which determine the performance of the sector.

7.4. Determinants of RNF Employment

Some studies have analysed cross-sectional data to assess the probability of employment in the non-farm sector for different segments of the population. They have often employed multivariate regression techniques to determine the contribution of various household and individual characteristics to the probability of non-farm employment, controlling for other characteristics (Haggblade et al. 2007). In accordance to this, the present study examines the factors which play a significant role in determining the probability of moving to different non-farm occupations. The relationship between occupational choice and household characteristics has been examined for rural India using a multinomial logit model. The analysis considers five broad occupations: Self Employed in Farm (SEF), Self Employed in Non-Farm (SENF), Regular Wage Earner (RWE), Casual Labour in Non-Farm (CLNF), and Casual Labour in Farm (CLF). Here Self Employed in Farm (SEF) has been taken as the reference category in comparison to other categories. Explanatory variables at micro level include characteristics of household head such as age, general education, gender of household's head, skill level, size of the household, size of land holdings, social group, and poor/non-poor status of household's head etc. have been considered. But at macro level district-wise agriculture NDDP, urbanization, rural electrification, incidence of poverty, wages and literacy rate has been analyzed. Various studies have carried out such analysis using similar variables in other developing countries (Zahonogo 2011) and also in different

states in India (Abraham 2009; Jatav and Sen 2013; Khatun and Roy 2012; Ranjan 2009). Most of the studies have applied probit or logit models, using a dichotomous dependent variable for identifying micro level factors. But the focus here is on more comprehensive aspect, i.e., the probability of joining in different types of employment within the rural sector. That is why Multinomial Logit has been applied to estimate the probabilities for each category of employment in reference to Self-Employed in Farm (SEF).

7.4.1. Results and Discussion: Macro Level

7.4.1.1. Agriculture NDDP

There is an extensive body of literature which maintains that agriculture is the prime mover behind the emergence, sustenance and growth of rural non-farm sector. Davis and Bezemer (2003) also confirms the critical importance of agricultural development for creating an environment in which the non-farm sector can prosper (in Uganda, Tanzania, India, South America etc.) According to them, agricultural development generates increased saving surpluses, which can be channelized to rural non-farm activities by farming households or the financial system. However, impact of agricultural growth on the local non-farm sector depends on the strength of supply and demand linkages within a particular region.

Haggblade et al. (2002) also support the argument for Asia and Latin America by stating that rapid agricultural growth provided a powerful motor for stimulating both local and national demand for outputs of the RNFE in these regions.

The regression results shown in Table also reveal that as agriculture NDDP increases by 1 percent point, RNF employment increases by 0.66 percent points in rural India during 2004-05 which is declined to 0.47 percent during 2011-12. For region specific analysis, highest increase is reported by SR (0.97) followed by WR (0.68), CR (0.60) and ER (0.42) during 2011-12. And it is true for all the regions that impact of agriculture NDDP on RNF employment has declined during 2004-05 to 2011-12 (refer, Table 7.3).

7.4.1.2. Incidence of Poverty

The incidence of poverty in a particular area also impacts the expansion of RNF employment. Along with other factors like infrastructure and literacy rates, the proportion of poor also has an impact on status of employment. According to Foster and Rosenzweig (2004), rural nonfarm incomes have grown substantially and that nonfarm growth has been especially pro-poor. They find that in contrast to agricultural productivity growth, which largely benefits landowners, growth of the rural factory sector tends to have a greater proportional impact on unskilled labor.

Our regression analysis shows that for rural India increase in incidence of poverty (proportion of BPL population) by one percent point results in declining RNF employment by 0.06 percent points in 2004-05 and 0.08 percent points in 2011-12. But the region specific estimates show mixed results. Increase in proportion of poor leads to increase in RNF employment in all the regions except SR and ER where the proportion is declining during 2011-12. It simply means the increase in proportion of low quality or low productive jobs where poor concentrates more whereas proportion of RNF employment decreases in SR (0.58 percent points) and ER (0.52 percent points) when poor population increase by 1 percent point (refer, Table 7.3).

7.4.1.3. Literacy Rate

Literacy rate in a particular area plays a prominent role in the RNF employment. Eapen (1994) observed that literacy and education have a significant role in nonfarm employment in Kerala, allowing shifts in employment from the farm to non-farm sectors. Positive correlation between literacy and non-farm employment was also found in Tamil Nadu (Jayaraj, 1994) and Gujarat (Basant, 1994). Moreover, the level of RNF employment also depends upon literacy in a particular region along with urbanization.

In India the person who can read or write is considered as literate. Thus, the number of literate persons to the total population also makes a major difference on the extent of RNF employment. However, the importance of education or the impact of schooling, higher schooling or graduation studies is seen separately through education level of head of household in micro level indicators. Iyyampillai & Jayakumar (1995) also highlight the literacy levels as an important determinant for RNF employment taken as the literacy levels of rural male to total population in the later study.

In line with the literature, our regression analysis depicts (refer, table 7.3) that literacy rate of rural India have positive impact on expansion of RNF employment. With increase in percentage of literate persons in a district increases, the proportion of employed in RNF sector increases by 0.17 percent points in rural India during 2011-12. Region-wise analysis highlights the greater impact of literacy in ER where the proportion in RNF is increased by 1.04 percent points (highest among all the regions) with increase in literate population by 1 percent point during 2011-12 (refer, Table 7.3).

7.4.1.4.Urbanization

The proportion of urban population to the total population also determines the level of RNF employment in India. Urbanization is as an important determining factor at the region and

district levels. Singh and Singh (1995) finds that in regions where urbanisation had a weak or negative influence, the spillover effects were weak.

The degree of urbanization along with agricultural development is found to be strongly associated with RNF employment in Karnataka and Tamil Nadu (Iyyampillai and Jayakumar 1995). The results in the former study was elaborated by stating that the 'pull' factors were stronger than the 'push' factors and it was concluded that non-farm sector was not a 'residual' sector in Karnataka. In a study Eapen (1996) identified that in 1991 only distress-related factors and urbanisation were important along with other variables. The most significant variable was found to be urbanization which alone stands out as statistically significant besides being significant along with literacy levels and other variables at state level as well as at district level.

Table 7.3: Macro Determinants of RNF Employment Across Different Regions (2004-05 and 2011-12)

Indicators	NER		ER		NR		SR		WR		CR		Rural India	
	2004-05	2011-12	2004-05	2011-12	2004-05	2011-12	2004-05	2011-12	2004-05	2011-12	2004-05	2011-12	2004-05	2011-12
BPL	0.376***	0.187***	0.122*	-0.580***	0.071***	0.171***	0.193***	-0.525***	-0.249***	0.036**	0.037***	0.060***	-0.079**	-0.058***
	(0.01)	*(0.02)*	*(0.02)*	*(0.03)*	*(0.02)*	*(0.01)*	*(0.02)*	*(0.01)*	*(0.01)*	*(0.02)*	*(0.01)*	*(0.02)*	*(0.01)*	*(0.01)*
Agri_NDDP	0.918***	0.236**	0.956***	0.421***	1.074	0.358***	0.924*	0.979***	0.809**	0.682***	0.522***	0.605**	0.664***	0.446**
	(0.03)	*(0.05)*	*(0.01)*	*(0.04)*	*(0.02)*	*(0.03)*	*(0.03)*	*(0.04)*	*(0.02)*	*(0.03)*	*(0.02)*	*(0.03)*	*(0.01)*	*(0.02)*
ELEC	0.412*	0.079**	0.308***	1.046***	0.169	0.079***	0.203***	0.162***	2.146**	0.156***	0.048***	0.102***	0.025**	0.174***
	(0.01)	*(0.01)*	*(0.01)*	*(0.05)*	*(0.01)*	*(0.02)*	*(0.01)*	*(0.01)*	*(0.50)*	*(0.04)*	*(0.01)*	*(0.01)*	*(0.00)*	*(0.01)*
LIT	0.666***	-0.045	0.125	0.712***	0.274***	0.452***	0.265***	0.731**	0.510	0.696***	0.211***	0.121*	0.205***	0.500***
	(0.02)	*(0.04)*	*(0.04)*	*(0.03)*	*(0.02)*	*(0.06)*	*(0.03)*	*(0.06)*	*(0.02)*	*(0.04)*	*(0.01)*	*(0.03)*	*(0.01)*	*(0.01)*
Urban	0.510***	0.458***	0.568***	0.121***	0.424	0.347***	0.347***	0.118***	0.090	0.246***	0.256***	0.135***	0.019***	0.185***
	(0.02)	*(0.02)*	*(0.01)*	*(0.03)*	*(0.02)*	*(0.02)*	*(0.01)*	*(0.01)*	*(0.01)*	*(0.01)*	*(0.02)*	*(0.02)*	*(0.01)*	*(0.01)*
POP_D	0.045***	0.018***	0.023***	0.001	0.018	0.046***	0.019***	0.001	0.026***	0.048***	0.009***	0.009***	0.010***	0.011***
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
Wages	0.586*	2.717***	-0.087	0.751**	1.087***	-0.082	0.577**	0.574*	0.900***	1.640*	1.224***	0.645*	1.200***	0.274*
	(0.32)	*(0.61)*	*(0.13)*	*(0.34)*	*(0.31)*	*(0.41)*	*(0.25)*	*(0.33)*	*(0.30)*	*(0.37)*	*(0.26)*	*(0.34)*	*(0.14)*	*(0.09)*
Constant	32.76	27.56	39.39	11.69	81.68	47.99	62.85	119.4	302.2	-12.53	23.29	49.47	63.82	85.09
	(2.09)	*(3.42)*	*(3.34)*	*(3.56)*	*(1.93)*	*(2.98)*	*(3.22)*	*(4.07)*	*(48.93)*	*(2.74)*	*(1.31)*	*(2.67)*	*(0.90)*	*(1.29)*
F-Statistics	2000.4	354.6	3675.2	569.4	460.7	375.9	1851.5	1013.4	1412.9	828.1	665.9	531.6	1919.9	1149.4
Prob > F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
R-squared	0.646	0.202	0.846	0.416	0.489	0.421	0.642	0.626	0.453	0.505	0.477	0.365	0.319	0.242

*Notes: a) ***, **, * represents level of significance at 1%, 5% and 10% respectively.*
b) Figures in parentheses represents standard errors
Source: Calculated from NSS EUS 50th, 61st and 68th Rounds (Government of India, 1993-94, 2004-05, 2011-12).

Urbanisation along with economic growth, and industrialization acts as the major reason behind movement of workers from agriculture to non-agriculture employment. Shukla (1991, 1992) in Gujarat, Jayaraj (1994) in Tamilnadu, and Eapen (1996) in Kerala also find positive influence of urbanization on RNFE growth. Actually, urbanization

expands the market for rural enterprises and encourages non-farm attributes in the secondary and tertiary sectors. The regression estimates shown in table 7.3 indicate that urbanization turns out to have a positive and statistically significant impact on the growth of RNFE, though magnitude of its coefficients varies across regions. It has greater impact on ER (0.46 percent points) followed by NR (0.36 percent points) and WR (0.27 percent points) during 2011-12. The impact of urbanization is higher for regions as compared to rural India as with increase in urbanization rate by 1 percent point RNF employment for country as whole increases by 0.18 percent points (refer, Table 7.3).

7.4.1.5. Rural Electrification

There are some scholars who do not support the contribution of agricultural growth alone on the development of non-farm employment; for them the development of rural infrastructure also stands out as an important factor for its growth. Murty (2005) highlight the role of rural infrastructural facilities along with manufacturing sector in increasing the proportion of non-farm employment in Andhra Pradesh, which help in improving the socio-economic conditions of rural areas and diversifying the economy more (Singh, and Singh 1995). The two important infrastructural factors emphasized in the studies are road density or proximity to urban areas (Asher & Novosad, 2015) and rural electrification (Hazell and Haggblade, 1991; Shukla, 1994; Harris, 1991;Visaria and Basant, 1994; Islam, 1997; Davis and Bezemer, 2003). In the present study, road density is not taken as parameter for the infrastructure because of unavailability of comparable dataset at the state level. On the other hand, rural electrification indicator is taken as the percentage of villages electrified to the total villages (inhabited villages).

The regression results presented in table 7.3 reveal the positive impact of percentage of villages electrified on proportion of RNF employment. The percentage of RNF employment increases by 0.17 percent points with increase in percentage of villages electrified by 1 percent point during 2011-12. The impact is more in ER (1.04 percent) followed by SR (0.16 percent) and WR (0.15 percent) during the same period (refer, Table 7.3).

7.4.1.6. Non-Farm Wages

Increase in non-farm wages positively and significantly impact the proportion of employed in RNF sector. People are motivated to move to the RNF sector if the difference between the wages (they are getting and they are supposed to get) is high, one is pulled to the RNF sector; provided the required level of skill and education in the respective sector. Thus, non-agriculture wages act as a pull factor for the RNF sector.

Himanshu et al (2011) find that casual non-farm employment hiked because of higher wages than agriculture wage labour. They argue that since casual wages in RNFS have consistently exceeded the agricultural wages, a shift away from agricultural labour to casual non-farm labour may not necessarily be distress driven. Panel data from Bangladesh do suggest a similar labor market tightening, with expansion in high-productivity rural nonfarm employment pulling labor away from low-return manual labor both on farms and off (Hossain 2004). The regression results (refer, Table 7.3) of our study show that RNF employment increases by 1.21 percent points during 2004-05 for rural India by increasing non-farm wages by 1 Rs and this effect is weakened and percentage decline to 0.27 percent points during 2011-12. The highest increase is reported in NER (2.12 percent points) followed by WR (1.64 percent points) and ER (0.75 percent points) during 2011-12.

7.4.1.7. Population Density

High population density would be expected to push people out of agriculture (as cultivation is increasingly unable to sustain livelihoods) and may well stimulate non-farm activities and increase in RNF employment. Table 7.3 shows that population density exercise independent positive and significant statistical influence on RNF employment. This might arise from the fact that, in more densely populated localities, there is greater demand for nonfarm jobs, and possibly even a greater supply of non-farm activities. The regression results reveal that although minimal but population density has significant impact on RNF employment. With increase in population density by one person per square km will increase the RNF employment by 0.01 percent points in rural India and the highest being 0.04 percent points in WR during 2011-12 (refer, Table 7.3).

7.4.2. Results and Discussions: Micro Level

It is essential to identify reasons due to which rural masses accept to go for RNF activities as their principal occupation either at household level or at the individual level. There is an extensive literature available witnessing the primary determinants of growth of RNF sector, but very few studies have focused on factors responsible for different types of occupations within the non-farm sector. Some studies have highlighted the household as well as the individual characteristics as the prime movers towards RNF sector, such as, general education (Basant 1994; Eapen 1996; Jayaraj 1994; Khatun and Roy 2012; Ranjan 2008); technical education (Jatav and Sen 2013; Jayaranjan 2013) caste or social group (Davis 2006; Himanshu et al. 2011; Khatun and Roy 2012); gender (Haggblade et al. 2007); age (Khatun and Roy 2012); household size (Khatun and Roy 2012; Lanjouw and Shariff 2004;

Ranjan 2009; Reardon 1997); and land ownership structure (Haggblade et al. 2007; Lanjouw and Shariff 2004; Unni 1998). The determinants at the household level used in this study during both the time periods are explained as follows:

7.4.2.1. Household Size

Our study shows that household size is positively and significantly related to self-employment in non-farm (odds ratio 0.012) as compared to self employed in farm during 2011-12 for rural India i.e. and liklihood of adopting self employment in non farm has increased from 1999-2000 (odds ratio 0.95). The chances of going for casual employment and other employment are less as compared to self employment. The same association is also valid for different regions except WR and CR but at different rate of probabilities and chances for adopting casual employment over self employment in farm are lower. The value of odds ratio of household size is more than 1 and increases with increase in number of family members in a household. Such results are also supported by other studies (Haggblade et al. 2007; Lanjouw and Shariff 2004; Sharad Ranjan 2008). The larger the size of the household, the more is the probability of people going for self-employment in non-farm. This indicates that workers from large households are likely to be engaged in the non-farm activities (specifically self-employment in non-farm) relative to self-employed in farm. For WR and CR, with increase in number of family members, probability to join other occupation as compared to self-employment in farm declines (refer, Appendix Tables A7.1-A7.7).

7.4.2.2. Land Holdings

The land ownership status of the rural households not only determines the extent of their participation in non-farm activities, but it also influences the nature of the employment (self-employment vis-a.-vis wage paid labour) to which the rural households could decide to shift (Thorat, 1993). The odds ratio of a household to engage in the non-farm sector is negatively related to the size of land-holdings during 1993-94 to 2011-12. This simply means that land holdings have a positive and significant association with the reference category (self-employment in farm). The landless are more inclined towards the casual employment in farm or non-farm. The people with the land holdings are likely to be employed on their own land rather than going for casual or regular employment in any of the region (refer, Appendix Tables A7.1-A7.7). The regression results are consistent with the findings of Thorat (1993) in which he indicates the higher diversification of landless or near landless households as compared to those who own land. Relative to involvement in casual farm employment,

households with the landholdings are more likely to be involved in either self-employment in the farm (cultivation). This finding is consistent with the notion that larger landholdings provide both opportunities for cultivation as well as for non-farm activities (via a wealth effect), and that agricultural wage labour is a particularly unattractive occupation, even relative to casual non-farm wage employment (Jatav and Sen 2013; Lanjouw and Shariff 2004).

7.4.2.3. Social Group

In countries like India, social group, to which a household belongs to, may also contribute separately to the probability of participation in farm or non-farm occupations (Davis, 2003; Himanshu et al., 2011; Khatun and Roy, 2012). Table 7.3 reveals that the odds of being employed in casual non-farm employment followed by casual farm employment in reference to self-employed in farm are higher for the workers belonging to the SCs in comparison to STs. Also higher caste (specially in case of Brahmins) increases the likelihood to go for regular salaried or other professional jobs, while lower castes (Dalits) remain stuck with non-agricultural labour work. The probability for going to casual employment is highest for OBCs (CLF-2.359, CLNF-2.273) followed by SENF (1.577) as compared to self-employment in farm.

The households belonging to lower castes/social group (SCs) have inadequate access to capital which is an essential component in initiating a business; that is why the probability of Non-SC category to opt for self-employment is higher in comparison to SCs (Thorat and Sabharwal 2006). And also they are not equipped with high level of skills and education which can make them unable to be absorbed in regular wage market and are more likely to get employment as casual labour in the farm. Thus, the households belonging to SC group are relatively less likely to be involved in any of the high productive non-farm occupations than their counterparts belonging to OBC and others groups. For region- wise analysis, WR and CR have higher probabilities of opting casual employment in non-farm and farm followed by SENF whereas in NR, workers are more inclined towards CLF in comparison to SEF. In ER, the probability of going for SEF is higher in comparison to any other kind of employment (refer, Appendix Tables A7.1-A7.7).

7.4.2.4. Poor/Non-poor Status

According to the values of the odds ratio, poor people are less likely to work in any of the non-farm employment instead go for casual employment during 1993-94 to 2011-12 (Table 7.3). The value of odds is higher for others (5.743) indicating that non-poor have the higher probability to go for other occupations followed by self-employed in the farm (3.077) and

self-employed in non-farm (2.829). Meaning thereby self-employment is highly concentrated by non-poor people. But during 2011-12, they are more likely to join non-farm sector as a regular employee (5.925) followed by others (2.289) (refer, Appendix Tables A7.1-A7.7). Due to lack of pre-requisites for non-farm employment (education, skill, etc.), poor workers are not capable of getting employment in this sector and mostly engage as casual labour in the farm sector (Dary 2012). Although most of the studies show that poor people are involved in non-farm jobs to get rid of poverty, but our study, based on the principal status (reference time period 365 days), indicates that the probability of poor workers to be engaged in non-farm occupations as their principal activity is quite low as evidenced by the values of odds ratio. However, they may get jobs in the RNF activities as their subsidiary work (Employment on UPSS). So, they are less likely to participate in the non-farm sector, particularly in those activities that would appear to be able to lift them out of poverty. Also, the poor may not always find it easy to gain access to even casual non-farm employment, the siphoning off the non-poor out of the agriculture labour and into casual non-farm employment puts pressure on agriculture wages (Haggblade et al. 2007; Unni 1998).

7.4.2.5. Education of the head of the household

Education has a significant and positive impact on the odds ratio of being employed in non-farm occupations. As the level of education goes up from secondary and higher secondary to diploma/ certificate and then to graduation and above, the odds ratio of being employed in non-farm occupation goes from casual labour to self-employment and then to the regular wage earner, respectively. Those with no education are more likely to be engaged in self-employed in agriculture agricultural wage labour than in either self-employed in agriculture or regular salaried employment. Based on odds ratio, those who have completed primary to middle education make it less likely that they will be employed as agricultural wage labour, preferably they are more likely to join non-farm casual or self-employment. But the diploma/certificate holders and graduates and above are more likely to be employed as regular wage earners as compared to other occupations in the non-farm sector with the highest value of odds ratio (Table 7.3).

The analysis of workers' participation in rural non-farm occupations and their educational attainments confirm the findings of many other research studies that education enables a worker to make better choices over livelihood options available to him (Singh and Prabhakar 2000; Huffman 1980). Moreover, with the spread of education more and more of rural workers are joining non-farm vocations as compared to agriculture (refer, Appendix

Tables A7.1-A7.7). Further, the probability of participation in RNF is lower if a worker is illiterate (reference category); he/she is more likely to be in farming as wage labour. Nevertheless, the illiterate and less educated workers settle at low-productivity and low-earning non-farm activities (Dary 2012).

7.4.2.6. Age of the head of the household

Different age-groups depict different correlations with non-farm employment (Table 7.3). The study clearly reveals that the people of age group 15-29 are more likely to work as casual labour in the non-farm sector (odds ratio 1.292 during 2004-05 and 1.149 during 2011-12) rather than going for self-employment in farm or non-farm. Although the youths are more involved in education and are out of the labour market, the majority of them in the rural areas (those who drop out from school early) join as casual workers (Khatun and Roy 2012). Such people (especially males (15-19)) may not meet the skills and experience requirements of regular wage jobs and have to work as casual workers. In other words, working age group (30-59) has more probability of getting regular employment as compared to any other age group (refer, Appendix Tables A7.1-A7.7). Those with less skill may initially get a casual job in RNFS, but gradually as their age progress, they may also acquire more experience and skill which increases the probability of their joining as a regular worker. Furthermore, elderly are less likely to work as others and casual labour as compared to self-employed in non-farm.

7.4.2.7. *Gender of the head of the household*

The relationship between gender and the probability of non-farm employment has been examined in some studies. A broad picture that emerges, but that is not necessarily repeated with statistical significance in all the studies, is that the female participation in non-farm activities is low; if participation is there, it is in the low remunerative occupations. Lanjouw and Shariff (2004) document a significantly lower probability of non-farm employment by women from region-level multinomial logit models used for rural India. In accordance with this, the value of odds ratios in our analysis show that females in the rural areas have higher probability of being employed as others folowed by Casual labour in Farm during 2011-12 in comparison to self employed in farm. This can also be associated with the low LFPR of females depicted in Table 7.3. However, the opportunities for non-farm employment are also limited and not readily available for them in rural areas. Males are more likely to engage in non-farm jobs, while females participate more in agriculture in the absence of their husbands rather than going for non-farm activities (refer, Appendix Tables A7.1-A7.7). Moreover,

there is another argument that females, children and elderly of the family were forced to join the labour market during the crisis periods who otherwise were not participating and who withdrew themselves with improvement in the situation (Government of India 2014b).

7.5. Summing up

The broad picture that emerges from these household-level findings is that non-farm activities appear to be strongly associated with the level of education. As the level of education moves upward, the probability of going to non-farm occupations increases. Therefore, education plays a vital role in getting more secure and regular jobs in rural India. Furthermore, females tend to be particularly highly represented in agricultural labour activities, and underrepresented in the non-farm sector. Furthermore the non-farm activities are also concentrated by the young age workers (15-29) and household head belonging to lower category of social group.

At macro level, agriculture NDDP, literacy and electrification, non-farm wages play important role as pull factor in expansion of RNF employment. Altogether, our analysis witnesses that the distress-push factors are responsible for RNF employment expansion such as population density and proportion of poor.

Although the RNF sector has been perceived as the growth engine these days, but there are still some ambiguities regarding its definition, impact, and linkages with rural poverty and quality of employment provided by the sector. Keeping in view these issues, the present study aims to: examine the difference in share of employment of the RNF activities on the basis different approaches; to assess the impact of RNF sector on rural poor; to evaluate the status of RNF employment through Quality of Employment Framework; and to analyze the factors affecting the expansion of RNF employment at micro as well as macro levels.

To achieve the objectives we have used the more comprehensive dataset provided by NSS on the employment-unemployment status. To explain the status of RNF activities, the analysis is based on the time period 1993-94 till 2011-12. The study uses four rounds i.e.50^{th} round (1993-94), 55^{th} round (1999-00), 61^{st} round (2004-05) and 68^{th} Round (2011-12), but for the detailed explanation, it is based on the unit level data of 7^{th} (61^{st} round, 2004-05), 9^{th} (68^{th} round, 2011-12) quinquennial NSS surveys, as prior to 2004-05 there are data comparability issues (due to change in methodology). The Employment-Unemployment Survey (EUS) provides data on four measures of employment as UPS, USS, CWS and CDS, but the study is majorly based on UPSS (PS+SS) which captures the short term employment also. The OLS, Logistic Regression and Multinomial Regression are used to identify the determinants of rural poverty and RNF employment and quality of employment framework is used through identification and aggregation of indicators to examine the quality of RNF employment. The summary of main findings of the study is presented as follows:

Objective 1: Understanding Definitional Ambiguities of RNF Sector

Keeping into account all the definitional ambiguities of the sector and rural-urban linkages, we have tried to estimate the RNF employment through a new synthesized approach which uses the theoretical background defined by Saith (1992) but with some alterations. Saith (1992) has described development linkages in terms of production or income. However, our dataset does not allow us to estimate on income basis rather to stick on employment. We have altered the linkages in terms of location of activity performed and have tried to capture the movement of the population from rural to urban and urban to rural areas during a specific time period. On the basis of these linkages we have suggested a new method of calculating the share of RNF employment. Two major heads are taken into consideration i.e. *Area and Activities* which are elaborated while estimation, on the basis of narrow and broad aspects

and divided into further four categories i.e. a) Confined Area Confined Activities (CACA) b) Confined Area Wider Activities (CAWA), c) Wider Area Confined Activities (WACA) d) Wider Area Wider Activities (WAWA)

In our suggested estimation, location of the activity plays major role in calculating the share of RNF employment. According to the estimation, our preferred approach is WACA in which we apply the locational linkages but the activities remain same as in basic definition. The WAWA approach can be useful if we calculate share of non-agriculture and not non-farm sectors. The major difference is when we consider the area as wider i.e. incorporating the rural urban movement of the workers. According to this approach the RNF workers will be 48791 (000) during 2004-05 which is 52109 (000) in CACA approach (which is considered as proxy to the usual approach). The number of RNF workers will be calculated by adding the urban workers working in rural area and deducting the rural workers working in urban areas (46862+3147+5247-6464= 48791). Thus, the workers whose location of activity is in rural region, will form the part of RNF employment (include both rural and urban population working in rural areas), whereas the rural workers whose location of activity is in urban region will be excluded from RNF employment even though they are resident of rural areas.

Objective 2: Impact of RNF Employment on Rural Poor

The rural poor in India are highly concentrated in select states of the country viz., Chhattisgarh, Karnataka, Arunachal Pradesh, Meghalaya, Maharashtra, Assam, Bihar whereas RNF poor are concentrated in Uttar Pradesh, Bihar, Jharkhand, Madhya Pradesh, Chhattisgarh, Assam, Odisha during 2011-12. The states, which shows highest rate of poverty decline in rural areas i.e. more than 20 percent from 2004-05 to 2011-12; are showing less decline in RNF poverty i.e. ranging between 0-9 percent or 10-19 percent. This simply shows that reduction in poverty is not linked only with RNF employment. There are many other factors which are leading to this sharp decline in rural poverty. Two crucial inferences can be drawn: a) the decline in farm employment may not have resulted in a decline in the incidence of poverty; and b) Employment shift towards RNF sector has helped in reducing poverty, but at a slower rate.

The region-wise analysis has been done to explore the incidence of poverty in different activities from 1993-94 to 2011-12. As evident from the past data and literature, the popular and flourishing activity in rural India within non-farm is largely construction and the incidence of poverty is as high as its popularity; it seems to be popular among poor only. Even after the decline in proportion (9.3 percent points), the incidence of poverty is high

among the construction workers in CR as compared to other industrial activities during 2011-12. In manufacturing, the proportion of poor in CR is also highest (43.3 percent) as compared to other regions (NER- 34.41 percent and ER- 33.77 percent). Within services activities, transport and storage activities are also contributing more for CR as 39.19 percent of the population engaged in these activities are poor (during 2011-12). Thus, CR is found to be the poorest region among all the regions as poverty incidence in this region is highest in all the activities during 2011-12.

The analysis of status of employment reveals that majority of the poor households are employed as casual labourer and they were highly concentrated in CR (64.13 percent) followed by ER (64.17 percent) and NR (62.16 percent) during 1993-94 and rate of decline is also lowest in the case of CR (0.74 percent points per annum) from 1993-9 to 2011-12. The proportion of poor is also highest among self-employed (comparatively less than casual labourers) for which CR (34.94 percent) also stands out to be poorest, followed by ER (33.71 percent) and NER (20.97 percent) during 2011-12.

Thus the employment status highlights the engagement of poor households as casual labours in rural India as whole and in rural non-farm sector specifically. The low productive and low remunerative nature of casual employment indicates that the poor involved in these kind of employment are surviving on two ends meal basis and to come out of the poverty is very difficult for them.

Objective 3: Quality of Employment in RNF Sector

After identification of the quality of employment by individual indicators, we have also used the aggregation technique to show the aggregated results. For RNF sector as a whole the aggregation shows us that during 2011-12, 33.5 percent (1/3rd of the population) employed in the sector is working in lower quality of employment due to deprivation in any of the three indicators which earlier was deprived due to any of the two indicators during 2004-05. This indicates that quality of employment has lower down from 2004-05 to 2011-12. Furthermore, if we take half of the considered indicators, still 25.6 percent population is working in lower quality of employment. More surprisingly, if we take any of the six indicators, still 1.23 percent of the population exists who are deprived in six out of eight indicators. Thus, these people are at the bottom of the quality ladder.

The state-wise aggregation results show that the proportion of the population under low quality of employment (deprivation in any two indicators) is highest in Madhya Pradesh (36.74 percent) followed by Uttar Pradesh (36.71 percent), Chhattisgarh (35.21 percent) and Uttarakhand (32.28 percent) during 2004-05. While analyzing the deprivation in any 6 of

the indicators, Jharkhand is the only state with some significant percentage of deprived population (1.09 percent). This state also shows the highest proportion (6.72 percent) when number of deprived indicators is taken as 5. Thus during 2004-05, Jharkhand shows lowest quality of employment among all the states because there exists significant proportions of RNF population who are deprived in any three, four, five or six indicators. But during 2011-12, Madhya Pradesh stands out to be the state with lowest quality of employment among all the states.

Objective 4: Determinants of RNF Employment Expansion

The pattern of diversification shows that inside diversifiers has intensified (more than double) especially in case of farm rather than non-farm from 2004-05 (26.33 percent) to 2011-12 (58.04 percent) at all India level. At region level, maximum change during 2004-05 to 2011-12 is registered by SR (41.65 percent) followed by NR (34.8 percent) and CR and ER (32 percent each). This kind of diversification mainly occurs in agriculture predominant areas where people have scope to be in farm activities as their primary source of income and also to supplement their income they remain in this sector only.

The surprising fact come across from the analysis is that proportion of flow diversifiers has declined as against the expectation in case of India during 2004-05 to 2011-12. The main reason of this can be the increase in proportion of non-diversifiers (7 to 10 percent in all the regions) during 2011-12. The proportion of diversifiers particularly in non-farm has declined or remained same as before in 2004-05. Those who diversified during 2004-05 have now opted that diversified activity as their main occupation and have not further diversified to another activity. The proportion of ebb diversifiers has declined for rural India as well as for regions except (NER- increase by 11.27 percent) from 2004-05 to 2011-12. The negligible increase is also reported in WR (0.72 percent).

Further, the analysis of determinants reveals that both push and pull factors affect the individuals' decision to opt for different non-farm occupations. The micro level regression results show that individuals with high level of education, big family size and poor have higher probability to go for self-employment in non-farm sector; whereas SCs, females, people of age group 15-29 and with low skill level are more concentrated in casual employment. With increase in size of landholdings people prefer to be employed as self-employed in farm in comparison to any other occupation. On the other hand, the macro level results show that pull factors like agriculture NDDP, literacy rate, urbanization, electrification and wages have positive impact on RNF employment expansion, whereas push factors like incidence of poverty have mixed results and population density have

positive impact. Thus, both at macro and micro levels, push and pull strategies work simultaneously. Thus, initial conditions or on the basis of performance indicators, it can be said that if initial conditions are good, pull factors influence more but when initial conditions are not favorable, push factors influence more.

Key Conclusions

- The synthesized approach suggests the methodology to account for location of the activity while estimating the share of RNF employment. According to the approach, Wide Area Confined Activities (WACA) is the recommended estimation approach, which considers the location of activity as rural irrespective of location of the worker. The actual estimation based on this approach varies from the estimation not considering the location of activity. The WAWA captures the less number of people as compared to the CACA approach. Thus, CACA (which can be taken as proxy to usual estimation) leads to the overestimation of RNF employment.
- The broad picture, which emerges from poverty and non-farm linkages, is that non-farm activities appear to be strongly associated with declining incidence of poverty but in-depth analysis shows that the poor face significant pressure to explore opportunities in the RNF economy. The lack of their human (such as, education and skill), financial and physical (such as land ownership) assets often confines them to low productive, low remunerative and low-growth labour market segments, of which there are few pathways out of poverty, simply a means of bare survival.
- While analysing the quality of employment specific to RNF sector, the absence of collective barganing, informality and vocational training are the three major indicators which represent the lower quality of employmnet because proportion of employed population for these indicators is more than 75 percent during 2011-12. Out of total, 20 percent of employed population in RNF sector is under lower quality of employment according to the indicator of working in more than one occupation.
- The pattern of diversification shows that there is an increase in proportion of non-diversifiers in non-farm sector and inside diversifiers in farm sector from 2004-05 to 2011-12. The increase in proportion of non-diversifiers hints towards the increase in proportion of complete diversifiers who opted the non-farm activity during 2004-05 and falls under the category of flow diversifiers, but during 2011-12 they have chosen the opted activity as their principal activity and have decided not to diversify further. Furthermore, the proportion of the population, who diversify within farm sector, has

increased during 2004-05 to 2011-12 i.e. with increase in farm diversification there is much scope to opt farm activity as their secondary occupation.

- The broad picture that emerges from the household-level findings is that non-farm activities appear to be strongly associated with the level of education. As the level of education moves upward, the probability of going to non-farm occupations increases. Therefore, education plays a vital role in getting more secure and regular jobs in rural India. Furthermore, females tend to be particularly highly represented in agricultural labour activities, and underrepresented in the non-farm sector. Moreover, the non-farm activities are also concentrated in the young age working group (15-29) and household's head belonging to lower category of social group.
- At macro level, agriculture NDDP, literacy and electrification, non-farm wages play important role as pull factor in expansion of RNF employment. Altogether, our analysis witnesses that the distress-push factors are responsible for RNF employment expansion such as population density and proportion of poor

Policy Implications

- First and foremost policy issue is to understand the severity of overestimation and measures should be taken towards the correct estimation of the share of employment in the sector. Second, the quality indicators highlighted in the study such as vocational training, economic freedom and collective bargain should be improved.
- The study has highlighted the concentration of poor in casual employment in rural areas and the rate of decline in poverty is very low in such employment type. Associating some sort of security (fixation of contract) and more monetary benefits to such kind of employment can raise the quality of employment as well benefit for the poor.
- There should be some specific policies to enhance the skill level by opening the training centres, giving the social security to the casual workers as it is done in the upcoming budget (pension scheme for unorganized workers).
- Increasing informalisation within formal sector (i.e. regular workers without paid leave entitlement) has led to lower the quality even for regular workers which should be taken care of.
- The promotion of RNF employment should also be taken within the broader context of rural development. The most important for rural poverty reduction is to improve the quality of RNF employment rather just focusing on the quantity.

- It should also be noted that RNF employment is not a substitute for employment in agriculture; it is rather a supplementary option. Agricultural development is still important and should be pursued as a necessary precondition.
- The CR and ER stand out to be poorest regions with lower quality of employment i.e. highest proportions of poor with casual employment and poor quality of employment in terms of quality indicators. Thus, expansion of RNF employment in regions like CR is the results of distress-push factors like incidence of poverty, population density and lower level of education and skill. Thus, some policies should be framed to improve the quality of employment in this region which can benefit the poor the most.

Major Challenges Faced

- The major difficulty faced is the non-compatibility of the NSS dataset with other datasets in public domain like Annual Survey Data by Ministry of Labour and Employment which is till 2015-16. Since annual surveys are not comparable with quinquennial surveys, we could not incorporate both the datasets and findings are limited to latest NSS round (2011-12).
- The definition of RNF employment has been explained in the study without explaining the share of farm sector because the main variable used *'location of workplace'* to calculate the share is limited to the information of non-farm and allied activities (Industry code 2-99) and does not give information about the location of farm activity. Moreover, the variable has major proportion of missing values, which excludes the major part of the sample and confines the definition which does not allow us to compare the proportion to the overall proportion without considering location variable.
- Migration is the major contributing factor in analysisng RNF employment as well as poverty in rural area, but for the present study, it is not included in the data because of non-availability of district-wise migration data. The main source of data regarding migration in India is census data provided by Government of India. This provides information on state-wise migration for 2001 and 2011 and district-wise migration is available only for 2001 (used as a proxy for 2004-05) and for 2011 district-wise migration data are not released yet. However, for 2007-08 NSS, data, are available for calculating district wise migration but there was compatibility issues as one source is from census data and other is from sample

data. Thus, keeping in view all the problems, migration cannot be used as a variable in the macro level indicators though important.

Scope for the Future Research

- The study has focused on the estimation of RNF employment according to new methodology on the basis of NSS datasets only. The study leaves a future scope for extending the methodology for another datasets or specifically for primary datasets, keeping into account the location of activity as the major estimation criterion.
- The study has not touched the gender aspect of the RNF employment except including gender as a factor influencing the RNF employment expansion. Thus, an extensive study can be taken up to examine the variation in RNF employment trends by considering gender as an important aspect.
- The study has taken up all the regions to show the patterns and determinants of diversification at region level for all India and elaborates the reasons for expansion of RNF employment and poverty reduction in all the reasons but to extensively study the region specific determinants, one has to undergo a region specific study separately for CR or ER to examine the impact of region specific environment and policies.

Abraham, V. (2009). Employment Growth in Rural India: Distress-Driven? *Economic and Political Weekly, 44*(16), 97-104.

Abraham, V. (2011). Agrarian Distress and Rural Non-Farm Sector Employment in India *Munich Personal RePEc Archive*.

Abraham, V. (2013). Missing Labour or Consistent "De-Feminisation"? *Economic and Political Weekly, 48*(31), 99-108.

Adisa, R. S. (2011). Introductory Chapter Rural Development in the Twenty-First Century as a Global Necessity.

Aggarwal, S. C. (2004). Labour Quality in Indian Manufacturing: A State Level Analysis. New Delhi: Indian Council for Research on International Economic Relations.

Aggarwal, S., & Das, D. (2014). *Labor Quality in Market Services in India: Challenges in Constructing a Quality Index*. Paper presented at the IARIW 33rd General Conference, Rotterdam, the Netherlands.

Agrawal, T. (2015). Occupational Segregation in the Indian Labour Market. *The European Journal of Development Research, 28*(2), 330-351. doi:10.1057/ejdr.2015.10

Aloïs, V. B. (2002). Work Organisation, a Dimension of Job Quality: Data from The Adhoc Module of the 2001 Labour Force Survey in The EU. Invited paper submitted by Eurostat to the joint UNECE-Eurostat-ILO Seminar on Measurement of the Quality of Employment, Geneva, 27-29 May 2002.

Anderson, D., & Leiserson, M. W. (1980). Rural Nonfarm Employment in Developing Countries. *Economic Development and Cultural Change, 28*(2), 227-248.

Anker, R., Chernyshev, I., Egger, P. and Mehran, F. 2003. Measuring Decent Work with Statistical Indicators, *International Labour Review, 142*(2), 147.

Anyanwu, J. C. (2013). The Correlates of Poverty in Nigeria and Policy Implications. *african Journal of Economic and Sustainable Development, 2*(1), 23-52.

Arora, A., & Singh, S. P. (2015). Poverty across Social and Religious Groups in Uttar Pradesh: An Interregional Analysis. *Economic and Political Weekly, 40*(52), 100-109.

Arora, A., & Singh, S. P. (2017). So why is Uttar Pradesh still poor? Poverty incidence and its correlates: An interregional analysis. *International Journal of Social Economics, 44*(12), 2351-2377.

Asher, S., & Novosad, P. (2015). Market Access and Occupational Choice: Evidence from Rural Roads in India.

Banerjee, A. V., & Duflo, E. (2007). The Economic Lives of the Poor. *The Journal of Economic Perspectives, 21*(1), 141-168.

Banerjee, S. G., Barnes, D., Singh, B., Mayer, K., & Samad, H. (2015). Power for All: Electricity Access Challenge in India *World Bank Studies*. The World Bank, Washington International Bank for Reconstruction and Development.

Barrett, C. B., & Reardon, T. (2000). Asset, Activity, and Income Diversification Among African Agriculturalists: Some Practical Issues.

Barrett, C. B., Reardon, T., & Webb, P. (2001). Nonfarm Income Diversification And Household Livelihood Strategies In Rural Africa: Concepts, Dynamics, And Policy Implications. *Food Policy, 26*, 315-331.

Basant, R. (1994). Economic Diversification in Rural Areas: Review of Processes with Special Reference to Gujarat. *Economic and Political Weekly, 29*(39), A107-A116.

Basu, D. (2018). An Approach to the Problem of Employment in India *CSE Working Paper*. Bengaluru, Karnataka: Centre for Sustainable Employment, Azim Premji University.

Basu, D. N., & Kashyup, S. P. (1992). Rural Non Agricultural Employment in India Role of Development Process and Rural-Urban Employment Linkages. *Economic and Political Weekly, 27*(51/52), A178-A189.

Bauer, R.A. (Ed.). 1966. *Social Indicators*, Cambridge, MA, MIT Press.

Bescond, D., Chataignier, A. and Mehran, F. 2003. Seven indicators to Measure Decent Work, *International Labour Review*, 142(2), 179–211.

Bhalla, S. (1981). Islands of Growth: A Note on Haryana Experience and Some Possible Implications. Economic and Political Weekly, l022-1030.

Bhalla. S. (1991). Report of the study group on employment generation, National Commission on Rural Labor. New Delhi: Government of India.

Bhalla, S. (1993). The Dynamics of Wage Determination and Employment Generation in Indian Agriculture. Indian Journal of Agricultural Economics, 48 (3), 449-70.

Bhalla, S. (1994). Rural Industrialisation and Non-Farm Employment. Delhi: International Labour Office.

Bhalla, S. (1997). The Rise and Fall of Workforce Diversification Processes in Rural India: A Regional and Sectoral Analysis. Centre for Economic Studies and Planning, DSA Working Paper. New Delhi: Jawaharlal Nehru University.

Bhalla, S. (2006). Recent Developments in the Unorganised Rural Non-Farm Sector. NEW DELHI.

Bhalla, S. (2008). Definitional and Statistical Issues Relating to Workers in Informal Employment. New Delhi: National Commission for Enterprises in the Unorganised Sector.

Bhalla, S. S. (2011). Inclusion and Growth in India: Some facts, some conclusions *Asia Research Centre Working Paper*. London School of Economics & Political Science, London: Asia Research Centre

Bhattacharya, D. (1996). The Emerging Pattern of Rural Non-farm Sector in Bangladesh: A Review of Micro Evidence. *The Bangladesh Development Studies, 24*(3/4), 103-141.

Bhaumik, S. K. (2007). Growth and composition of rural non-farm employment in India in the era of economic reforms. *The Indian Economic Journal, 55*(3), 40-65.

Bhaumik, S. K. (2008). Rural Non-farm Employment, Poverty and Inequality in West Bengal. *Reforming Indian Agriculture: Towards Employment Generation And Poverty Reduction: Essays In Honour of GK Chadha*, 381

Bhaumik, S. K., Dimova, R., & Nugent, J. B. (2011). Off-farm labor supply and labor markets in rapidly changing circumstances: Bulgaria during transition. *Economic Systems*, *35*(3), 378-389.

Biderman, A. 1975. Introduction, *American Behavioral Scientist, 18*(3), 301.

Bieler, P. (2009). *Understanding the Relationship between Economic Growth, Employment and Poverty Reduction*. Retrieved from

Binswanger-Mkhize, H. P. (2012). India 1960- 2010: Structural Change, the Rural Nonfarm Sector, and the Prospects for Agriculture.

Binswanger-Mkhize, H. P. (2013). The Stunted Structural Transformation of the Indian Economy: Agriculture, Manufacturing and the Rural Non-Farm Sector. *Economic and Political Weekly*, *48*(26/27), 5-13.

Bluestone, B. and Harrison, B. 1984. *The Deindustrialization of America: Plant Closings, Community Abandonment and the Dismantling of Basic Industry*, New York, Basic Books.

Borkar, A. S. (2013). Transformation of Non-farm Sector in Rural India. Gujarat: Central university of Gujarat.

Bosworth, B., Collins, S. M., & Virmani, A. (2007). Sources of Growth in the Indian Economy. Cambridge: National Bureau of Economic Research.

Bryceson, D. F., & Jamal, V. (1997). *Farewell to farms: De-agrarianisation and employment in Africa*: Ashgate Aldershot.

Buchenrieder, G. (2005). Non-Farm Rural Employment: Review of Issues, Evidence and Policies. *Quarterly Journal of International Agriculture, 44*(1), 1-18.

Buchenrieder, G., & Mollers, J. (2006). *A Synthesis of Theoratical Concepts for Analysing Non-Farm Rural Employment*. Paper presented at the International Association of Agricultural Economists Conference, Gold Coast, Australia.

Burchell, B., Sehnbruch, K., Piasna, A., & Agloni, N. (2013). The quality of employment and decent work: definitions, methodologies, and ongoing debates. *Cambridge Journal of Economics, 38*(2), 459-477.

Byerlee, D., & Eicher, C. K. (1972). Rural Employment, Migration And Economic Development: Theoretical Issues And Empirical Evidence From Africa *African Rural Employment Study*. Michigan: Department of Agricultural Economics, Michigan State University.

Calì, M., & Menon, C. (2013). Does Urbanization Affect Rural Poverty? Evidence from Indian Districts *Policy Research Working Paper*. Development Economics Vice Presidency: The World Bank.

Cameron, A. C., & Trivedi, P. K. (2005). *Microeconometrics : Methods and Applications*

Cazes, S., & Verick, S. (Eds.). (2013). *Perspectives on Labor Economics for Development*: International Labour Organisation, Geneva.

Cazes, S., Hijzen, A., & Saint-Martin, A. (2015). Measuring and Assessing Job Quality: The Oecd Job Quality Framework *OECD Social, Employment and Migration Working Papers*. Paris: OECD Publishing.

Central Statisrical Office. *Infrastructure Statistics (Including Housing And Construction)*. Retrieved from

Chadha G.K. (1997). Access to Rural Households to Non-Farm Employment: Trends, Constraints and Possibilities. *In Growth, Employment and Poverty: Change and Continuity in Rural India* (Chadha GK and Sharma Alakh N, eds.). New Delhi: Vikas Publishing House.

Chadha, G. K. (1994). *Employment, Earnings and Poverty: A Study of Rural India and Indonesia (Alternatives in Development)*: SAGE.

Chadha, G. K. (2003). Rural Employment in India:Current Situation, Challenges and Potential for Expansion *Issues in Employment and Poverty*. Geneva: Recovery and Reconstruction Department, ILO.

Chadha, G. K. (2008). Employment and Poverty in Rural India: Which way to go now? *ILO Asia- Pacific Working Paper Series*. Subregional Office for South Asia, New Delhi: International Labour Organisation.

Chambers, R., & Conway, G. R. (1991). Sustainable Rural Livlihoods: Practical Concepts for 21st Century *IDS Discussion Paper*: Institue of Development Studies.

Chand, R., & Srivastava, S. K. (2014). Changes in the Rural Labour Market and Their Implications for Agriculture. *Economic and Political Weekly, 49*(10), 47-54.

Chandrasekhar, C. P. (1993). Agrarian Change and Occupational Diversification: Non Agricultural Employment and Rural Development in West Bengal', *Journal of Peasant Studies* 20,205–70

Chant, S. (2006). Poverty Begins at Home? Questioning some (mis)conceptions about children, poverty and privation in female-headed households *The State of The World's Children 2007*: United Nations Children's Fund.

Chauhan, R. K., Mohanty, S. K., Subramanian, S. V., Parida, J. K., & Padhi, B. (2016). Regional Estimates of Poverty and Inequality in India, 1993–2012. *Social Indicators Research, 127*, 1249-1296.

Chen, S., & Ravallion, M. (2004). How have the world's poorest fared since the early 1980s? *The World Bank Research Observer, 19*(2), 141-169.

Chuta, E., & Liedholm, C. (1979). Rural Non-Farm Employment A Review of the State of the Art *MSU Rural Development Papers*. Michigan State Uniersity, Michigan: Department of agricultural Economics.

Clark, A. E. (2015). What Makes A Good Job? Job Quality And Job Satisfaction. *IZA World of Labor, 215*. doi:10.15185/izawol.215

Coppard, D. (2001). The Rural Non-farm Economy in India: A Review of the Literature *Rural Non-Farm Economy*: Natural Resources Institute.

Cruz, M., Foster, J., Quillin, B., & Schellekens, P. (2015). Ending Extreme Poverty and Sharing Prosperity: Progress and Policies *Policy Research Note*: The World Bank.

Dang, H.-A. H., & Lanjouw, P. F. (2015). Poverty Dynamics in India between 2004 and 2012: Insights from Longitudinal Analysis Using Synthetic Panel Data *Policy Research Working Paper*: World Bank.

Dary, S. K. (2012). Participation in Rural Non-Farm Economic Activities in Ghana. *American International Journal of Comtemporary Research, 2*(8), 154-161.

Dasgupta, N., Kleih, U., Marter, A., & Wandschneider, T. (2004). Policy Initiatives for Strengthening Rural Economic Development in India: Case Studies from Madhya Pradesh and Orissa. Chatham, UK: Natural Resources Institute.

Dave, D., & Dave, R. (2012). Role of Non-Farm Sector in Rural Development. *National Monthly Refereed Journal of Research in Arts & Education, 1*(7), 7-16.

Davies, S. (1993) 'Are Coping Strategies a Cop Out?' *IDS Bulletin* 24 (4), 60-72.

Davies, S. (1996) *Adaptable Livelihoods: Coping with Food Insecurity in the Malian Sahel.* Basingstoke: Macmillan.

Davis, J. (2006). Rural Non-Farm Livelihoods in Transition Economies: Emerging Issues and Policies. *Journal of Agricultural and Development Economics, 3*(2).

Davis, J. R. (2004). The Rural Non-Farm Economy, Livelihoods and their Diversification: Issues and Options. Chatham, UK: Natural Resources Institute.

Davis, J. R., & Bezemer, D. (2003). *Key emerging and conceptual issues in the development of the RNFE in Developing Countries and Transition Economies*. Retrieved from

Davis, J., & Cristoiu, A. (2002). Patterns of Rural Non-Farm Diversification And Employment In Romania: A County Level Analysis *Rural Non-Farm Economy Project*: Department for International Development (DFID)/World Bank Collaborative Program for Rural Development.

Davis, J., & Pearce, D. (2001). The Non-Agricultural Rural Sector in Central and Eastern Europe *CEE/CIS Rural Non-Farm Economy and Livelihoods Enhancement: Policy Research Initiative*: Department for International Development (DFID)/World Bank.

Davis, J., Bezemer, D. J., & Wandschneider, T. (2003). The Rural Non-Farm Economy in Armenia, Georgia And Romania: A Synthesis of Findings *Rural Non-Farm Economy Project*. University of Greenwich: Natural Resources Institute.

Davis, L. E. 1977. Enhancing the Quality of Working Life, International Labour Review, 116(1), 53.

Dev, S. M. (1990). Non-Agricultural Employment in Rural India: Evidence at a Disaggregate Level. *Economic and Political Weekly, 25*(28), 1526-1536.

Dev, S. M. (2004). How to Make Rural India Shine. *Economic and Political Weekly, 39*(40), 4415-4422.

Dev, S. M. (2007). Rural Non-Farm Employment in India and China: Trends, Determinants and Policies. *The Indian Journal of Labour Economics, 50*(3), 407-426.

Dev, S. M., & Evenson, R. E. (2003). Rural Development in India: Rural, Non-farm, and Migration.

Dhondt, S., Kraan, K. and Sloten, G. (2002). Work Organisation, Technology and Working Conditions, European Foundation for the Improvement of Living and Working Conditions, Luxembourg.

Eapen, M. (1996). Rural Non-Farm Employment: Some Reflections on Petty Production. *Economic and Political Weekly, 31*(26), 1673-1675.

Ellis, F. (1999). Rural Livelihood Diversity in Developing Countries: Evidence and Policy Implications *Natural Resource Perspective*. United Kingdom: Overseas Development Institute.

Ellis, F., & Biggs, S. (2001). Evolving Themes in Rural Development 1950s-2000s.pdf>. *Development Policy Review, 19*(4), 437-448.

EUROPA-Press Releases. (2001). Employment and Social Affairs Council.

FAO. (1998). The State of Food and Agriculture: Rural Non-Farm Income in Developing Countries. Rome. Food and Agricultural Organization.

Fisher, T. and Mahajan, V. (1997). *The Forgotten Sector*. New Delhi: Oxford and IBH Publishing Co.

Floro, M. S., and Messier, J. (2011). Is There a Link Between Quality of Employment and Indebted- ness? The Case of Urban Low-income Households in Ecuador, *Cambridge Journal of Economics, 35*(3), 499–526

Foster, A. D. (2011). Creating Good Employment Opportunities for the Rural Sector *ADB Economics Working Paper Series*. Philippines: Asian Development Bank.

Foster, A. D., & Rosenzweig, M. R. (2011). Are Indian Farms Too Small? Mechanization, Agency Costs, and Farm Efficiency.

Francis, E. (2000) 'Rural Livelihoods, Institutions and Vulnerability in South Africa'. Paper presented at the DESTIN conference on New Institutional Theory,

Institutional Reform and Poverty Reduction. London School of Economics, 7-8 September.

Ghai, D. (ed). (2006). *Decent Work; Objectives and Strategies*, Geneva, International Institute for Labour Studies.

Ghose, A. K. (1999). Current Issues of Employment Policy in India. *Economic and Political Weekly, 34*(36), 2592-2608.

Ghose, A. K. (2004). The Employment Challenge in India. *Economic and Political Weekly, 39*(48), 5106-5116.

Ghose, A. K. (2005). High Wage-Low Productivity Organised Manufacturing and the Employment Challenge in India. *The Indian Journal of Labour Economics*, *48*(2), 231-242.

Ghose, A. K. (2016). India Employment Report 2016: Challenges and the Imperative of Manufacturing-Led Growth. *OUP Catalogue*.

Ghuman, R. S. (2005). Rural Non-farm Employment Scenario Reflections from Recent Data in Punjab. *Economic and Political Weekly*, *40*(41), 4473-4480.

Ghuman, R. S., Singh, I., & Singh, L. (2007). Status of local agricultural labour in Punjab. *The Punjab State Farmers Commission. Government of Punjab*.

Ghuman, R. S., Singh, S., & Singh, B. (2002). Non-farm employment in rural Punjab. *Indian Journal of Labour Economics*, *45*, 853-70.

Gordon, A., & Craig, C. (2001). Rural Non-Farm Activities and Poverty Alleviation in Sub-Saharan Africa *NRI Policy Series*. Social and Economic Development Department: Natural Resources Institute, University of Greenwich.

Government of India. (2004). Introduction to National Classification of Occupations, 2004. New Delhi: Directorate General of Training, Ministry of Skill Development and Entrepreneurship.

Government of India. (2009). Report of the Expert Group to Review the Methodology for Estimation of Poverty. New Delhi: Planning Commission.

Government of India. (2012a). *Employment Review 2011*. Ministry of Labour and Employment, New Delhi.

Government of India. (2012b). *Report of the Committee on Unorganised Sector Statistics*. National Statistical Commission, New Delhi.

Government of India. (2013). Press Note on Poverty Estimates, 2011–12. New Delhi: Planning Commission.

Government of India. (2014a). *Employment and Unemployment Situation in India*. Ministry of Statistics and Programme Implementation. National Sample Survey Office, New Delhi:

Government of India. (2014b). *India Labour and Employment Report 2014: Workers in the era of Globalization.* Institute of Human Development, New Delhi.

Government of India. (2014c). *Rural Development Statistics*. Ministry of Rural Development, New Delhi.

Green, F., & Mostafa, T. (2012). Trends in job quality in Europe.

Grewal, B., Grunfeld, H., & Sheehan, P. (2012). The Contribution of Agricultural Growth to Poverty Reduction *Aciar Impact Assessment Series* (pp. 59). Canberra, Australia: The Australian Centre for International Agricultural Research

Gujarati, D. N. (2004). *Basic Econometrices* (4th ed.): The McGraw Hill Companies.

Gulati, A., Jain, S., & Satija, N. (2013). Rising Farm Wages in India The 'Pull' and 'Push' Factors.

Hackman, J. R. and Oldham, G. R. (1975). Development of the Job Diagnostic Survey, *Journal of Applied Psychology*, *60*(2), 159–170

Haggblade, S. (2007). Alternative Perceptions of the Rural Nonfarm Economy In S. Haggblade, P. Hazell, & T. Reardon (Eds.), Transforming the Rural Nonfarm Economy Opportunities and Threats in the Developing World (pp. 25-54). International Food Policy Research Institute: The Johns Hopkins University Press, Baltimore.

Haggblade, S., Hazell, P., & Brown, J. (1989). Farm-nonfarm linkages in rural sub-Saharan Africa. *World Development, 17*(8), 1173-1201.

Haggblade, S., Hazell, P., & Reardon, T. (2002). Strategies for Stimulating Poverty-Alleviating Growth in the Rural Nonfarm Economy in Developing Countries *EPTD Discussion Paper*. International Food Policy Research Institute & World Bank Rural Development Department.

Haggblade, S., Hazell, P., & Reardon, T. (2005). The Rural Nonfarm Economy: Pathway Out of Poverty or Pathway In? *The Future of Small Farms. Proceedings of a Research workshop* (pp. 151-178). UK: International Food Policy Research Institute.

Haggblade, S., Hazell, P., & Dorosh, P. A. (2007). Sectoral Growth Linkages between Agriculture and the Rural Non-Farm Economy. In S. Haggblade, P. Hazell, & T. Reardon (Eds.), *Transforming the Rural Non-Farm Economy Opportunities and*

Threats in the Developing World Baltimore, Maryland: The Johns Hopkins University Press.

Haggblade, S., Hazell, P. B. R., & Reardon, T. (Eds.). (2007). *Transforming the Rural Nonfarm Economy Opportunities and Threats in the Developing World*. International Food Policy Research Institute: The Johns Hopkins University Press, Baltimore.

Haggblade, Hazell and Reardon. (2010). The Rural Nonfarm Economy: Prospects for Growth and Poverty Reduction. *World Development*. 38(10), 1429-1441.

Harris, J. (1991). Agriculture Non Agriculture Linkages and the Diversification of Rural Economic Activities: A South Indian Case Study. Pages 429-458 *in* Rural Transformation in Asia (Breman J and Mundle S, eds.). Delhi: Oxford University Press.

Harris-White, B., & Janakarajan, S. (1997). From Green Revolution to Rural Industrial Revolution in South India. *Economic and Political Weekly*, *32*(25), 1469-1477.

Hazell, P., & Haggblade, S. (1991). Rural-Urban Growth Linkages in India. *Indian Journal of Agricultural Economics*, *46*(4), 515-529.

Himanshu. (2008). Growth, Employment and Poverty Reduction: Post-Reform Indian Experience *Asia Research Centre Working Paper*. London: Asia Research Centre.

Himanshu, Lanjouw, P., Mukhopadhyay, A., & Murgai, R. (2011). Non-Farm Diversification and Rural Poverty Decline: A Perspective from Indian Sample Survey and Village Study Data *Asia Research Centre Working Paper*. United Kingdom: London School of Economics & Political Science.

Hossain, M. (2004). Rural Non-Farm Economy: Evidence from Household Surveys. *Economic and Political Weekly*, *39*(36), 4053-4058.

Huffman, W. E. (1980). Farm and off-farm Work Decisions: The Role of Human Capital. *The Review of Economics and Statistics*, 14-23.

Huneeus, E., Landerretche, O., Puentes, E., & Selman, J. (2015). A Multidimensional Employment Quality Index for Brazil, 2002-11. *International Labour Review*, *154*(2).

Hunter, L. W. (2000). What determines job quality in nursing homes? *ILR Review*, *53*(3), 463-481.

Hymer, S., & Resnick, S. (1969). A Model of an Agrarian Economy with Nonagricultural Activities. *The American Economic Review*, *59*(4), 493-506.

ILO. (1999). Report of the Director General: Decent Work, International Labour Conference, 87th session, Geneva.

ILO. (2008). *Promotion of Rural employment for Poverty reduction*. Switzerland.

ILO. (2008). The Measurement of Decent Work, Report of the Director General, ILO, Geneva.

ILO. (2012). The ILO and the EU, Partners for Decent Work and Social Justice; Impact of Ten Years of Cooperation, ILO, Brussels.

ILO. (2014). *Informality and The Quality of Employment In G20 Countries*. Paper presented at the G20 Labour and Employment Ministerial Meeting, Melbourne, Australia.

ILO. (2015). *Economic Diversification of Rural Economy*. Switzerland

Imai, K. S., Gaiha, R., & Thapa, G. (2012). Does non-farm sector employment reduce rural poverty and vulnerability? Evidence from Vietnam and India *RIEB Discussion Paper Series*. Research Institute for Economics and Business Administration: Kobe University, Japan.

Inter-American Development Bank. (2017). Better Jobs Index: An employment conditions index for Latin America *Labor Markets Division*: Inter-American Development Bank.

Islam, N. (1997). The Nonfarm Sector and Rural Development Review of Issues and Evidences *Food, Agriclture and the Environment Discussion Paper*: International Food Policy Research Institute.

Iyyampillai, S. and Jayakumar, N. (1995). Non-farm Employment in Tamil Nadu: Some Observations, *Indian Journal of Agriculture Economics*. 50 (3).

Jatav, M., & Sen, S. (2013). Drivers of Non-Farm Employment in Rural India Evidence from the 2009-10 NSSO Round. *economic and Political Weekly Supplement, 48*(26 & 27), 14-21.

Jayaraj, D. (1994). Determinants of Rural Non-Agricultural Employment In P. M. Visaria & R. Basant (Eds.), Non-Agricultural Employment in India: Trends and Prospects. New Delhi: Sage.

Jayaranjan, J. (2013). A Study on the Rural Non-farm Employment in Tamil Nadu (Mimeo). Chennai, India: Institute of Development Alternatives.

Jencks, C., Perman, L. and Rainwater, L. (1988).What is a Good Job? *American Journal of Sociology*, *93*(6), 1322–1357.

Jha, B. (2006). Rural Non-Farm Employment in India: Macro-Trends, Microevidences and Policy Options. New Delhi: Institute of Economic Growth.

Jha, B. (2007). Is The Role of Agriculture in Rural Diversification Decreasing? *The Indian Journal of Labour Economics, 50*(4), 633-642.

Jha, B., Kumar, N., & Mohanty, B. (2009). Pattern of Agricultural Diversification in India *Working Paper Series*. NEw Delhi: Institute of Economic Growth.

Jha, B. (2011). Policies for Increasing Non-Farm Employment for Farm Households in India. New Delhi: Institute of Economic Growth.

Jha, R. (2002). Rural Poverty in India Structure Determinants and Suggestions for Policy Reform *Australian National University, Division of Economics Working Paper* Australia South Asia Research Centre, Australia: Australian National University.

Johnston, B. F, and P. Kilby. (1975). Agriculture and Structural Transformation: Economic Strategies in Late-Developing Countries. London: Oxford University Press.

Johnson, R. C., & Corcoran, M. E. (2003). The road to economic self- sufficiency: Job quality and job transition patterns after welfare reform. *Journal of Policy Analysis and Management, 22*(4), 615-639.

Johri, R. (2005). Work values and the quality of employment: A literature review. *New Zealand: Department of Labour*.

Kaija, D. (2007). *Income Diversification and Inequality in Rural Uganda the Role of Non-Farm Activities*. Paper presented at the Poverty reduction, Equity and Growth Network (PEGNeT), Berlin.

Kalleberg, A. L. (2011). *The Rise of Polarized and Precarious Employment Systems in the United States, 1970s to 2000s*, New York, Russell Sage Foundation.

Kalleberg, A. L., and Vaisey, S. (2005). Pathways to a Good Job, *British Journal of Industrial Relations, 43*(3), 431–454

Kalyani, M. (2016). Indian Informal Sector: an Analysis. *International Journal of Managerial Studies and Research, 4*(1), 78-85.

Kanchi, A. (2010). Women Workers in Agriculture: Expanding Responsibilities and Shrinking Opportunities *ILO Asia-Pacific Working Paper Series*. New Delhi: Subregional Office for South Asia.

Karasek, R. and Theorell, T. (1990). *Healthy Work*, New York, Basic Books.

Kashyap, S. P., & Mehta, N. (2007). Non-Farm Sector in India: Temporal and Spatial Aspects. *Indian Journal of Labour Economics, 50*(4), 611-632.

Khatun, D., & Roy, B. C. (2012). Rural Livelihood Diversification in West Bengal: Determinants and Constraints. *Agricultural Economics Research Review, 25*(1), 115-124.

Kijima, Y., & Lanjouw, P. (2005). Economic Diversification and Poverty in Rural India. *The Indian Journal of Labour Economics, 48*(2), 349-374.

Kilby, P., & Liedholm, C. (1986). The Role of Nonfarm Activities in the Rural Economy *EEPA Discussion Paper*.

Körner, T., Puch, K. And Wingerter, C. (2009). *Quality of Employment*, Wiesbaden, Federal Statistical Office of Germany.

Koteswara Rao, M. (2000). Rural Non-Farm Employment in India: A Note, Koteswara Rao (ed.) *Rural Employment: the Non-Farm Sector*, Deep and Deep Publication, New Delhi.

Kotwal, A., Ramaswami, B., & Wadhwa, W. (2011). Economic Liberalization and Indian Economic Growth: What's the evidence? New Delhi: Indian Statistical Institute.

Krishna, K. L., Aggarwal, S. C., Goldar, B., Das, D. K., Erumban, A. A., & Das, P. C. (2018). Trends and Patterns in Labour Quality in India at Sectoral Level *Disaggregate Industry Level Productivity Analysis for India: The KLEMS Approach*. Delhi: Centre for Development Economics, Delhi School of Economics.

Krueger, P., Brazil, K., Lohfeld, L., Edward, H. G., Lewis, D. and Tjam, E. (2002). Organization Specific Predictors of Job Satisfaction, *BMC Health Services Research, 2*(1), 6.

Kuiper, M., Meijerink, G., & Eaton, D. (2006). Rural Livelihoods Interplay Between Farm Activities, Non-farm Activities and the Resource Base. The Netherlands: Agricultural Economics Research Institute.

Kumar, A. (2009). Rural Employment Diversification in Eastern India: Trends and Determinants. *Agricultural Economics Research Review, 22*, 47-60.

Kumar, A., Kumar, S., Singh, D. K., & Shivjee. (2011). Rural Employment Diversification in India: Trends, Determinants and Implications on Poverty. *Agricultural Economics Research Review, 24*, 361-372.

Kumar, M. (2008). Is Rural Non Farm Sector the Last Resort for Employment in India? Mumbai: Indira Gandhi Institute of Development Research.

Kumar, P. (2006). Employment and Earning Patterns in Farming and Non-Farming Activities: Empirical Evidences from Punjab and Bihar. *The Indian Journal of Labour Economics, 49*(4), 661-680.

Kundu, A., & Mohanan, P. C. (2009). *Employment and Inequality Outcomes in India*. Paper presented at the Seminar on Employment and Inequality, Employment, Labour and Social Affairs Directorate and Development Centre, Paris.

Kundu, A., Sarangi, N., & Dash, B. P. (2003). Rural Non-farm Employment: An Analysis of Rural Urban Interdependencies. London: Overseas Development Institute.

Land, K. 1975. The Role of Quality of Employment Indicators In General Social Reporting Systems, *American Behavioral Scientist, 18*(3), 304–332

Lanjouw, J. O., & Lanjouw, P. (1995). Rural Nonfarm Employment: A Survey *Policy Research Working Paper*: The Wolrd Bank.

Lanjouw, J. O., & Lanjouw, P. (2001). The Rural Non-farm Sector: Issues and Evidences from Developing Countries. *Agricultural Economics, 26*(1), 1-23.

Lanjouw, P. (1998). Ecuador's Rural Non-Farm Sector as a Route Out of Poverty *Policy Research Working Paper*: Development Research Group, The World Bank.

Lanjouw, P. (2007). Does the Nonfarm Economy Contribute to Poverty Reduction? In S. Haggblade, P. B. R. Hazell, & T. Reardon (Eds.), Transforming the Rural Nonfarm Economy Opportunities and Threats in the Developing World (pp. 55-79). International Food Policy Research Institute: The Johns Hopkins University Press, Baltimore.

Lanjouw, P., & Feder, G. (2001). Rural Non-Farm Activities and Rural Development: From Experience Towards Strategy *Rural Strategy Background Paper*. USA: The International Bank for Reconstruction and Development/the World Bank.

Lanjouw, P., & Murgai, R. (2008). Poverty Decline, Agricultural Wages and Non-Farm Employment in Rural India: 1983-2004 *Stanford Center for International Development*. Stanford: Stanford University.

Lanjouw, P., & Proctor, F. (2005). Rural Non-farm Economy: Latin American Experience. *Rural Transformation in India: The Role of Non-farm Sector,* 49-53.

Lanjouw, P., & Ravallion, M. (1994). Poverty and Household Size *Policy Reserch Working Paper*. Policy Research Department, The World Bank: Poverty and Human Resources Division.

Lanjouw, P., & Shariff, A. (2004). Rural Non-Farm Employment in India Access, Incomes and Poverty Impact. *Economic and Political Weekly, 39*(40), 4429-4446.

Liedholm, C. (1973). Research on Employment in the Rural Non-farm Sector in Africa *African Rural Employment Study*. Michigan, USA: Department of Economics, Michigan State UniversIty.

Liedholm, C. (2007). Enterprise Dynamics in the Rural Nonfarm Economy In S. Haggblade, P. Hazell, & T. Reardon (Eds.), Transforming the Rural Nonfarm Economy Opportunities and Threats in the Developing World (pp. 514). International Food Policy Research Institute: The Johns Hopkins University Press, Baltimore.

Lindberg, S. (2012). Rural India 1970–2005: An Arduous Transition to What? *The Indian Journal of Labour Economics, 55*(1), 61-75.

Liu, Y. (2017). Pushed out or pulled in? Participation in non-farm activities in rural China. *China Agricultural Economic Review, 9*(1), 111-129. doi:10.1108/CAER-11-2015-0166

Long, J. S., & Freese, J. (2001). *Regression Models For Categorical Dependent Variables Using Stata.*

Losch, B., Gresh, S. F., & White, E. T. (2012). *Structural Transformation and Rural Change Revisited Challenges for Late Developing Countries in a Globalizing World*. International Bank for Reconstruction and Development: The World Bank.

Loveman, G. and Tilly, C. (1988). Good Jobs or Bad Jobs: Evaluating the American Job Creation Experience, *International Labour Review, 127*(5).

Majumder, R. (2006). Employment and Wages In the Liberalised Regime: A Study of Indian Manufacturing Sector. *Indian Journal of Labour Economics, 49*(4), 609-624.

Malik, S. J. (2008). Rethinking Development Strategy –The Importance of the Rural Non Farm Economy in Growth and Poverty Reduction in Pakistan. *The Lahore Journal of Economics, Special Edition*, 189-204.

Mazumdar, D., & Sarkar, S. (2005). Agricultural Productivity, off-Farm Employment and Rural Poverty: An Analysis Based on NSS Regions. New Delhi: Institute for Human Development, New Delhi.

Meager, N. (2015). Job Quality and Self-Employment: Is it (Still) Better to Work for Yourself? *International Review of Entrepreneurship, 13*(1), 35-46.

Meenakshi, J. V., & Ray, R. (2002). Impact of Household Size and Family Composition on Poverty in Rural India. *Journal of Policy Modeling, 24*, 539–559.

Mehrotra, S., Parida, J., Sinha, S., & Gandhi, A. (2014). Explaining Employment Trends in the Indian Economy: 1993-94 to 2011-12. *Economic and Political Weekly, 49*(32), 49-57.

Mishra, A. K., & Goodwin, B. K. (1997). Farm Income Variability and the Supply ofOff-Farm Labor. *American Journal of Agricultural Economics, 79*, 880-882.

Misra, S. B. (2014). Growth and Structure of Rural Non-Farm Employment in Maharashtra: Reflections from NSS data in the Post Reform Period. *Procedia Economics and Finance, 11*, 137-151.

Mitra, A. (2008). The Indian Labour Market: An Overview *ILO Asia- Pacific Working Paper Series*. New Delhi: ILO Subregional Office for South Asia.

Mitra, A. (2013). *Insight into Inclusive Growth, Employment and Wellbeing in India*. Institute of Economic Growth, Delhi University: Springer.

Mitra, A., & Murayama, M. (2008). Rural to Urban Migration A District Level Analysis in India *IDE Discussion Paper* Japan: Institute of Developing Economies.

Mitra, A., & Verick, S. (2013). Youth Employment and Unemployment: An Indian Perspective *ILO Asia-Pacific Working Paper Series*. New Delhi: DWT for South Asia and Country Office for India.

Möllers, J., & Buchenrieder, G. (2011). Effects of Rural Non-farm Employment on Household Welfare and Income Distribution of Small Farms in Croatia. *Quarterly Journal of International Agriculture, 50*(3), 217-235.

Mukhopadhyay, S. (1985). Rural Non-Farm Sector in Asia: A Characterisation. *Economic and Political Weekly, 20*(22), 966-968.

Murty, C. S. (2005). Rural Non-Agricultural Employment in India the Residual Sector Hypothesis Revisited. Begumpet, Hyderabad: Centre for Economic and Social Studies.

Nayyar, G. (2009). The Nature of Employment in India's Services Sector: Exploring the Heterogeneity *Department of Economics Discussion Paper Series*. Oxford: University of Oxford.

Nayyar, R., & Sharma, A. N. (2005). *Rural Transformation In India: The Role of Non-Farm Sector*. Institute for Human Development, New Delhi.

Pal, D. P., & Biswas, M. D. (2011). *Diversification of Farm and Non-Farm Sectors and Structural Transformation of Rural Economy*. Paper presented at the The 19th International Input-Output Conference, Alexandria, USA.

Pal, S., & Palacios, R. (2008). Understanding Poverty among the Elderly in India: Implications for Social Pension Policy *IZA Discussion Papers*: Institute for the Study of Labor.

Panda, B. (1999). Growth, Composition and Determinants of Rural Non-Farm Employment in Arunachal Pradesh. *Indian Journal of Labour Economics, 42*(2), 283-290.

Panda, B. (2012). Growth, Composition and Determinants of Rural Non-Farm Employment in North East India *NLI Research Studies Series*. Noida: V. V. Giri National Labour Institute.

Pandey, A. (2015). Rural Farm and Non-farm Linkages in Uttar Pradesh. *Journal of Land and Rural Studies, 3*(2), 203-218.

Pandey, A., & Raman, R. (2012). Rural Non- Farm Economy in India: A Study of Uttar Pradesh. *Journal of Community Positive Practices, 2*, 222-239.

Papola, T. S. (1994). Structural Adjustment, Labour Market Flexibility and Employment. *Indian Journal of Labour Economics, 37*(1), 3-16.

Papola, T. S. (2009). India: Growing Fast, But Also Needs to Industrialize. *Indian Journal of Labour Economics, 52*(1), 57-70.

Papola, T. S. (2013). Economic Growth and Employment Linkages: The Indian Experience *ISID Working Papaer*. New Delhi: Institute for Studies in Industrial Development.

Papola, T. S., & Sahu, P. P. (2012). Growth and Structure of Employment in India: LongTerm and Post-Reform Performance and the Emerging Challenge. New Delhi: Institute for Studies in Industrial Development.

Peng, C. Y. J., Lee, K. L., & Ingersoll, G. M. (2002). An Introduction to Logistic Regression Analysis and Reporting. *The Journal of Educational Research, 96*(1), 3-14.

Ramaswamy, K. V., & Agrawal, T. (2012). Services-led Growth, Employment and Job Quality: A Study of Manufacturing and Service-sector in Urban India. Mumbai: Indira Gandhi Institute of Development Research.

Rangarajan, C., & Seema, V. (2014). Developments in the Workforce between 2009-10 and 2011-12. *Economic and Political Weekly, 49*(23), 117-121.

Rangarajan, C., Kaul, P. I., & Seema. (2007). Revisiting Employment and Growth. *ICRA Bulletin, Money and Finance*, 57-68.

Ranjan, S. (2008). Occupational Diversification and access to Rural Employment : Revisiting The Non Farm Employment Debate. *Munich Personal RePEc Archive*.

Ranjan, S. (2009). Growth of rural Non-Farm employment in Uttar pradesh: Reflections from Recent Data. *Economic and Political Weekly, 44*(4), 63-70.

Rao, V. M., & Jeromi, P. D. (2000). Modernising Indian Agriculture: Priority Tasks and Critical Policies *Development Research Group*. Department of Economic Analysis and Policy, Mumbai: Reserve Bank of India.

Ravallion, M., & Chen, S. (2004). China's (uneven) Progress against Poverty. Mimeo: DECRG, The World Bank.

Ray, S. (1994). Farm-Non-Farm Interaction in a Labour Surplus Economy. *Economic and Political Weekly, 29*(53), A171-A174.

Reardon, T. (1997). Using Evidence of Household Income Diversification to Inform Study of the Rural Nonfarm Labor Market in Africa. *World Development, 25*(5), 735-748.

Reardon, T., Berdegue, J., Barrett, C. B., & Stamoulis, K. (2007). Household Income Diversification into Rural Nonfarm Activities In S. Haggblade, P. Hazell, & T. Reardon (Eds.), Transforming the Rural Nonfarm Economy Opportunities and Threats in the Developing World (pp. 514). International Food Policy Research Institute: The Johns Hopkins University Press, Baltimore.

Reddy, A. A. (2003). *An Economic Analysis of Occupational Diversification among Households in Andhra Pradesh.* (Doctor of Philisophy), Indian Agricultural Reserach Institute, New Delhi.

Reddy, A. A. (2015). Growth, Structural Change and Wage Rates in Rural India. *Economic and Political Weekly, 50*(2).

Reddy, D. N., Reddy, A. A., Nagaraj, N., & Bantilan, C. (2014). Rural Non-Farm Employment and Rural Transformation in India *ICRISAT Research Program Markets, Institutions and Policies*. Telangana: International Crops Research Institute for the Semi-Arid Tropics.

Rifkin, J. (1995). *The End of Work: The Decline of the Global Labor Force and the Dawn of the Post- Market Era*, New York, Putnam.

Rodgers, G. and Rodgers, J. (Eds.). (1989). 'Precarious Jobs in Labour Market Regulation: The Growth of Atypical Employment in Western Europe', IILS, Geneva.

Saha, P., & Verick, S. (2016). State of Rural Labour Markets in India *ILO Asia-Pacific Working Paper Series*. New Delhi: ILO DWT for South Asia and Country Office for India.

Saith, A. (1992). *The Rural Non-Farm Economy: Processes and Policies*. Switzerland: International Lbour Organisation.

Saith, A. (2008). Constructing Socio-Economic Security for All: South Asian Experiences, Issues, Agendas. *Indian Journal of Human Development, 2*(1), 3-7.

Saith, A. (2011). Inequality, Imbalance, Instability: Reflections on a Structural Crisis. *Development and Change, 42*(1), 70-86.

Samanta, P. K. (2015). Development of Rural Road Infrastructure in India. *Pacific Business Review International, 7*(11), 86-93.

Sastry, N. S. (2004). Estimating Informal Employment and Poverty in India: Human Development Resource Centre, UNDP.

Sastry, N. S., Nath, S. K., & Ray, P. K. (2008). Contribution of the Unorganised sector to GDP Report of the Sub Committee of a NCEUS Task Force. New Delhi: National Commission for Enterprises in the Unorganised Sector.

Schneider, K., & Gugerty, M. K. (2011). Agricultural Productivity and Poverty Reduction Linkages and Pathways. *The Evans School Review, 1*(1), 55-74.

Scoones, I. (1998) *Sustainable Rural Livelihoods: A Framework for Analysis*. IDS Working Paper No. 72. Brighton: Institute of Development Studies at the University of Sussex, June

Seashore, S. E. (1974). Job Satisfaction as an Indicator of the Quality of Employment, *Social Indicators Research*, 1(2), 135–168

Sehnbruch, K., González, P., Méndez, R., & Arriagada, V. (2017). *Quality of Employment in Chile*. Biestra.

Sen, B. (1996). Rural Non-farm Sector in Bangladesh : Stagnating and Residual, or Dynamic and Potential? *The Bangladesh Development Studies, 24*(3/4), 143-180.

Shah, A. (2006). Changing Scenario in Agriculture and Rural Employment: Challenges and Opportunities. *The Indian Journal of Labour Economics, 49*(4), 820-833.

Shah, S., & Bakht, Z. (1996). Editors' Introduction. The Bangladesh Development Studies. *The Bangladesh Development Studies, 24*(3/4), i-viii.

Shankar, K. (2004). No Relief for Rural Sector. *Economic and Political Weekly*, 3575-3576.

Sharma, A. N., & Kumar, A. (2011). Rural Poverty and Agriculture Growth in India: Implications for Twelfth Five Year Plan. *Indian Journal of Agricultural Economics, 66*(3), 269-278.

Sharma, A., & Saha, S. (2015). Female Employment Trends in India: A Disaggregated Analysis. *The North-Eastern Hill University Journal, 13*(2), 17-30.

Sharma, V. P. (2011). India's Agricultural Development under the New Economic Regime: Policy Perspective and Strategy for the 12th Five Year Plan. Ahmedabad: Indian Institute of Management.

Shaw, A. (2013). Employment Trends in India An Overview of NSSO's 68th Round. *Economic and Political Weekly, 48*(42), 23-25.

Shukla, V. (1991). Rural Non-Farm Activity: A Regional Model and Its Empirical Application to Maharashtra. *Economic and Political Weekly, 26*(45), 2587-2595.

Shukla, V. (1992). Rural Non-Farm Employment in India: Issues and Policy. *Economic and Political Weekly*, 1477-1488.

Singh, B. (2006). Decline in Agricultural Employment and Adjustment through Labour Commuting: A Case Study from Punjab. *The Indian Journal of Labour Economics, 49*(4), 863-869.

Singh, S. (2006). Agriculture, Agrarian Crisis and Employment: Some Views. *The Indian Journal of Labour Economics, 49*(4), 765-786.

Singh, S. P. (2007). Rural Non-farm Employment in Uttar Pradesh: Determinants, Regional and Gender Patterns. *Indian Journal of Economics, 88*(349), 215-246.

Singh, S., & Singh, N. (1995). Patterns, Practices and Enterpreneurial Aspects of Non-farm Enterprises: A study of Rajasthan. Anand: Institute of Rural Management

Srija, A., & Shirke, S. V. (2014). An Analysis of the Informal Labour Market in India *Special Feature*. Confederation of Indian Industry.

Srivastava, N., & Srivastava, R. (2009). Women, work, and employment outcomes in rural India *Pathways out of Poverty*.

Srivastava, R. (2012). Changing Employment Conditions of the Indian Workforce and Implications for Decent Work. *Global Labour Journal, 3*(1), 63-91.

Srivastava, R. (2016). Structural change and non-standard forms of employment in India *Conditions of Work and Employment Series*. International Labour Office: Geneva.

Srivastava, R., & Singh, R. (2006). Rural Wages during the 1990s: A Re-Estimation. *Economic and Political Weekly, 41*(38), 4053-4062.

Srivastava, R., & Singh, R. (2006). Rural Wages during the 1990s: A Re-estimation. *Economic and Political Weekly*, 4053-4062.

Staines, G. L. and Quinn, R. P. (1979). American Workers Evaluate the Quality of Their Jobs, *Monthly Labour Review*, 102(1), 3

Standing G. (2002). *Beyond the New Paternalism: Basic Security as Equality.* London: Verso

Start, D. (2001). The Rise and Fall of the Rural Non-farm Economy: Poverty Impacts and Policy Options. *Development Policy Review, 19*(4), 491-505.

Start, D., & Johnson, C. (2004). Livelihood Options? The Political Economy of Access, Opportunity and Diversification *ODI Livelihood Options study*. London: Overseas Development Institute.

Sujatha, V., & Sivarajan, M. (2014). Role of Non-Farm Sector in the Transformation of India's Rural Economy. *International Journal of Management, 5*(11), 48-50.

Sundaram, K. (2001). Employment-Unemployment Situation in the Nineties: Some Results from NSS 55th Round Survey. *Economic and Political Weekly*, 931-940.

Sundaram, K. (2007). Employment and Poverty in India, 2000-2005. *Economic and Political Weekly, 42*(30), 3121-3131.

Sundaram, K. (2008). Employment, Wages and Poverty in the Organized and the Unorganized Segments of the Non-Agricultural Sector in India: All-India, 2000-2005 *CDE Working Paper*. Delhi school of Economics, New Delhi: Centre for Development Economics.

Sundaram, K. (2013). Some Recent Trends in Population, Employment and Poverty in India: An Analysis. *Indian Economic Reviews, 48*(1), 83-128.

Sundaram, K., & Tendulkar, S. D. (2002). The Working Poor in India: Employment-Poverty Linkages and Employment Policy Options *Issues in Employment and Poverty Discussion Papers*.

Suresh. (2017). The Study of Nature and Characteristics of Rural Non Farm Sector in India. *International Journal of Management and Development Studies, 6*(4), 7-19.

The World Bank. (2016). *Bhutan's Labor Market Toward Gainful Quality Employment for All*. .Washington

Thorat, S., & Sabharwal, N. S. (2006). Rural Non-Farm Employment of the Scheduled Castes- A Comparative Study: Indian Institute of Dalit Studies.

United Nations. (2015). *Handbook on Measuring Quality of Employment: A Statistical Framework*. New York and Geneva, United Nations.

Unni, J. (1991). Regional Variations in Rural Non-Agricultural Employment: An Exploratory Analysis. *Economic and Political Weekly*, *26*(3), 109-122.

Unni, J. (1998). Non-Agricultural Employment and Poverty in Rural India: A Review of Evidence. *Economic and Political Weekly*, *33*(13), A36-A44.

Unni, J. (2005). Wages and Incomes in Formal and Informal Sectors in India. *The Indian Journal of Labour Economics*, *4*(2), 311-317.

Unni, J., & Naik, R. (2011). Rural Structural Transformation: The Case of the Services Sector in India. *Economic and Political Weekly*, *46*(26/27), 196-200.

Vaidyanathan, A. (1986). Labour Use in Rural India: A Study of Spatial and Temporal Variations. *Economic and Political Weekly*, *21*(52), A130- A146.

Vaidyanathan, A. (1994). Employment Situation Some Emerging Perspectives. *Economic and Political Weekly*, 3147-3156.

Venkatesh, P. (2013). Recent Trends in Rural Employment and Wages in India: Has the Growth Benefitted the Agricultural Labours? *Agricultural Economics Research Review*, *26*, 13-20.

Virmani, A. (2007). The Sudoku of Growth, Poverty And Malnutrition: Policy Implications for Lagging States. New Delhi: Planning Commission.

Visaria, P., & Basant, R. (1994). Non-agricultural employment in India: Problems and Perspective.

Visaria, P., & Minhas, B. (1991). Evolving an Employment Policy for the 1990s: What do the Data Tell us? *Economic and Political Weekly*, 969-979.

Wandschneider, T. (2003). *Determinants of Access to Rural Non-Farm Employment: Evidence From Africa, South Asia and Transition Economies*. Chatham, UK.

Wiggins, S., & Davis, J. (2003). *Types of RNFE Activities And Their Returns: Framework And Findings*. Retrieved from Chatham, UK:

Wiggins, S., & Hazell, P. (2008). Access to Rural Non-Farm Employment and Enterprise Development *Background Paper for the IFAD Rural Poverty Report 2011*. UK: Overseas Development Institute.

Wnuk-Lipinski, E. (1977). Job Satisfaction and the Quality of Working Life, *International Labour Review*, *115*(1), 53–64

Woetzel, J., Madgavkar, A., & Gupta, S. (2017). Indias Labour Market: A New Emphasis On Gainful Employment: McKinsey Global Institute.

Zahonogo, P. (2011). Determinants of Non-Farm Activities Participation Decisions of Farm Households in Burkina Faso. *Journal of Development and Agricultural Economics, 3*(4), 174-182.

APPENDIX

Table A.5.1 : Incidence of Poverty in Farm and Non-Farm sectors across different regions of Rural India

Regions	Farm					Non-Farm					Overall				
	1993-94	2004-05	2011-12	Change	Change	1993-94	2004-05	2011-12	Change	Change	1993-94	2004-05	2011-12	Change	Change
NER	58.36	25.49	26.40	-2.99	0.13	39.08	28.14	19.01	-0.99	-1.30	53.13	26.41	23.17	-2.43	-0.46
ER	60.04	54.91	41.25	-0.47	-1.95	44.51	46.31	33.95	0.16	-1.76	56.12	52.27	38.39	-0.35	-1.98
NR	37.48	18.38	9.67	-1.74	-1.24	39.61	20.53	11.98	-1.73	-1.22	38.20	19.27	10.82	-1.72	-1.21
SR	51.35	35.84	14.09	-1.41	-3.11	36.21	22.96	7.77	-1.21	-2.17	47.06	31.58	11.68	-1.41	-2.84
WR	59.83	37.16	19.25	-2.06	-2.56	37.21	22.20	9.58	-1.36	-1.80	54.10	32.93	16.37	-1.92	-2.37
CR	52.73	48.58	40.49	-0.38	-1.16	46.10	45.81	41.43	-0.03	-0.63	51.35	47.81	40.83	-0.32	-1.00
Rural India	*53.93*	*42.06*	*28.62*	-1.08	-1.92	*40.99*	*33.41*	*23.89*	-0.69	-1.36	*50.59*	*39.33*	*26.80*	-1.02	-1.79

Notes: Figures representing change are in percentage points per annum.
Source: Calculated from NSS EUS 50th, 61st and 68th Rounds (Government of India, 1993-94, 2004-05, 2011-12).

Table A.5.2: Incidence of Poverty in Farm and Non-Farm sectors across different regions of Rural India

Region	Year	Farm	Industry	Services	Overall
	1993-94	58.36	42.09	38.46	53.12
NER	2004-05	25.49	31.55	27.71	26.41
	2011-12	26.40	24.77	15.75	23.17
	1993-94	60.04	53.62	38.70	56.12
ER	2004-05	54.91	52.16	44.29	52.27
	2011-12	41.25	39.69	27.66	38.37
	1993-94	37.48	47.19	32.42	38.21
NR	2004-05	18.38	18.86	21.05	19.27
	2011-12	9.67	15.80	5.53	10.82
	1993-94	51.35	43.12	31.29	47.07
SR	2004-05	35.84	26.59	21.49	31.58
	2011-12	14.09	9.18	6.41	11.66
	1993-94	59.83	43.79	31.64	54.10
WR	2004-05	37.16	23.88	21.47	32.93
	2011-12	19.25	11.02	8.31	16.37
	1993-94	52.73	55.74	39.03	51.34
CR	2004-05	48.58	48.01	44.98	47.81
	2011-12	40.49	49.18	29.93	40.83
	1993-94	53.93	48.73	35.31	50.57
Rural India	2004-05	42.06	36.26	32.48	39.34
	2011-12	28.62	29.27	17.61	26.78

Source: Calculated from NSS EUS 50th, 61st and 68th Rounds (Government of India, 1993-94, 2004-05, 2011-12).

Table A.5.3: Incidence of Poverty in across different non-farm activities in Rural India (1993-94 to 2011-12)

Activities	Year	NER	ER	NR	SR	WR	CR	Rural India
	1993-94	58.36	60.04	37.48	51.35	59.83	52.73	53.94
Farm	2004-05	25.49	54.91	18.38	35.84	37.16	48.58	42.09
	2011-12	26.40	41.25	9.67	14.09	19.25	40.49	28.59
	1993-94	23.00	41.21	52.86	47.76	63.89	53.26	49.98
Mining and Quarrying	2004-05	44.61	42.87	46.25	31.30	25.61	66.33	41.88
	2011-12	23.35	22.24	16.20	12.22	5.80	53.62	25.56
	1993-94	45.43	52.87	34.31	42.45	36.04	54.80	46.05
Manufacturing	2004-05	31.88	53.36	17.95	26.28	24.29	47.61	36.75
	2011-12	34.41	33.77	4.76	6.77	7.93	43.33	22.03
	1993-94	17.65	38.36	25.73	18.56	41.73	28.68	28.48
Electricity, gas and Water supply	2004-05	12.64	28.37	2.84	15.74	10.59	20.11	11.90
	2011-12	0.69	34.18	4.44	1.01	1.71	38.83	12.77
	1993-94	48.31	61.66	57.00	45.89	62.86	61.65	56.78
Construction	2004-05	41.89	65.00	30.99	26.46	35.49	61.11	45.83
	2011-12	19.72	44.21	20.65	12.19	15.63	51.77	34.58
	1993-94	38.84	39.95	26.66	33.44	34.82	40.66	36.69
Wholesale and Retail Trade	2004-05	20.33	38.00	14.03	20.18	19.61	39.46	29.15
	2011-12	14.71	29.09	5.11	7.46	9.70	29.96	19.39
	1993-94	53.09	47.33	51.07	33.36	39.33	30.59	38.05
Restaurants and Hotels	2004-05	24.10	36.65	15.82	23.06	24.31	42.75	29.13
	2011-12	28.02	31.92	6.03	6.41	10.36	35.11	18.59
	1993-94	44.24	50.02	39.37	29.39	38.65	45.07	40.81
Transport, Storage and Communication	2004-05	32.65	51.33	18.70	20.92	21.10	46.49	33.47
	2011-12	20.19	27.86	0.30	9.96	9.03	39.19	19.82
	1993-94	16.18	27.20	6.70	9.90	10.12	8.25	12.26
Financial, Real Estate and other Business	2004-05	7.89	12.49	1.63	5.64	7.96	28.80	11.14
	2011-12	0.00	1.42	0.58	0.00	0.00	31.91	3.93
	1993-94	37.40	33.80	33.31	31.67	29.88	37.37	33.75
Other Services	2004-05	28.11	30.83	9.83	20.84	16.65	29.93	23.49
	2011-12	12.79	24.60	6.29	5.14	6.70	27.31	15.41
	1993-94	53.12	56.11	38.20	47.07	54.11	51.34	50.56
Overall	2004-05	26.41	52.27	19.27	31.58	32.93	47.82	39.37
	2011-12	23.17	38.33	10.82	11.66	16.37	40.82	26.76

Source: Calculated from NSS EUS 50th, 61st and 68th Rounds (Government of India, 1993-94, 2004-05, 2011-12).

Table A.5.4: Incidence of Poverty in across different types of employment in Rural India (1993-94 to 2011-12)

Regions	Year	Self Employed	Regular	Casual	Overall
NER	1993-94	48.21	46.11	71.37	53.79
	2004-05	22.29	15.77	47.86	26.41
	2011-12	20.97	21.05	32.35	23.17
ER	1993-94	47.02	30.54	71.94	56.09
	2004-05	44.54	27.73	67.83	52.29
	2011-12	33.71	19.53	46.49	38.39
NR	1993-94	33.73	22.83	57.25	38.19
	2004-05	15.72	8.77	35.05	19.27
	2011-12	8.24	4.72	19.50	10.82
SR	1993-94	39.53	23.86	59.38	47.08
	2004-05	25.14	14.43	41.93	31.57
	2011-12	8.85	4.61	16.28	11.67
WR	1993-94	47.37	26.98	68.88	54.09
	2004-05	25.33	17.21	47.39	32.93
	2011-12	14.46	7.25	22.45	16.34
CR	1993-94	45.86	32.22	68.60	51.39
	2004-05	41.98	26.67	67.31	47.75
	2011-12	34.94	23.88	55.33	40.78
Rural India	1993-94	43.65	28.87	66.13	50.60
	2004-05	33.54	18.67	54.34	39.34
	2011-12	23.55	11.92	35.22	26.77

Source: Calculated from NSS EUS 50th, 61st and 68th Rounds (Government of India, 1993-94, 2004-05, 2011-12).

Table A.5.5: Incidence of Poverty in across different types of employment in RNF Sector (1993-94 to 2011-12)

Regions	Year	Self-Employed	Regular	Casual	Overall
NER	1993-94	40.34	26.28	60.56	39.08
	2004-05	24.95	6.87	54.19	28.14
	2011-12	17.90	11.76	27.02	19.01
ER	1993-94	47.05	28.90	60.59	44.51
	2004-05	45.90	22.50	64.17	46.31
	2011-12	30.85	17.74	44.21	33.93
NR	1993-94	35.52	20.52	62.16	39.61
	2004-05	17.62	7.58	35.41	20.53
	2011-12	6.38	4.77	20.86	11.98
SR	1993-94	39.58	20.54	47.87	36.21
	2004-05	24.00	14.13	29.43	22.96
	2011-12	7.68	4.64	10.65	7.75
WR	1993-94	42.48	19.90	61.26	37.15
	2004-05	23.77	11.42	40.24	22.20
	2011-12	7.90	7.23	17.14	9.58
CR	1993-94	49.81	28.12	60.86	46.10
	2004-05	45.03	24.44	64.13	45.81
	2011-12	37.12	23.98	52.15	41.43
Rural India	1993-94	43.77	23.91	57.41	40.85
	2004-05	34.62	15.57	48.00	33.46
	2011-12	21.99	11.06	34.08	23.87

Source: Calculated from NSS EUS50th, 61st and 68th Rounds (Government of India, 1993-94, 2004-05, 2011-12).

Table A.5.6: Determinants of Poverty Micro level across regions (1993-94 to 2011-12)

Variables	NER			ER			NR			SR			WR			CR			Rural India		
	1993-94	2004-05	2011-12	1993-94	2004-05	2011-12	1993-94	2004-05	2011-12	1993-94	2004-05	2011-12	1993-94	2004-05	2011-12	1993-94	2004-05	2011-12	1993-94	2004-05	2011-12
Social Group (Reference category- STs)																					
SCs	0.861	2.432***	1.411**	0.42***	0.401***	0.405***	0.504***	0.55***	0.459***	0.733***	0.702***	0.638***	1.129	0.991	0.342***	0.564***	0.439***	0.504***	0.666***	0.946*	0.766***
	(0.08)	*(0.24)*	*(0.20)*	*(0.03)*	*(0.03)*	*(0.03)*	*(0.05)*	*(0.06)*	*(0.06)*	*(0.08)*	*(0.07)*	*(0.09)*	*(0.13)*	*(0.11)*	*(0.06)*	*(0.04)*	*(0.03)*	*(0.04)*	*(0.02)*	*(0.03)*	*(0.03)*
OBCs	NC	0.687***	1.487***	NC	0.426***	0.3***	NC	0.414***	0.3***	NC	0.447***	0.458***	NC	0.601***	0.323***	NC	0.354***	0.415***	NC	0.785***	0.611***
		(0.06)	*(0.15)*		*(0.03)*	*(0.02)*		*(0.05)*	*(0.04)*		*(0.04)*	*(0.06)*		*(0.06)*	*(0.04)*		*(0.03)*	*(0.03)*		*(0.02)*	*(0.02)*
Others	1.01	1.877***	1.82**	0.4***	0.242***	0.206***	0.322***	0.165***	0.298***	0.478***	0.308***	0.288***	0.839**	0.393***	0.19***	0.348***	0.193***	0.196***	0.534***	0.496***	0.411***
	(0.05)	*(0.13)*	*(0.16)*	*(0.03)*	*(0.02)*	*(0.02)*	*(0.03)*	*(0.02)*	*(0.04)*	*(0.05)*	*(0.03)*	*(0.05)*	*(0.07)*	*(0.04)*	*(0.03)*	*(0.02)*	*(0.02)*	*(0.02)*	*(0.01)*	*(0.02)*	*(0.02)*
Age (Reference category-15-29)																					
30-59	0.976	0.621***	0.552***	0.96	0.708***	0.863*	0.745***	0.536***	0.719**	0.897	0.507***	0.638***	0.752***	0.653***	0.68**	0.948	0.789***	0.974	0.899***	0.614***	0.705***
	(0.08)	*(0.07)*	*(0.07)*	*(0.06)*	*(0.05)*	*(0.07)*	*(0.06)*	*(0.06)*	*(0.11)*	*(0.06)*	*(0.04)*	*(0.08)*	*(0.07)*	*(0.07)*	*(0.11)*	*(0.05)*	*(0.05)*	*(0.08)*	*(0.03)*	*(0.02)*	*(0.03)*
60 and Above	0.586***	0.391***	0.393***	0.6***	0.41***	0.572***	0.577***	0.286***	0.467***	0.721***	0.328***	0.488***	0.564***	0.465***	0.518***	0.671***	0.493***	0.729***	0.617***	0.371***	0.47***
	(0.06)	*(0.05)*	*(0.07)*	*(0.04)*	*(0.04)*	*(0.06)*	*(0.06)*	*(0.04)*	*(0.09)*	*(0.06)*	*(0.03)*	*(0.08)*	*(0.06)*	*(0.07)*	*(0.11)*	*(0.05)*	*(0.04)*	*(0.08)*	*(0.02)*	*(0.02)*	*(0.03)*
Skill Level (Reference category- Level IV)																					
Level II	0.895	0.567***	1.048	0.576***	0.83**	0.858**	0.917	0.882	0.647***	0.666***	0.695***	0.871	0.777**	0.73**	0.689***	0.637***	0.826***	0.804***	0.679***	0.706***	0.879***
	(0.08)	*(0.06)*	*(0.10)*	*(0.04)*	*(0.06)*	*(0.05)*	*(0.09)*	*(0.09)*	*(0.07)*	*(0.04)*	*(0.05)*	*(0.08)*	*(0.08)*	*(0.08)*	*(0.09)*	*(0.05)*	*(0.06)*	*(0.05)*	*(0.02)*	*(0.02)*	*(0.03)*
Level III	0.519***	0.502***	0.63	0.284***	0.736*	0.529***	0.462***	0.416**	0.538	0.405***	0.236***	0.633	0.361***	0.58*	0.252**	0.342***	0.423***	0.755	0.36***	0.444***	0.621***
	(0.09)	*(0.11)*	*(0.20)*	*(0.05)*	*(0.12)*	*(0.10)*	*(0.13)*	*(0.18)*	*(0.24)*	*(0.09)*	*(0.07)*	*(0.22)*	*(0.10)*	*(0.19)*	*(0.16)*	*(0.06)*	*(0.08)*	*(0.15)*	*(0.03)*	*(0.04)*	*(0.07)*
Level IV	0.408***	0.32***	1.25	0.372***	0.786	0.885	0.628	0.988	0.865	0.503***	0.455***	0.877	0.446**	0.4*	0.732	0.539**	0.626**	0.426***	0.438***	0.538***	0.842*
	(0.10)	*(0.12)*	*(0.24)*	*(0.07)*	*(0.14)*	*(0.14)*	*(0.18)*	*(0.33)*	*(0.35)*	*(0.12)*	*(0.12)*	*(0.33)*	*(0.17)*	*(0.16)*	*(0.34)*	*(0.13)*	*(0.13)*	*(0.11)*	*(0.04)*	*(0.05)*	*(0.08)*
Skill Level not defined	0.305***	0.222***	0.259***	0.194***	0.344***	0.667***	0.69	0.726	0.248***	0.498***	0.473***	0.841	0.559**	0.482***	0.411***	0.355***	0.574***	0.403***	0.362***	0.387***	0.524***
	(0.08)	*(0.06)*	*(0.09)*	*(0.05)*	*(0.05)*	*(0.08)*	*(0.19)*	*(0.17)*	*(0.09)*	*(0.09)*	*(0.07)*	*(0.14)*	*(0.15)*	*(0.10)*	*(0.10)*	*(0.12)*	*(0.10)*	*(0.06)*	*(0.04)*	*(0.03)*	*(0.04)*
Education (Reference category-Illiterate)																					
Literate Without Formal Schooling	0.724*	1.000	0.74	0.399***	0.744***	1.272	0.547***	0.85	1.557	0.569***	0.437***	0.405*	0.687*	0.861	0.662	0.691**	0.967	0.92	0.565***	0.821***	1.042
	(0.14)	*(0.11)*	*(0.24)*	*(0.04)*	*(0.07)*	*(0.28)*	*(0.11)*	*(0.16)*	*(0.64)*	*(0.09)*	*(0.07)*	*(0.22)*	*(0.15)*	*(0.17)*	*(0.59)*	*(0.12)*	*(0.11)*	*(0.24)*	*(0.04)*	*(0.04)*	*(0.13)*

Below Primary to Middle	0.48***	0.536***	0.656***	0.427***	0.494***	0.674***	0.565***	0.62***	0.706***	0.484***	0.471***	0.618***	0.581***	0.616***	0.748**	0.593***	0.664***	0.77***	0.514***	0.533***	0.631***
	(0.03)	*(0.04)*	*(0.06)*	*(0.02)*	*(0.02)*	*(0.04)*	*(0.03)*	*(0.05)*	*(0.07)*	*(0.02)*	*(0.02)*	*(0.05)*	*(0.04)*	*(0.05)*	*(0.08)*	*(0.03)*	*(0.03)*	*(0.04)*	*(0.01)*	*(0.01)*	*(0.02)*
Secondary to Higher Secondary	0.259***	0.271***	0.32***	0.246***	0.281***	0.402***	0.357***	0.36***	0.397***	0.18***	0.287***	0.407***	0.39***	0.394***	0.586***	0.367***	0.427***	0.45***	0.274***	0.33***	***0.37
	(0.03)	*(0.04)*	*(0.04)*	*(0.02)*	*(0.02)*	*(0.03)*	*(0.04)*	*(0.05)*	*(0.06)*	*(0.02)*	*(0.03)*	*(0.05)*	*(0.04)*	*(0.05)*	*(0.09)*	*(0.03)*	*(0.03)*	*(0.04)*	*(0.01)*	*(0.01)*	*(0.02)*
Diploma	NC	1.000	1.000	NC	0.194***	0.224***	NC	0.14***	0.254	NC	0.118***	0.312***	NC	0.202***	0.314*	NC	0.221***	0.273**	NC	0.16***	0.187***
		(0.22)	*(0.12)*		*(0.08)*	*(0.13)*		*(0.10)*	*(0.27)*		*(0.04)*	*(0.11)*		*(0.07)*	*(0.20)*		*(0.08)*	*(0.15)*		*(0.03)*	*(0.04)*
Graduate and Above	0.17***	0.19***	0.143***	0.141***	0.146***	0.251***	0.285***	0.428***	0.14***	0.069***	0.153***	0.123***	0.189***	0.156***	0.18***	0.204***	0.265***	0.211***	0.158***	0.219***	0.211***
	(0.04)	*(0.05)*	*(0.04)*	*(0.02)*	*(0.02)*	*(0.04)*	*(0.07)*	*(0.14)*	*(0.06)*	*(0.02)*	*(0.04)*	*(0.04)*	*(0.05)*	*(0.05)*	*(0.08)*	*(0.03)*	*(0.04)*	*(0.03)*	*(0.01)*	*(0.02)*	*(0.02)*
Land Ownership (Reference category-Landless)																					
Marginal	1.133	0.571**	0.47**	1.179	0.861	0.867	1.353***	0.415**	1.335	0.786**	0.461***	1.439	0.757***	1.952	0.487	0.958	1.683*	0.509	1.011	0.733***	0.562***
	(0.22)	*(0.16)*	*(0.17)*	*(0.12)*	*(0.21)*	*(0.36)*	*(0.14)*	*(0.17)*	*(0.29)*	*(0.07)*	*(0.10)*	*(1.55)*	*(0.07)*	*(0.90)*	*(0.55)*	*(0.08)*	*(0.46)*	*(0.25)*	*(0.04)*	*(0.08)*	*(0.12)*
Small	0.676*	0.233***	0.309***	0.762**	***0.453	0.516	1.008	0.279***	0.957	0.65**	0.387***	1.624	0.926	1.559	0.411	0.717***	1.215**	0.327**	0.771***	0.473***	0.357***
	(0.14)	*(0.07)*	*(0.12)*	*(0.09)*	*(0.11)*	*(0.22)*	*(0.12)*	*(0.12)*	*(0.24)*	*(0.07)*	*(0.09)*	*(1.76)*	*(0.11)*	*(0.73)*	*(0.47)*	*(0.07)*	*(0.34)*	*(0.16)*	*(0.04)*	*(0.05)*	*(0.08)*
Semi-medium	0.377***	0.195***	0.443**	0.445***	0.32**	0.319**	0.725**	0.226***	0.827	0.577***	0.317***	1.696	0.817*	1.359	0.264	0.49**	0.863	0.211***	0.548***	0.348***	0.265***
	(0.08)	*(0.06)*	*(0.17)*	*(0.06)*	*(0.09)*	*(0.14)*	*(0.09)*	*(0.10)*	*(0.22)*	*(0.07)*	*(0.08)*	*(1.85)*	*(0.10)*	*(0.65)*	*(0.30)*	*(0.05)*	*(0.24)*	*(0.11)*	*(0.03)*	*(0.04)*	*(0.06)*
Medium	0.35***	0.119***	0.359**	0.231***	0.107***	0.152***	0.387***	0.17***	0.501**	0.255***	0.269***	0.976	0.436***	0.573	0.1*	0.309***	0.356***	0.107***	0.32***	0.183***	0.137***
	(0.08)	*(0.04)*	*(0.15)*	*(0.04)*	*(0.03)*	*(0.08)*	*(0.06)*	*(0.07)*	*(0.17)*	*(0.04)*	*(0.07)*	*(1.08)*	*(0.06)*	*(0.28)*	*(0.12)*	*(0.03)*	*(0.10)*	*(0.06)*	*(0.02)*	*(0.02)*	*(0.03)*
Large	1.189	0.056***	0.762	1.003	0.126***	0.714	0.671***	0.046***	1.000	0.66***	0.067***	1.362	0.531***	0.103***	0.321	0.474***	0.218***	0.368*	0.73***	0.077***	0.437***
	(0.25)	*(0.04)*	*(0.29)*	*(0.12)*	*(0.07)*	*(0.31)*	*(0.09)*	*(0.03)*	*(0.56)*	*(0.07)*	*(0.03)*	*(1.48)*	*(0.06)*	*(0.07)*	*(0.37)*	*(0.05)*	*(0.08)*	*(0.19)*	*(0.03)*	*(0.01)*	*(0.09)*
Employment Type (Reference category-Self Employed in Farm)																					
Self Employed in Non-Farm	0.529***	0.633***	0.613***	1.028	1.129**	0.891*	0.974	1.124	0.875	1.128*	1.458***	1.534***	0.874	1.218*	0.797	1.044	1.348***	1.342***	0.979	1.261***	1.007
	(0.04)	*(0.05)*	*(0.06)*	*(0.06)*	*(0.06)*	*(0.06)*	*(0.09)*	*(0.11)*	*(0.13)*	*(0.08)*	*(0.11)*	*(0.20)*	*(0.09)*	*(0.13)*	*(0.12)*	*(0.07)*	*(0.08)*	*(0.09)*	*(0.03)*	*(0.04)*	*(0.04)*
Regular Wage Earner	NC	NC	0.308***	NC	NC	0.513***	NC	NC	0.616***	NC	NC	1.253	NC	NC	0.631**	NC	NC	0.844*	NC	NC	0.528***
			(0.04)			*(0.05)*			*(0.10)*			*(0.19)*			*(0.11)*			*(0.08)*			*(0.03)*
	2.006***	1.304*	2.215***	1.571***	1.96***	1.566***	1.711***	2.052***	0.982	2.002***	1.714***	2.553***	2.378***	1.895**	1.618**	1.386***	2.419***	1.979***	1.876***	2.029***	1.677***

Casual Labour in Farm	*(0.20)*	*(0.18)*	*(0.39)*	*(0.13)*	*(0.18)*	*(0.14)*	*(0.20)*	*(0.29)*	*(0.20)*	*(0.15)*	*(0.16)*	*(0.37)*	*(0.28)*	*(0.26)*	*(0.27)*	*(0.11)*	*(0.22)*	*(0.20)*	*(0.06)*	*(0.08)*	*(0.08)*
Casual Labour in Non-Farm	1.942***	2.06***	1.499***	1.227**	1.781***	1.506***	1.805***	2.07***	1.737***	1.538***	1.162*	1.746***	1.551***	1.337**	1.513**	1.229**	1.86***	1.701***	1.47***	1.443***	1.446***
	(0.21)	*(0.21)*	*(0.18)*	*(0.11)*	*(0.15)*	*(0.12)*	*(0.18)*	*(0.22)*	*(0.21)*	*(0.12)*	*(0.10)*	*(0.24)*	*(0.18)*	*(0.16)*	*(0.25)*	*(0.13)*	*(0.16)*	*(0.13)*	*(0.05)*	*(0.05)*	*(0.06)*
Others	0.579***	0.396***	0.813	0.935	0.492***	1.032	0.773***	0.527***	1.494	1.035	0.758**	0.943	0.589***	0.643***	1.430	1.018	0.77***	1.031	0.884***	0.558***	0.881
	(0.05)	*(0.05)*	*(0.22)*	*(0.07)*	*(0.05)*	*(0.27)*	*(0.08)*	*(0.09)*	*(0.51)*	*(0.09)*	*(0.09)*	*(0.69)*	*(0.07)*	*(0.10)*	*(0.45)*	*(0.08)*	*(0.07)*	*(0.38)*	*(0.03)*	*(0.03)*	*(0.12)*
Household Size	1.402***	1.369***	1.474***	1.277***	1.406***	1.434***	1.243***	1.349***	1.323***	1.315***	1.462***	1.445***	1.222***	1.392***	1.384***	1.166***	1.3***	1.299***	1.234***	1.347***	1.364***
	(0.02)	*(0.02)*	*(0.03)*	*(0.01)*	*(0.02)*	*(0.02)*	*(0.01)*	*(0.02)*	*(0.02)*	*(0.01)*	*(0.02)*	*(0.03)*	*(0.02)*	*(0.02)*	*(0.03)*	*(0.01)*	*(0.01)*	*(0.01)*	*(0.01)*	*(0.01)*	*(0.01)*
Gender (Reference category-Male)	0.81**	0.73**	1.143	1.03	0.971	1.194	0.81**	1.092	1.26	1.032	1.027	1.286**	0.867	1.091	0.96	1.028	1.189*	1.052	0.898***	0.884***	0.948
	(0.07)	*(0.09)*	*(0.17)*	*(0.08)*	*(0.10)*	*(0.14)*	*(0.07)*	*(0.16)*	*(0.21)*	*(0.06)*	*(0.08)*	*(0.15)*	*(0.09)*	*(0.15)*	*(0.20)*	*(0.08)*	*(0.11)*	*(0.11)*	*(0.03)*	*(0.04)*	*(0.05)*
Constant	0.483	0.595	0.124	1.684	1.4	0.539	0.901	0.454	0.09	0.936	1.098	0.039	1.187	0.158	0.478	2.304	0.453	0.933	1.306	0.674	0.43
	(0.12)	*(0.21)*	*(0.06)*	*(0.29)*	*(0.41)*	*(0.24)*	*(0.19)*	*(0.21)*	*(0.03)*	*(0.16)*	*(0.31)*	*(0.04)*	*(0.27)*	*(0.08)*	*(0.57)*	*(0.36)*	*(0.14)*	*(0.49)*	*(0.09)*	*(0.09)*	*(0.10)*

*Notes: a) ***,**,* represents level of significance at 1% , 5% and 10% respectively.*
b) figures in parentheses represents standard errors
c) NC-Category not classified in particular year
Source: Calculated from NSS EUS 50th, 61st and 68th Rounds (Government of India, 1993-94, 2004-05, 2011-12).

Table A.5.7: Macro Determinants of Poverty in Rural India (2004-05 and 2011-12)

Indicators	NER (Assam)		ER (West Bengal)		NR (Rajasthan)		SR (Tamil Nadu)		WR (Maharashtra)		CR (Uttar Pradesh)		Rural India	
	2004-05	2011-12	2004-05	2011-12	2004-05	2011-12	2004-05	2011-12	2004-05	2011-12	2004-05	2011-12	2004-05	2011-12
Agri_NDDP	-1.506***	0.187	-0.908***	-0.346**	-0.102***	0.109	0.088	-0.628***	-0.491***	-0.480***	-0.468***	-1.015***	-0.571***	-0.228***
	(0.047)	*(0.116)*	*(0.069)*	*(0.025)*	*(0.037)*	*(0.069)*	*(0.113)*	*(0.049)*	*(0.025)*	*(0.060)*	*(0.022)*	*(0.038)*	*(0.031)*	*(0.026)*
ELEC	-0.321***	-0.158*	0.166	-0.018	-0.249***	-1.321***	-0.644***	-0.166***	1.873	-0.559***	-0.011	-0.062**	0.008	-0.151***
	(0.018)	*(0.019)*	*(0.025)*	*(0.049)*	*(0.070)*	*(0.082)*	*(0.037)*	*(0.012)*	*(0.508)*	*(0.037)*	*(0.010)*	*(0.021)*	*(0.021)*	*(0.013)*
URB	-0.186***	-0.178	-0.843***	-0.031	0.000	-0.131***	-0.211***	-0.152***	-0.056***	-0.056***	-0.837***	-0.641***	-0.322***	-0.357***
	(0.023)	*(0.110)*	*(0.049)*	*(0.034)*	*(0.015)*	*(0.031)*	*(0.039)*	*(0.020)*	*(0.016)*	*(0.021)*	*(0.014)*	*(0.016)*	*(0.018)*	*(0.012)*
POP_D	0.058***	0.006**	0.029***	-0.001	0.018***	0.010*	0.007	0.027***	-0.106***	0.044**	0.012**	0.010*	0.017***	0.013***
	(0.003)	*(0.002)*	*(0.002)*	*(0.001)*	*(0.003)*	*(0.006)*	*(0.007)*	*(0.003)*	*(0.003)*	*(0.003)*	*(0.000)*	*(0.001)*	*(0.001)*	*(0.000)*
RNF	-0.402***	0.325***	-0.559***	0.300***	-0.270***	0.234	0.574**	-0.466***	1.739***	-1.654***	1.434**	0.120*	-0.495***	-0.124***
	(0.028)	*(0.033)*	*(0.055)*	*(0.018)*	*(0.018)*	*(0.039)*	*(0.076)*	*(0.028)*	*(0.357)*	*(0.434)*	*(0.301)*	*(0.039)*	*(0.021)*	*(0.014)*
AW	0.002	0.004	-0.019***	-0.003*	0.001	0.007*	0.007	-0.013***	-0.506***	0.045**	0.081**	-0.083***	-0.012**	-0.008***
	(0.003)	*(0.006)*	*(0.006)*	*(0.002)*	*(0.003)*	*(0.004)*	*(0.010)*	*(0.003)*	*(0.017)*	*(0.019)*	*(0.015)*	*(0.022)*	*(0.006)*	*(0.002)*
Constant	131.64	-27.24	171.02	60.80	82.18	197.49	148.16	90.72	-174.55	120.44	70.27	95.24	121.02	63.12
	(3.67)	*(5.65)*	*(3.62)*	*(2.81)*	*(8.55)*	*(7.34)*	*(7.71)*	*(6.36)*	*(51.57)*	*(3.27)*	*(1.57)*	*(3.03)*	*(2.97)*	*(2.30)*
F statistics	116.4	35.9	188.5	394.7	146.9	336.3	143.4	110.1	129.6	175.7	922.0	383.7	337.4	330.4
Prob > F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
R-square	0.8645	0.1689	0.8255	0.5224	0.5388	0.5244	0.5216	0.544	0.4041	0.1432	0.3389	0.3485	0.3445	0.3311

Note: a) Dependent Variable: Proportion of Poor (District-wise)

*b) ***,**,* represents level of significance at 1% , 5% and 10% respectively.*

Source: Calculated from NSS EUS 50th, 61st and 68th Rounds (Government of India, 1993-94, 2004-05, 2011-12).

Notes Table A.5.7: Two types of factors are used in the study micro as well as macro. Initially the model was applied to the state specific macro variables (data was collected from different sources) like Unemployment Rate, Percentage of Gross Irrigated area to total cropped area, Literacy Rate, Rural Roads, Net Migration Rate and Regional Rural Banks etc. Since the sample size was very small (28 figures for each variable), the regression estimates did not produce any significant results for region specific models. Thereafter, district-wise data was collected for different variables but it restricts the sample containing only few variables and only six states (Uttar Pardesh (73) (CR), Rajasthan (33) (NR), West Bengal (19) (ER), Maharashtra (35) (WR), Assam (27) (NER) and Tamil Nadu (32) (SR) (total 219 districts). These states are selected on the basis of highest share of rural non-farm employment among each region and also at India level. While collecting district wise data for the different variable many compatibility issues are faced as follows:

a) the major limitation in compatibility is with time period. The district wise data available in desired format was only available for the major states only after 2004-05. For states like Jammu and Kashmir, Himachal Pradesh, Uttarakhand, Jharkhand, Chhattisgarh, North eastern states, whatever the data was available for only main variables like GDP, population etc. Hence the macro variables are only incorporated after 2005 i.e. for 2004-05 and 2011-12 only and not for 1993-94 and 1999-00.

b) Migration accounts for the major contributing factor in analysing RNF employment as well as poverty but for present study migration is not included in the analysis because of non-availability of district wise migration figures. The main source of data regarding migration in India is census data provided by Government of India. This provides information on state-wise migration for 2001 and 2011, but district-wise migration figures are available only for 2001 (used as a proxy for 2004-05) and for 2011 district-wise migration data is not released yet (surprising but true fact). However, for 2007-08 NSS data is available for calculating district wise migration but there was compatibility issues to compare census data and sample data. Thus, keeping in view all the problems, migration cannot be used as a variable in the macro level indicators though important.

c) Initially, percentage of total irrigated to total copped area was thought to be included in the analysis as a proxy of agriculture growth, but the district wise data to calculate the desired indicator was not found even on state's websites and department of agriculture. Thus, agriculture NDDP is used as a proxy for agriculture growth during 2004-05 and 2011-12.

d) Rural roads forms another important variable in rural infrastructure and examining the expansion of RNF employment. The variable required to be used in the study is 'villages linked to the road' but if is available for Uttar Pradesh and Rajasthan during 2011-12 and not for all the selected states. Though, data is available as length of rural roads, length of roads per lakh population; yet these variables are also not available for all the states during 2004-05 and 2011-12. Thus, unfortunately, roads as a variable is also omitted from the analysis.

Table A.6.1: List of Industries involving Hazardous Processes

1. Ferrous Metallurgical Industries
    - Integrated Iron and Steel
    - Farrow-alloys
    - Special Steels
2. Non-ferrous metallurgical Industries
    - Primary Metallurgical Industries, namely, zinc, lead, copper, manganese and aluminum
3. Foundries (ferrous and non-ferrous)
    - Castings and forgings including cleaning or smoothening/ roughening by sand and shot blasting
4. Coal (including coke) industries
    - Coal, Lignite, Coke, etc.
    - Fuel Gases (including Coal Gas, Producer Gas, Water Gas)
5. Power Generating Industries
6. Pulp and paper (including paper products) industries
7. Fertilizer Industries
    - Nitrogenous
    - Phosphatic
    - Mixed
8. Cement Industries
    - Portland Cement (including slag cement, puzzolona cement and their products)
9. Petroleum Industries
    - Oil Refining
    - Lubricating Oils and Greases
    - Petro-chemical Industries
11. Drugs and Pharmaceutical Industries
    - Narcotics, Drugs and Pharmaceuticals
12. Fermentation Industries (Distilleries and Breweries)
13. Rubber (Synthetic) Industries
14. Paints and Pigment Industries
15. Leather Tanning Industries
16. Electro-plating Industries
17. Chemical Industries
    - Coke Oven by-products and Coaltar Distillation products
    - Industrial Gases (nitrogen, oxygen, acetylene, argon, carbon, dioxide, hydrogen, sulphur dioxide, nitrous oxide, halogenated hydrocarbon, ozone, etc.)
    - Industrial Carbon
    - Alkalies and Acids
    - Chromates and dichromates
    - Leads and its compounds
    - Electro chemicals (metallic sodium, potassium and magnesium, chlorates, perchlorates and peroxides)
    - Electro thermal produces (artificial abrasive, calcium carbide)
    - Nitrogenous compounds (cyanides, cyanimides and other nitrogenous compounds)
    - Phosphorous and its compounds
    - Halogens and Halogenated compounds (Chlorine, Fluorine, Bromine and Iodine)
    - Explosives (including industrial explosives and detonators and fuses)
18. Insecticides, Fungicides, Herbicides and other Pesticides Industries
19. Synthetic Resin and plastics
20. Man-made Fiber (Cellulosic and non-cellulosic) Industry
21. Manufacture and repair of electrical accumulators
22. Glass and Ceramics
23. Grinding or glazing of metals
24. Manufacture, handling and processing of asbestos and its products

25. Extraction of oils and facts from vegetable and animal sources
26. Manufacture, handling and use of henzene and substances containing benzene
27. Manufacturing processes and operations involving carbon disulphide
28. Dyes and Dyestuff including their intermediates
29. Highly flammable liquids and gases

Source: Factory Act, 1948 and Amendment Act, 2014

Table A.7.1.: Micro Determinants of Rural Employment in India (1993-94 to 2011-12)

Factors	SENA				CAL				CNAL/OTHER LABOURS				OTHERS			
	1993-94	1999-00	2004-05	2011-12	1993-94	1999-00	2004-05	2011-12	1993-94	1999-00	2004-05	2011-12	1993-94	1999-00	2004-05	2011-12
Education: illiterate (reference)																
Literate Without Formal Schooling	1.836***	1.469***	1.208***	0.921	1.199*	0.821**	0.723***	0.741	1.989***	1.04	0.896*	0.587***	2.438***	1.613***	1.774***	2.181**
	(0.153)	*(0.114)*	*(0.058)*	*(0.122)*	*(0.117)*	*(0.075)*	*(0.052)*	*(0.150)*	*(0.208)*	*(0.112)*	*(0.057)*	*(0.097)*	*(0.241)*	*(0.157)*	*(0.128)*	*(0.768)*
Below Primary to Middle	1.609***	1.315***	1.357***	1.269***	1.03	0.844***	0.965	0.862***	1.477***	1.298***	1.1***	0.854***	2.109***	2.029***	2.32***	1.729***
	(0.038)	*(0.029)*	*(0.027)*	*(0.031)*	*(0.027)*	*(0.020)*	*(0.027)*	*(0.031)*	*(0.045)*	*(0.036)*	*(0.028)*	*(0.024)*	*(0.063)*	*(0.055)*	*(0.073)*	*(0.160)*
Secondary to Higher Secondary	1.815***	1.485***	1.471***	1.197***	0.835***	0.562***	0.712***	0.599***	1.012	0.981	0.827***	0.555***	6.258***	5.006***	5.464***	2.959***
	(0.066)	*(0.046)*	*(0.041)*	*(0.036)*	*(0.045)*	*(0.024)*	*(0.036)*	*(0.032)*	*(0.064)*	*(0.046)*	*(0.034)*	*(0.021)*	*(0.239)*	*(0.163)*	*(0.201)*	*(0.305)*
Diploma			1.833***	1.241**			9.05E-01	0.729			1.489***	0.666***			10.402***	3.182***
			(0.154)	*(0.125)*			*(0.175)*	*(0.192)*			*(0.182)*	*(0.103)*			*(0.856)*	*(0.907)*
Graduate and Above	1.744***	1.332***	1.347***	0.994	0.96	0.369***	0.496***	0.432***	0.525***	0.575***	0.444***	0.301***	8.869***	6.746***	8.242***	3.9***
	(0.121)	*(0.076)*	*(0.064)*	*(0.048)*	*(0.133)*	*(0.043)*	*(0.065)*	*(0.064)*	*(0.106)*	*(0.073)*	*(0.047)*	*(0.029)*	*(0.521)*	*(0.332)*	*(0.412)*	*(0.537)*
Skill Level: Level IV (reference)																
Level III	0.296***	0.282***	0.156***	0.316***	0.008***	0.009***	0.007***	0.015***	0.049***	0.045***	0.064***	0.082***	0.103***	0.192***	0.165***	0.203***
	(0.011)	*(0.010)*	*(0.006)*	*(0.011)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.001)*	*(0.002)*	*(0.002)*	*(0.002)*	*(0.003)*	*(0.004)*	*(0.007)*	*(0.008)*	*(0.018)*
Level II	1.329**	0.932	0.576***	1.38***	0.043***	0.034***	0.026***	0.027***	0.193***	0.149***	0.123***	0.11***	1.458***	2.071***	2.649***	1.023
	(0.177)	*(0.113)*	*(0.040)*	*(0.103)*	*(0.009)*	*(0.006)*	*(0.004)*	*(0.007)*	*(0.043)*	*(0.028)*	*(0.014)*	*(0.015)*	*(0.165)*	*(0.212)*	*(0.181)*	*(0.168)*
Level I	0.923	0.725***	1.079	3.502***	0.019***	0.023***	0.023***	0.025***	0.114***	0.074***	0.118***	0.135***	1.27***	1.691***	2.003***	1.871***
	(0.076)	*(0.056)*	*(0.090)*	*(0.277)*	*(0.003)*	*(0.003)*	*(0.005)*	*(0.007)*	*(0.020)*	*(0.012)*	*(0.019)*	*(0.019)*	*(0.082)*	*(0.106)*	*(0.170)*	*(0.307)*
Skill Level not defined	7.066***	7.571***	3.651***	6.288***	0.033***	0.042***	0.025***	0.037***	0.195***	0.148***	0.073***	0.091***	0.609***	1.172*	0.879	0.754
	(0.630)	*(0.567)*	*(0.260)*	*(0.381)*	*(0.006)*	*(0.005)*	*(0.004)*	*(0.006)*	*(0.036)*	*(0.023)*	*(0.012)*	*(0.010)*	*(0.067)*	*(0.102)*	*(0.079)*	*(0.132)*
Age: 15-29 (reference)																
30-59	1.187***	1.096***	1.103***	1.071***	1.1***	0.962*	0.928***	0.962	1.049*	0.993	0.873***	0.844***	1.663***	1.542***	1.573***	1.071
	(0.026)	*(0.022)*	*(0.020)*	*(0.024)*	*(0.027)*	*(0.022)*	*(0.025)*	*(0.034)*	*(0.030)*	*(0.026)*	*(0.021)*	*(0.022)*	*(0.043)*	*(0.035)*	*(0.038)*	*(0.078)*
60 and above	1.163***	1.031	0.818***	0.791***	1.189***	0.99	0.682***	0.669***	0.901	0.723***	0.414***	0.424***	1.605***	1.544***	1.1**	1.795***
	(0.045)	*(0.038)*	*(0.026)*	*(0.029)*	*(0.056)*	*(0.043)*	*(0.036)*	*(0.041)*	*(0.052)*	*(0.041)*	*(0.020)*	*(0.021)*	*(0.079)*	*(0.066)*	*(0.053)*	*(0.196)*
Gender: Male (reference)	1.14***	1.096***	0.994	1.02	1.741***	1.734***	1.179***	1.041	1.543***	1.298***	0.94**	0.827***	1.699***	1.48***	1.42***	1.508***
	(0.027)	*(0.023)*	*(0.019)*	*(0.022)*	*(0.044)*	*(0.041)*	*(0.032)*	*(0.035)*	*(0.046)*	*(0.036)*	*(0.024)*	*(0.022)*	*(0.046)*	*(0.036)*	*(0.036)*	*(0.104)*
Social Group: ST's (reference)																
SCs	2.065***	3.745***	2.316***	1.577***	1.836***	2.431***	2.797***	2.359***	1.576***	2.046***	3.008***	2.273***	1.351***	1.514***	1.115***	0.533***
	(0.088)	*(0.149)*	*(0.072)*	*(0.055)*	*(0.071)*	*(0.086)*	*(0.112)*	*(0.117)*	*(0.071)*	*(0.085)*	*(0.109)*	*(0.088)*	*(0.060)*	*(0.060)*	*(0.041)*	*(0.060)*
OBCs		3.054***	2.166***	1.459***		1.221***	1.436***	1.395***		1.129***	1.512***	1.225***		1.004	0.619***	0.435***
		(0.106)	*(0.054)*	*(0.040)*		*(0.038)*	*(0.052)*	*(0.062)*		*(0.042)*	*(0.049)*	*(0.041)*		*(0.032)*	*(0.018)*	*(0.036)*
Others	1.769***	2.542***	1.636***	1.143***	0.938*	0.73***	1.021	0.93	0.849***	0.993	1	0.82***	0.834***	1.134***	0.606***	0.569***
	(0.063)	*(0.090)*	*(0.044)*	*(0.034)*	*(0.031)*	*(0.025)*	*(0.042)*	*(0.049)*	*(0.033)*	*(0.039)*	*(0.036)*	*(0.032)*	*(0.029)*	*(0.036)*	*(0.018)*	*(0.047)*
Land Ownership: Landless (reference)																
Marginal	0.119***	0.238***	0.406***	0.544**	0.133***	0.203***	0.243***	0.675	0.133***	0.157***	0.231***	0.67	0.152***	0.184***	0.248***	0.104***
	(0.009)	*(0.012)*	*(0.062)*	*(0.138)*	*(0.010)*	*(0.011)*	*(0.041)*	*(0.221)*	*(0.011)*	*(0.009)*	*(0.036)*	*(0.189)*	*(0.013)*	*(0.010)*	*(0.044)*	*(0.038)*
Small	0.022***	0.036***	0.087***	0.113***	0.029***	0.028***	0.057***	0.091***	0.026***	0.014***	0.028***	0.063***	0.055***	0.068***	0.094***	0.039***

	(0.002)	*(0.002)*	*(0.014)*	*(0.029)*	*(0.002)*	*(0.002)*	*(0.010)*	*(0.031)*	*(0.002)*	*(0.001)*	*(0.005)*	*(0.018)*	*(0.005)*	*(0.004)*	*(0.017)*	*(0.015)*
Semi-medium	0.014***	0.025***	0.059***	0.066***	0.016***	0.012***	0.022***	0.047***	0.013***	0.006***	0.018***	0.022***	0.039***	0.06***	0.067***	0.031***
	(0.001)	*(0.002)*	*(0.009)*	*(0.017)*	*(0.001)*	*(0.001)*	*(0.004)*	*(0.016)*	*(0.001)*	*(0.001)*	*(0.003)*	*(0.007)*	*(0.003)*	*(0.004)*	*(0.012)*	*(0.012)*
Medium	0.007***	0.014***	0.036***	0.032***	0.005***	0.002***	0.007***	0.023***	0.007***	0.005***	0.009***	0.012***	0.02***	0.033***	0.035***	0.02***
	(0.001)	*(0.001)*	*(0.006)*	*(0.008)*	*(0.001)*	*(0.000)*	*(0.002)*	*(0.009)*	*(0.001)*	*(0.001)*	*(0.002)*	*(0.004)*	*(0.002)*	*(0.002)*	*(0.006)*	*(0.008)*
Large	0.005***	0.013***	0.019***	0.02***	0.002***	0.001***	0.01***	0.061***	0.001***	0.00E+00	0.002***	0.01***	0.01***	0.027***	0.007***	0.006***
	(0.001)	*(0.001)*	*(0.003)*	*(0.006)*	*(0.001)*	*(0.000)*	*(0.004)*	*(0.029)*	*(0.001)*	*(0.000)*	*(0.001)*	*(0.005)*	*(0.001)*	*(0.003)*	*(0.002)*	*(0.004)*
Household Size	1.04***	0.95***	1.002	1.012***	0.931***	1.001	0.884***	0.854***	0.962***	0.992***	0.928***	0.944***	1.006	0.976***	1.015***	0.96***
	(0.004)	*(0.002)*	*(0.003)*	*(0.004)*	*(0.004)*	*(0.002)*	*(0.005)*	*(0.006)*	*(0.005)*	*(0.002)*	*(0.004)*	*(0.005)*	*(0.004)*	*(0.002)*	*(0.004)*	*(0.013)*
BPL: Non-poor (reference)	1.255***		0.865***	1.182***	0.588***		0.493***	0.66***	0.809***		0.72***	0.814***	1.684***		1.887***	1.282***
	(0.027)		*(0.016)*	*(0.029)*	*(0.014)*		*(0.013)*	*(0.023)*	*(0.023)*		*(0.017)*	*(0.023)*	*(0.044)*		*(0.057)*	*(0.113)*
Constant	2.57***	2.825***	5.896***	3.078***	88.524***	46.211***	131.056***	23.231***	11.69***	11.557***	37.47***	23.071***	1.576***	1.702***	1.019	0.857
	(0.244)	*(0.214)*	*(0.959)*	*(0.803)*	*(8.474)*	*(3.439)*	*(24.047)*	*(7.835)*	*(1.226)*	*(0.950)*	*(6.366)*	*(6.690)*	*(0.164)*	*(0.137)*	*(0.193)*	*(0.350)*

*Notes: a) ***,**,* represents level of significance at 1% , 5% and 10% respectively.*

b) figures in parentheses represents standard errors

c) NC-Category not classified in particular year

Source: Calculated from NSS EUS 50th, 61st and 68th Rounds (Government of India, 1993-94, 2004-05, 2011-12).

Table A.7.2: Micro Determinants of Rural Employment in North-East Region (1993-94 to 2011-12)

Factors	SENA				CAL				CNAL/OTHER LABOURS				OTHERS			
	1993-94	1999-00	2004-05	2011-12	1993-94	1999-00	2004-05	2011-12	1993-94	1999-00	2004-05	2011-12	1993-94	1999-00	2004-05	2011-12
Education: illiterate (reference)																
Literate Without Formal Schooling	1.633***	1.017	1.385***	0.767	0.655	0.625***	0.775	2.372*	1.061	1.098	1.597***	1.167	2.476***	1.056	1.594***	2.633**
	(0.224)	*(0.142)*	*(0.148)*	*(0.262)*	*(0.115)*	*(0.096)*	*(0.156)*	*(1.129)*	*(0.194)*	*(0.172)*	*(0.215)*	*(0.482)*	*(0.362)*	*(0.168)*	*(0.209)*	*(1.232)*
Below Primary to Middle	1.767***	1.321***	2.055***	1.643***	0.929*	0.852***	1.208*	0.902	1.306***	1.245***	1.307***	0.981	2.39***	2.086***	2.391***	1.475**
	(0.070)	*(0.050)*	*(0.115)*	*(0.124)*	*(0.041)*	*(0.034)*	*(0.124)*	*(0.143)*	*(0.064)*	*(0.054)*	*(0.105)*	*(0.106)*	*(0.113)*	*(0.085)*	*(0.163)*	*(0.262)*
Secondary to Higher Secondary	2.324***	1.705***	3.289***	2.722***	0.662***	0.577***	0.628*	0.869	0.952	1.034	0.689**	0.699**	8.147***	5.82***	8.075***	3.824***
	(0.143)	*(0.089)*	*(0.253)*	*(0.240)*	*(0.067)*	*(0.042)*	*(0.159)*	*(0.209)*	*(0.101)*	*(0.074)*	*(0.115)*	*(0.109)*	*(0.492)*	*(0.294)*	*(0.678)*	*(0.754)*
Diploma			6.47***	5.654***			0.00E+00	0			1.479	2.273			16.335***	12.703***
			(2.620)	*(3.194)*			*(0.001)*	*(0.005)*			*(1.573)*	*(2.632)*			*(6.261)*	*(9.760)*
Graduate and Above	2.603***	1.625***	5.286***	2.186***	0.847	0.51***	1.25	0.322	0.632	0.712*	0.417*	0.985	12.785***	8.955***	17.081***	7.357***
	(0.307)	*(0.164)*	*(0.685)*	*(0.327)*	*(0.234)*	*(0.100)*	*(0.547)*	*(0.330)*	*(0.212)*	*(0.135)*	*(0.199)*	*(0.320)*	*(1.249)*	*(0.739)*	*(2.160)*	*(1.888)*
Skill Level: Level IV (reference)																
Level III	0.269***	0.3***	0.134***	0.392***	0.008***	0.01***	0.007***	0.033***	0.033***	0.045***	0.03***	0.038***	0.119***	0.204***	0.153***	0.29***
	(0.017)	*(0.018)*	*(0.013)*	*(0.030)*	*(0.000)*	*(0.001)*	*(0.001)*	*(0.005)*	*(0.002)*	*(0.002)*	*(0.003)*	*(0.004)*	*(0.008)*	*(0.012)*	*(0.017)*	*(0.046)*
Level II	0.904	1.516*	0.5***	1.085	0.041***	0.067***	0.07***	0.078***	0.093***	0.254***	0.077***	0.081***	1.563**	3.248***	3.293***	1.51
	(0.194)	*(0.323)*	*(0.083)*	*(0.205)*	*(0.013)*	*(0.020)*	*(0.025)*	*(0.058)*	*(0.034)*	*(0.071)*	*(0.027)*	*(0.034)*	*(0.274)*	*(0.590)*	*(0.533)*	*(0.435)*
Level I	0.744	0.635***	0.605**	7.213***	0.026***	0.023***	0.034***	0.037***	0.082***	0.049***	0.072***	0.123***	1.247**	1.579***	3.307***	3.665***
	(0.104)	*(0.082)*	*(0.150)*	*(1.321)*	*(0.007)*	*(0.005)*	*(0.025)*	*(0.038)*	*(0.023)*	*(0.013)*	*(0.045)*	*(0.042)*	*(0.136)*	*(0.156)*	*(0.769)*	*(1.033)*
Skill Level not defined	5.763***	7.556***	4.232***	11.683***	0.033***	0.039***	0.014***	0	0.129***	0.111***	0.044***	0.159***	0.664**	1.235	1.36	3.033***
	(0.835)	*(0.935)*	*(0.891)*	*(2.269)*	*(0.010)*	*(0.009)*	*(0.014)*	*(0.000)*	*(0.038)*	*(0.028)*	*(0.027)*	*(0.064)*	*(0.111)*	*(0.166)*	*(0.323)*	*(0.953)*
Age: 15-29 (reference)																
30-59	1.347***	1.093***	1.483***	1.306***	1.12***	0.974	1.118	1.001	1.102**	1.002	1.08	0.963	1.895***	1.627***	1.74***	1.161
	(0.049)	*(0.037)*	*(0.066)*	*(0.072)*	*(0.047)*	*(0.038)*	*(0.105)*	*(0.136)*	*(0.051)*	*(0.041)*	*(0.076)*	*(0.085)*	*(0.076)*	*(0.056)*	*(0.088)*	*(0.147)*
60 and above	1.433***	1.109*	1.25**	1.057	1.156*	0.885	0.723	0.566*	1.107	0.732***	0.57***	0.664**	1.971***	1.575***	1.641***	2.53***
	(0.094)	*(0.068)*	*(0.117)*	*(0.114)*	*(0.097)*	*(0.069)*	*(0.169)*	*(0.191)*	*(0.101)*	*(0.064)*	*(0.098)*	*(0.129)*	*(0.151)*	*(0.105)*	*(0.181)*	*(0.524)*
Sex	0.989	0.976	1.138***	1.083	1.574***	1.666***	1.76***	0.733**	1.344***	1.126***	1.135	0.467***	1.54***	1.385***	1.793***	1.413***
	(0.038)	*(0.035)*	*(0.053)*	*(0.057)*	*(0.068)*	*(0.065)*	*(0.184)*	*(0.097)*	*(0.065)*	*(0.048)*	*(0.089)*	*(0.043)*	*(0.063)*	*(0.048)*	*(0.088)*	*(0.165)*
Social Group: ST's (reference)																
SCs	2.556***	5.374***	2.041***	1.246**	1.795***	3.14***	3.686***	1.175	2.991***	3.968***	3.242***	1.337**	1.451***	2.088***	0.999	1.201
	(0.167)	*(0.317)*	*(0.175)*	*(0.123)*	*(0.113)*	*(0.176)*	*(0.530)*	*(0.242)*	*(0.217)*	*(0.250)*	*(0.368)*	*(0.184)*	*(0.097)*	*(0.116)*	*(0.113)*	*(0.260)*
OBCs		3.838***	1.262***	0.977		1.871***	1.496***	0.934		2.118***	2.638***	0.995		1.206***	0.714***	0.721
		(0.192)	*(0.068)*	*(0.061)*		*(0.091)*	*(0.185)*	*(0.146)*		*(0.120)*	*(0.215)*	*(0.101)*		*(0.054)*	*(0.045)*	*(0.112)*
Others	1.928***	2.594***	1.708***	1.269***	0.848***	0.748***	1.739***	1.023	1.346***	1.645***	1.444***	1.092	1.007	1.239***	0.748***	0.826
	(0.099)	*(0.130)*	*(0.089)*	*(0.081)*	*(0.043)*	*(0.040)*	*(0.197)*	*(0.165)*	*(0.083)*	*(0.094)*	*(0.130)*	*(0.113)*	*(0.048)*	*(0.051)*	*(0.049)*	*(0.128)*
Land Ownership: Landless (reference)																
Marginal	0.143***	0.23***	0.644	0.754	0.181***	0.192***	0.349**	0.427	0.181***	0.124***	0.179***	2.179	0.141***	0.161***	0.414***	0.094***
	(0.017)	*(0.020)*	*(0.187)*	*(0.272)*	*(0.023)*	*(0.017)*	*(0.151)*	*(0.225)*	*(0.024)*	*(0.011)*	*(0.048)*	*(1.333)*	*(0.018)*	*(0.014)*	*(0.137)*	*(0.042)*
Small	0.03***	0.047***	0.202***	0.209***	0.036***	0.021***	0.085***	0.039***	0.031***	0.011***	0.018***	0.297*	0.059***	0.068***	0.176***	0.071***
	(0.004)	*(0.005)*	*(0.059)*	*(0.076)*	*(0.005)*	*(0.002)*	*(0.040)*	*(0.025)*	*(0.005)*	*(0.001)*	*(0.005)*	*(0.189)*	*(0.008)*	*(0.006)*	*(0.059)*	*(0.032)*

Semi-medium	0.026***	0.031***	0.205***	0.119***	0.022***	0.007***	0.062***	0.011***	0.025***	0.007***	0.016***	0.036***	0.047***	0.07***	0.23***	0.09***
	(0.003)	*(0.003)*	*(0.061)*	*(0.044)*	*(0.003)*	*(0.001)*	*(0.030)*	*(0.010)*	*(0.004)*	*(0.001)*	*(0.005)*	*(0.029)*	*(0.006)*	*(0.007)*	*(0.077)*	*(0.041)*
Medium	0.013***	0.021***	0.27***	0.106***	0.01***	0.002***	0.00E+00	0	0.016***	0.004***	0.01***	0.103***	0.022***	0.031***	0.165***	0.085***
	(0.002)	*(0.002)*	*(0.081)*	*(0.040)*	*(0.002)*	*(0.001)*	*(0.000)*	*(0.000)*	*(0.003)*	*(0.001)*	*(0.005)*	*(0.082)*	*(0.003)*	*(0.003)*	*(0.057)*	*(0.040)*
Large	0.011***	0.028***	0.08***	0.136***	0.003***	0.00E+00	0.00E+00	0.00E+00	0.001***	0.00E+00	0.00E+00	0.707	0.011***	0.022***	0.018***	0.03***
	(0.002)	*(0.004)*	*(0.035)*	*(0.060)*	*(0.002)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.001)*	*(0.000)*	*(0.000)*	*(0.574)*	*(0.002)*	*(0.004)*	*(0.010)*	*(0.022)*
Household Size	1.059***	0.938***	1.009	1.024*	0.939***	0.995	0.94***	0.872***	0.98**	0.992**	0.933***	0.843***	1.044***	0.975***	1.076***	0.934**
	(0.007)	*(0.003)*	*(0.009)*	*(0.013)*	*(0.008)*	*(0.003)*	*(0.021)*	*(0.030)*	*(0.009)*	*(0.003)*	*(0.016)*	*(0.019)*	*(0.007)*	*(0.003)*	*(0.011)*	*(0.027)*
BPL: Non-poor (reference)	1.285***		1.619***	1.75***	0.497***		0.656***	0.549***	0.657***		0.465***	0.736***	1.834***		2.501***	1.137
	(0.047)		*(0.093)*	*(0.125)*	*(0.021)*		*(0.065)*	*(0.081)*	*(0.030)*		*(0.034)*	*(0.075)*	*(0.077)*		*(0.196)*	*(0.184)*
Constant	1.655***	2.87***	0.911	0.618	73.366***	35.088***	6.896***	12.02***	9.474***	13.199***	27.671***	11.135***	0.981	2.016***	0.178***	0.746
	(0.257)	*(0.354)*	*(0.292)*	*(0.244)*	*(11.835)*	*(4.304)*	*(3.385)*	*(7.470)*	*(1.636)*	*(1.689)*	*(8.985)*	*(7.247)*	*(0.161)*	*(0.246)*	*(0.066)*	*(0.422)*

*Notes: a) ***,**,* represents level of significance at 1% , 5% and 10% respectively.*

b) figures in parentheses represents standard errors

c) NC-Category not classified in particular year

Source: Calculated from NSS EUS 50th, 61st and 68th Rounds (Government of India, 1993-94, 2004-05, 2011-12).

Table A.7.3: Micro Determinants of Rural Employment in Eastern Region (1993-94 to 2011-12)

Factors	SENA				CAL				CNAL/OTHER LABOURS				OTHERS			
	1993-94	1999-00	2004-05	2011-12	1993-94	1999-00	2004-05	2011-12	1993-94	1999-00	2004-05	2011-12	1993-94	1999-00	2004-05	2011-12
Education: illiterate (reference)																
Literate Without Formal Schooling	1.89***	2.052***	1.098	1.945**	1.315	1.555**	0.901	1.463	1.642	1.188	0.651**	1.059	2.567***	2.736***	1.792***	1.932
	(0.278)	*(0.323)*	*(0.114)*	*(0.540)*	*(0.235)*	*(0.282)*	*(0.139)*	*(0.490)*	*(0.348)*	*(0.298)*	*(0.114)*	*(0.323)*	*(0.466)*	*(0.512)*	*(0.361)*	*(2.007)*
Below Primary to Middle	1.719***	1.408***	1.051	0.894**	1.098*	0.9**	0.749***	0.714***	1.815***	1.647***	0.852**	0.682***	2.146***	1.877***	2.445***	1.243
	(0.075)	*(0.058)*	*(0.055)*	*(0.051)*	*(0.055)*	*(0.042)*	*(0.057)*	*(0.051)*	*(0.104)*	*(0.090)*	*(0.066)*	*(0.040)*	*(0.123)*	*(0.101)*	*(0.252)*	*(0.293)*
Secondary to Higher Secondary	1.849***	1.676***	0.985	1.303***	0.901	0.56***	0.411***	0.315***	1.134	1.236**	0.599***	0.406***	5.656***	4.573***	4.572***	4.073***
	(0.120)	*(0.096)*	*(0.071)*	*(0.093)*	*(0.089)*	*(0.046)*	*(0.065)*	*(0.045)*	*(0.127)*	*(0.113)*	*(0.084)*	*(0.039)*	*(0.398)*	*(0.289)*	*(0.532)*	*(0.990)*
Diploma			1.246	1.506			0.00E+00	1.432			1.819	0.597			8.879***	4.642**
			(0.498)	*(0.551)*			*(0.000)*	*(1.147)*			*(1.259)*	*(0.380)*			*(3.479)*	*(3.628)*
Graduate and Above	1.698***	1.662***	1.14	1.454***	1.281	0.287	0.369***	0.261***	0.43**	0.612*	0.326***	0.183***	8.703***	6.576***	6.238***	5.302***
	(0.222)	*(0.177)*	*(0.128)*	*(0.161)*	*(0.314)*	*(0.070)*	*(0.136)*	*(0.101)*	*(0.183)*	*(0.162)*	*(0.117)*	*(0.051)*	*(0.952)*	*(0.625)*	*(0.908)*	*(1.595)*
Skill Level: Level IV (reference)																
Level III	0.292***	0.263***	0.194***	3.196***	0.009***	0.009***	0.007***	0.041***	0.053***	0.046***	0.067***	0.404***	0.107***	0.166***	0.2***	0.46***
	(0.019)	*(0.017)*	*(0.017)*	*(0.260)*	*(0.001)*	*(0.001)*	*(0.001)*	*(0.003)*	*(0.004)*	*(0.003)*	*(0.007)*	*(0.024)*	*(0.008)*	*(0.012)*	*(0.025)*	*(0.090)*
Level II	1.509*	1.011	0.713*	0.55***	0.024***	0.043**	0.032***	0.02***	0.369***	0.126***	0.142***	0.116***	1.411	1.944***	3.306***	0.493**
	(0.364)	*(0.225)*	*(0.128)*	*(0.096)*	*(0.012)*	*(0.013)*	*(0.012)*	*(0.010)*	*(0.129)*	*(0.048)*	*(0.052)*	*(0.033)*	*(0.299)*	*(0.383)*	*(0.621)*	*(0.168)*
Level I	1.008	0.795	1.473*	0.316***	0.016***	0.031**	0.034***	0.01***	0.156***	0.085***	0.136***	0.065***	1.541***	1.862***	1.905***	0.588*
	(0.157)	*(0.120)*	*(0.297)*	*(0.055)*	*(0.005)*	*(0.008)*	*(0.015)*	*(0.005)*	*(0.048)*	*(0.027)*	*(0.063)*	*(0.017)*	*(0.190)*	*(0.235)*	*(0.430)*	*(0.170)*
Skill Level not defined	9.281***	7.02***	3.855***	0.131***	0.038***	0.07*	0.048***	0.007***	0.124***	0.208***	0.073***	0.018***	0.782	1.203	1.149	0.08***
	(1.766)	*(1.100)*	*(0.710)*	*(0.019)*	*(0.015)*	*(0.017)*	*(0.015)*	*(0.002)*	*(0.066)*	*(0.062)*	*(0.035)*	*(0.004)*	*(0.180)*	*(0.220)*	*(0.281)*	*(0.030)*
Age: 15-29 (reference)																
30-59	1.123***	1.134***	1.068	0.98	1.105**	0.987	0.879*	0.845**	1.06	1.128**	0.81***	0.796***	1.632***	1.446***	1.135*	0.844
	(0.045)	*(0.043)*	*(0.049)*	*(0.050)*	*(0.051)*	*(0.043)*	*(0.062)*	*(0.062)*	*(0.057)*	*(0.058)*	*(0.057)*	*(0.045)*	*(0.080)*	*(0.066)*	*(0.079)*	*(0.134)*
60 and above	1.126	1.064	0.745***	1.315***	1.14	0.964	0.796	0.897	0.871	0.859	0.401***	0.492***	1.581***	1.606***	0.538***	1.695**
	(0.082)	*(0.075)*	*(0.060)*	*(0.110)*	*(0.102)*	*(0.083)*	*(0.111)*	*(0.119)*	*(0.097)*	*(0.094)*	*(0.063)*	*(0.055)*	*(0.148)*	*(0.133)*	*(0.085)*	*(0.422)*
Sex	1.389***	1.27***	0.969	1.033	2.189***	2.123***	1.758***	1.326***	2.133***	1.73***	1.312***	0.997	2.012***	1.675***	1.246**	1.192
	(0.061)	*(0.052)*	*(0.060)*	*(0.060)*	*(0.107)*	*(0.097)*	*(0.154)*	*(0.107)*	*(0.122)*	*(0.096)*	*(0.113)*	*(0.063)*	*(0.106)*	*(0.081)*	*(0.124)*	*(0.245)*
Social Group: ST's (reference)																
SCs	2.285***	4.663***	3.411***	0.363***	3.328***	3.5***	2.725***	0.794**	3.51***	5.821***	1.415***	0.679***	1.576***	2.517***	1.155	0.351***
	(0.195)	*(0.421)*	*(0.318)*	*(0.031)*	*(0.277)*	*(0.276)*	*(0.315)*	*(0.087)*	*(0.375)*	*(0.654)*	*(0.153)*	*(0.058)*	*(0.147)*	*(0.252)*	*(0.143)*	*(0.107)*
OBCs		4.135***	3.352***	0.537***		1.619***	1.29**	0.556***		3.279***	0.921	0.54***		2.071***	0.741***	0.528**
		(0.342)	*(0.286)*	*(0.040)*		*(0.118)*	*(0.146)*	*(0.060)*		*(0.352)*	*(0.094)*	*(0.045)*		*(0.183)*	*(0.084)*	*(0.132)*
Others	1.648***	3.407***	3.194***	0.404***	1.413***	1.174**	1.856***	0.889	1.816***	2.782***	0.915	0.447***	0.897***	2.139***	0.914	0.563**
	(0.121)	*(0.285)*	*(0.279)*	*(0.032)*	*(0.105)*	*(0.089)*	*(0.213)*	*(0.100)*	*(0.177)*	*(0.305)*	*(0.098)*	*(0.040)*	*(0.070)*	*(0.188)*	*(0.102)*	*(0.144)*
Land Ownership: Landless (reference)																
Marginal	0.131***	0.341***	0.043***	4.384*	0.14***	0.302***	0.01***	1.088	0.117***	0.31***	0.01***	0.663	0.179	0.338***	0.022***	0.183**
	(0.019)	*(0.031)*	*(0.044)*	*(3.338)*	*(0.021)*	*(0.029)*	*(0.011)*	*(0.579)*	*(0.019)*	*(0.032)*	*(0.010)*	*(0.261)*	*(0.031)*	*(0.036)*	*(0.024)*	*(0.140)*
Small	0.021***	0.041***	0.006***	21.618***	0.019***	0.021***	0***	0.293*	0.026***	0.017***	0.001***	0.194***	0.071***	0.12***	0.008***	0.537
	(0.003)	*(0.004)*	*(0.006)*	*(16.519)*	*(0.003)*	*(0.003)*	*(0.001)*	*(0.187)*	*(0.004)*	*(0.003)*	*(0.001)*	*(0.084)*	*(0.013)*	*(0.014)*	*(0.009)*	*(0.421)*

Semi-medium	0.012***	0.033***	0.005***	47.401***	0.008***	0.01***	0***	0.183*	0.009***	0.006***	0***	0.091***	0.044***	0.093***	0.004***	0.447
	(0.002)	*(0.004)*	*(0.005)*	*(36.449)*	*(0.002)*	*(0.002)*	*(0.001)*	*(0.166)*	*(0.002)*	*(0.002)*	*(0.000)*	*(0.059)*	*(0.008)*	*(0.011)*	*(0.004)*	*(0.364)*
Medium	0.006***	0.012***	0.003***	43.878***	0.004***	0.001***	0.00E+00	0.463	0.004***	0.003***	0***	0.731	0.023***	0.07***	0.002***	0.106**
	(0.001)	*(0.002)*	*(0.003)*	*(34.211)*	*(0.001)*	*(0.000)*	*(0.000)*	*(0.431)*	*(0.001)*	*(0.001)*	*(0.001)*	*(0.383)*	*(0.004)*	*(0.009)*	*(0.003)*	*(0.106)*
Large	0.004***	0.012***	0.003***	58.255***	0.001***	0.00E+00	0.00E+00	0.00E+00	0.004***	0.00E+00	0.00E+00	5.015	0.012***	0.028***	0.001***	0.913
	(0.001)	*(0.003)*	*(0.004)*	*(59.562)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.007)*	*(0.002)*	*(0.000)*	*(0.000)*	*(4.890)*	*(0.003)*	*(0.006)*	*(0.001)*	*(1.295)*
Household Size	1.039***	0.961***	1.03***	1.015	0.93***	1.011***	0.931***	0.885***	0.949***	0.992	0.893***	0.917***	1.003	0.972***	1.069***	1.16***
	(0.007)	*(0.004)*	*(0.007)*	*(0.009)*	*(0.009)*	*(0.004)*	*(0.012)*	*(0.015)*	*(0.011)*	*(0.005)*	*(0.013)*	*(0.011)*	*(0.009)*	*(0.004)*	*(0.011)*	*(0.024)*
BPL: Non-poor (reference)	1.158***		0.975	0.873***	0.602***		0.488***	0.541***	0.783***		0.547***	0.576***	1.521***		2.049***	1.318
	(0.047)		*(0.045)*	*(0.044)*	*(0.028)*		*(0.035)*	*(0.038)*	*(0.043)*		*(0.040)*	*(0.032)*	*(0.079)*		*(0.159)*	*(0.224)*
Constant	2.242***	1.18	32.214***	0.121***	44.815***	16.532***	1248.453***	7.184***	4.162***	1.213	776.039***	11.954***	1.01	0.501***	6.819*	0.107**
	(0.417)	*(0.173)*	*(33.218)*	*(0.093)*	*(8.480)*	*(2.340)*	*(1306.823)*	*(4.025)*	*(0.882)*	*(0.214)*	*(804.451)*	*(4.986)*	*(0.214)*	*(0.084)*	*(7.444)*	*(0.093)*

*Notes: a) ***,**,* represents level of significance at 1% , 5% and 10% respectively.*

b) figures in parentheses represents standard errors

c) NC-Category not classified in particular year

Source: Calculated from NSS EUS 50th, 61st and 68th Rounds (Government of India, 1993-94, 2004-05, 2011-12).

Table A.7.4: Micro Determinants of Rural Employment in Northern Region (1993-94 to 2011-12)

Factors	SENA				CAL				CNAL/OTHER LABOURS				OTHERS			
	1993-94	1999-00	2004-05	2011-12	1993-94	1999-00	2004-05	2011-12	1993-94	1999-00	2004-05	2011-12	1993-94	1999-00	2004-05	2011-12
Education: illiterate (reference)																
Literate Without Formal Schooling	1.994***	1.519**	1.373**	1.405	1.528*	0.734	0.675	0.165*	3.752***	0.545**	0.685**	0.498*	2.603***	2.514***	2.122***	0
	(0.441)	*(0.261)*	*(0.184)*	*(0.434)*	*(0.372)*	*(0.147)*	*(0.164)*	*(0.175)*	*(0.868)*	*(0.155)*	*(0.121)*	*(0.199)*	*(0.691)*	*(0.517)*	*(0.349)*	*(0.000)*
Below Primary to Middle	1.393***	1.238***	1.375***	1.321***	1.022	0.78***	0.6***	0.662***	1.278***	0.98	0.98	0.947	1.936***	1.967***	2.025***	1.537**
	(0.087)	*(0.067)*	*(0.071)*	*(0.081)*	*(0.071)*	*(0.047)*	*(0.054)*	*(0.072)*	*(0.106)*	*(0.072)*	*(0.059)*	*(0.061)*	*(0.165)*	*(0.148)*	*(0.146)*	*(0.265)*
Secondary to Higher Secondary	1.411***	1.027	1.485***	1.12	0.985	0.475***	0.527***	0.286***	1.178	0.496***	0.766***	0.533***	5.624***	4.012***	4.267***	1.743***
	(0.141)	*(0.077)*	*(0.097)*	*(0.078)*	*(0.133)*	*(0.049)*	*(0.075)*	*(0.049)*	*(0.188)*	*(0.068)*	*(0.068)*	*(0.044)*	*(0.621)*	*(0.347)*	*(0.338)*	*(0.343)*
Diploma			1.614**	1.011			4.15E-01	0			0.664	0.717			6.619***	5.646***
			(0.306)	*(0.336)*			*(0.264)*	*(0.000)*			*(0.227)*	*(0.317)*			*(1.182)*	*(3.274)*
Graduate and Above	0.898	1.126	1.403***	0.887	1.108	0.347***	0.791	0.597	0.337**	0.375***	0.349***	0.283***	7.311***	5.496***	7.65***	2.863***
	(0.165)	*(0.150)*	*(0.180)*	*(0.112)*	*(0.323)*	*(0.096)*	*(0.295)*	*(0.226)*	*(0.176)*	*(0.131)*	*(0.109)*	*(0.065)*	*(1.126)*	*(0.685)*	*(0.938)*	*(0.874)*
Skill Level: Level IV (reference)																
Level III	0.293***	0.32***	0.334***	0.356***	0.009***	0.01***	0.011***	0.02***	0.099***	0.052***	0.066***	0.052***	0.105***	0.232***	0.279***	0.139***
	(0.024)	*(0.025)*	*(0.030)*	*(0.033)*	*(0.001)*	*(0.001)*	*(0.001)*	*(0.002)*	*(0.009)*	*(0.004)*	*(0.005)*	*(0.004)*	*(0.009)*	*(0.021)*	*(0.030)*	*(0.025)*
Level II	1.243	0.585**	1.265	1.582**	0.051***	0.011***	0.073***	0.051***	0.221*	0.099***	0.103***	0.082***	1.262	1.349	3.398***	0.51
	(0.477)	*(0.150)*	*(0.212)*	*(0.321)*	*(0.027)*	*(0.006)*	*(0.027)*	*(0.038)*	*(0.170)*	*(0.049)*	*(0.029)*	*(0.027)*	*(0.410)*	*(0.293)*	*(0.544)*	*(0.222)*
Level I	1.197	0.975	1.979***	2.546***	0.017***	0.025***	0.044***	0.023***	0.175***	0.17***	0.075***	0.07***	1.751***	2.563***	2.552***	0.274**
	(0.241)	*(0.185)*	*(0.381)*	*(0.528)*	*(0.007)*	*(0.009)*	*(0.020)*	*(0.024)*	*(0.078)*	*(0.065)*	*(0.029)*	*(0.027)*	*(0.285)*	*(0.412)*	*(0.489)*	*(0.157)*
Skill Level not defined	6.41***	9.523***	6.786***	3.779***	0.019***	0.049***	0.028***	0.048***	0.437**	0.211***	0.054***	0.027***	0.529**	1.006	1.19	0.12***
	(1.354)	*(1.700)*	*(1.105)*	*(0.561)*	*(0.009)*	*(0.014)*	*(0.017)*	*(0.021)*	*(0.165)*	*(0.076)*	*(0.022)*	*(0.008)*	*(0.153)*	*(0.237)*	*(0.242)*	*(0.074)*
Age: 15-29 (reference)																
30-59	1.126**	1.117**	1.007	1.056	1.054	1.016	0.781***	0.755***	0.999	1.053	0.945	0.935	1.519***	1.53***	1.58***	0.902
	(0.063)	*(0.055)*	*(0.046)*	*(0.058)*	*(0.065)*	*(0.056)*	*(0.065)*	*(0.080)*	*(0.072)*	*(0.071)*	*(0.052)*	*(0.057)*	*(0.107)*	*(0.093)*	*(0.090)*	*(0.135)*
60 and above	0.933	0.963	0.688***	0.84	1.276**	1.21*	0.558***	0.519***	0.821	0.818	0.48***	0.544***	1.433***	1.467***	1.081	1.327
	(0.096)	*(0.088)*	*(0.055)*	*(0.075)*	*(0.154)*	*(0.128)*	*(0.091)*	*(0.095)*	*(0.122)*	*(0.117)*	*(0.050)*	*(0.057)*	*(0.194)*	*(0.170)*	*(0.114)*	*(0.300)*
Sex	1.244***	1.238***	0.786***	0.909	1.908***	1.824***	0.981	1.085	1.846***	1.375***	1.147**	1.159**	1.78***	1.207***	1.25***	1.661***
	(0.080)	*(0.067)*	*(0.041)*	*(0.048)*	*(0.129)*	*(0.107)*	*(0.102)*	*(0.119)*	*(0.144)*	*(0.099)*	*(0.068)*	*(0.068)*	*(0.142)*	*(0.084)*	*(0.078)*	*(0.236)*
Social Group: ST's (reference)																
SCs	1.087	2.007***	3.266***	2.844***	1.433***	1.055	8.656***	8.504***	0.245***	0.397***	2.187***	1.416***	0.541***	0.973	2.541***	0.612
	(0.124)	*(0.202)*	*(0.349)*	*(0.303)*	*(0.142)*	*(0.091)*	*(1.422)*	*(1.710)*	*(0.026)*	*(0.040)*	*(0.197)*	*(0.129)*	*(0.061)*	*(0.114)*	*(0.324)*	*(0.168)*
OBCs		1.897***	3.014***	2.833***		0.65***	2.805***	2.254***		0.306***	0.808**	0.835**		0.865	1.362**	1.286
		(0.170)	*(0.311)*	*(0.287)*		*(0.050)*	*(0.486)*	*(0.489)*		*(0.027)*	*(0.075)*	*(0.075)*		*(0.086)*	*(0.171)*	*(0.288)*
Others	1.317***	1.95***	1.675***	1.531***	0.817**	0.375***	1.398*	1.358	0.181***	0.285***	0.54***	0.378***	0.332***	1.069	1.388***	0.899
	(0.132)	*(0.181)*	*(0.172)*	*(0.150)*	*(0.072)*	*(0.033)*	*(0.247)*	*(0.288)*	*(0.016)*	*(0.028)*	*(0.050)*	*(0.033)*	*(0.032)*	*(0.109)*	*(0.168)*	*(0.189)*
Land Ownership: Landless (reference)																
Marginal	0.078***	0.148***	2.183	0.404	0.067***	0.159***	0.383*	2618985	0.056***	0.139***	0.728	0.324	0.086***	0.137***	0.396**	11700

	(0.018)	*(0.018)*	*(1.054)*	*(0.468)*	*(0.016)*	*(0.020)*	*(0.192)*	*(8080.000)*	*(0.014)*	*(0.019)*	*(0.308)*	*(0.392)*	*(0.022)*	*(0.018)*	*(0.147)*	*(0.202)*
Small	0.012***	0.025***	0.575	0.095**	0.011***	0.026***	0.038***	126826.9	0.013***	0.015***	0.117***	0.049**	0.026***	0.051***	0.162***	39971
	(0.003)	*(0.003)*	*(0.279)*	*(0.110)*	*(0.003)*	*(0.004)*	*(0.020)*	*(39100.000)*	*(0.003)*	*(0.003)*	*(0.050)*	*(0.059)*	*(0.007)*	*(0.008)*	*(0.061)*	*(0.095)*
Semi-medium	0.007***	0.011***	0.309**	0.056**	0.007***	0.009***	0.011***	132013.4	0.006***	0.004***	0.074***	0.022***	0.027***	0.035***	0.064***	16451
	(0.002)	*(0.002)*	*(0.151)*	*(0.064)*	*(0.002)*	*(0.002)*	*(0.007)*	*(4070.000)*	*(0.002)*	*(0.001)*	*(0.032)*	*(0.027)*	*(0.007)*	*(0.006)*	*(0.024)*	*(0.147)*
Medium	0.003***	0.008***	0.221***	0.023***	0.001***	0.001***	0.022***	100818.8	0.003***	0.002***	0.061***	0.008***	0.01***	0.016***	0.042***	10341
	(0.001)	*(0.002)*	*(0.109)*	*(0.027)*	*(0.000)*	*(0.001)*	*(0.013)*	*(3110.000)*	*(0.001)*	*(0.001)*	*(0.027)*	*(0.009)*	*(0.003)*	*(0.003)*	*(0.016)*	*(0.349)*
Large	0.004***	0.002***	0.117***	0.012***	0.004***	0.001***	0.028***	1.77E+05	0	0.00E+00	0.02***	0	0.005***	0.025***	0.009***	0.223
	(0.001)	*(0.001)*	*(0.062)*	*(0.014)*	*(0.002)*	*(0.001)*	*(0.023)*	*(5440.000)*	*(0.000)*	*(0.000)*	*(0.013)*	*(0.000)*	*(0.002)*	*(0.006)*	*(0.005)*	*0.168)*
Household Size	1.032***	0.958***	1.032***	1.097***	0.96***	1.002	0.944***	0.999	0.977	0.987**	0.975**	1.01	0.973**	0.965***	1.034***	0.865***
	(0.010)	*(0.004)*	*(0.008)*	*(0.010)*	*(0.012)*	*(0.005)*	*(0.016)*	*(0.021)*	*(0.014)*	*(0.006)*	*(0.010)*	*(0.011)*	*(0.012)*	*(0.006)*	*(0.009)*	*(0.028)*
BPL: Non-poor (reference)	1.307***		0.891*	1.719***	0.705***		0.477***	1.156	0.912		0.486***	0.928	1.459***		1.708***	0.837
	(0.073)		*(0.057)*	*(0.153)*	*(0.044)*		*(0.046)*	*(0.158)*	*(0.067)*		*(0.032)*	*(0.076)*	*(0.103)*		*(0.172)*	*(0.181)*
Constant	6.914***	4.785***	0.38*	1.069	149.857***	80.223***	17.651***	0	49.479***	31.74***	16.701***	53.162***	8.036***	2.626***	0.253***	0
	(1.940)	*(0.892)*	*(0.193)*	*(1.251)*	*(41.908)*	*(14.725)*	*(9.731)*	*(0.002)*	*(14.564)*	*(6.539)*	*(7.483)*	*(64.705)*	*(2.441)*	*(0.566)*	*(0.107)*	*(0.000)*

*Notes: a) ***,**,* represents level of significance at 1% , 5% and 10% respectively.*
b) figures in parentheses represents standard errors
c) NC-Category not classified in particular year
Source: Calculated from NSS EUS 50th, 61st and 68th Rounds (Government of India, 1993-94, 2004-05, 2011-12).

Table A.7.5: Micro Determinants of Rural Employment in Southern Region (1993-94 to 2011-12)

Factors	SENA				CAL				CNAL/OTHER LABOURS				OTHERS			
	1993-94	1999-00	2004-05	2011-12	1993-94	1999-00	2004-05	2011-12	1993-94	1999-00	2004-05	2011-12	1993-94	1999-00	2004-05	2011-12
Education: illiterate (reference)																
Literate Without Formal Schooling	2.078***	2.131***	1.878***	1.114	2.354***	0.965	1.479**	1.482	2.978***	1.457	1.703***	1.008	1.58	1.326	3.78***	6.353*
	(0.468)	*(0.351)*	*(0.270)*	*(0.402)*	*(0.574)*	*(0.223)*	*(0.255)*	*(0.797)*	*(0.903)*	*(0.420)*	*(0.282)*	*(0.469)*	*(0.534)*	*(0.386)*	*(0.750)*	*(6.943)*
Below Primary to Middle	1.425***	1.226***	1.306***	0.656***	1.089	0.75***	1.104*	0.934	1.44***	1.015	1.336***	1.12**	1.473***	1.469***	2.439***	2.526***
	(0.087)	*(0.065)*	*(0.063)*	*(0.035)*	*(0.078)*	*(0.048)*	*(0.064)*	*(0.062)*	*(0.137)*	*(0.086)*	*(0.074)*	*(0.064)*	*(0.124)*	*(0.114)*	*(0.197)*	*(0.813)*
Secondary to Higher Secondary	1.269**	1.124	1.34***	0.889*	0.744**	0.57***	0.682***	0.818**	0.647**	0.883	0.912	0.855**	3.954***	3.19***	5.737***	4.775***
	(0.120)	*(0.082)*	*(0.089)*	*(0.058)*	*(0.106)*	*(0.060)*	*(0.065)*	*(0.078)*	*(0.137)*	*(0.117)*	*(0.075)*	*(0.065)*	*(0.417)*	*(0.286)*	*(0.537)*	*(1.747)*
Diploma	NA	NA	1.096	0.746**	NA	NA	0.372***	0.567**	NA	NA	0.832	0.714**	NA	NA	9.437***	4.789**
			(0.161)	*(0.101)*			*(0.108)*	*(0.172)*			*(0.152)*	*(0.123)*			*(1.441)*	*(2.912)*
Graduate and Above	1.388*	0.697***	0.757**	1.233**	0.565	0.249***	0.225***	0.693	0.867	0.351***	0.429***	0.457***	6.108***	3.609***	9.391***	8.394***
	(0.244)	*(0.091)*	*(0.092)*	*(0.129)*	*(0.214)*	*(0.064)*	*(0.059)*	*(0.171)*	*(0.389)*	*(0.118)*	*(0.079)*	*(0.079)*	*(0.969)*	*(0.450)*	*(1.179)*	*(3.934)*
Skill Level: Level IV (reference)																
Level III	0.437***	0.213***	0.128***	4.947***	0.01***	0.006***	0.009***	0.054***	0.059***	0.031***	0.116***	0.417***	0.068***	0.146***	0.127***	0.848
	(0.041)	*(0.017)*	*(0.010)*	*(0.373)*	*(0.001)*	*(0.000)*	*(0.001)*	*(0.004)*	*(0.006)*	*(0.003)*	*(0.010)*	*(0.023)*	*(0.006)*	*(0.014)*	*(0.013)*	*(0.242)*
Level II	1.458	0.848	0.539***	0.982	0.085***	0.019***	0.027***	0.009***	0.209**	0.175***	0.242***	0.157***	0.863	2.381***	1.868***	0.873
	(0.559)	*(0.293)*	*(0.093)*	*(0.157)*	*(0.039)*	*(0.012)*	*(0.007)*	*(0.005)*	*(0.160)*	*(0.111)*	*(0.053)*	*(0.029)*	*(0.276)*	*(0.686)*	*(0.324)*	*(0.423)*
Level I	1.145	0.697**	0.67**	0.73*	0.025***	0.017***	0.024***	0.021***	0.123***	0.101***	0.185***	0.079***	0.637***	1.084	1.339	0.4
	(0.241)	*(0.122)*	*(0.133)*	*(0.136)*	*(0.009)*	*(0.005)*	*(0.008)*	*(0.008)*	*(0.061)*	*(0.038)*	*(0.051)*	*(0.022)*	*(0.108)*	*(0.171)*	*(0.266)*	*(0.272)*
Skill Level not defined	13.051***	5.868***	3.356***	0.222***	0.062***	0.021***	0.026***	0.004***	0.593	0.153***	0.161***	0.018***	0.367***	0.826	0.812	0.052***
	(3.037)	*(0.988)*	*(0.561)*	*(0.027)*	*(0.026)*	*(0.007)*	*(0.007)*	*(0.001)*	*(0.248)*	*(0.057)*	*(0.042)*	*(0.003)*	*(0.125)*	*(0.197)*	*(0.168)*	*(0.040)*
Age: 15-29 (reference)																
30-59	1.067	1.08	0.919*	1.116**	1.055	0.892**	0.826***	1.029	0.978	0.778***	0.758***	0.895**	1.347***	1.506***	1.52***	1.844*
	(0.058)	*(0.051)*	*(0.041)*	*(0.058)*	*(0.065)*	*(0.051)*	*(0.045)*	*(0.070)*	*(0.083)*	*(0.057)*	*(0.038)*	*(0.049)*	*(0.094)*	*(0.097)*	*(0.095)*	*(0.581)*
60 and above	0.945	0.882	0.599***	1.59***	1.028	0.963	0.406***	0.867	0.634***	0.475***	0.282***	0.56***	1.088	1.298**	1.065	5.668***
	(0.089)	*(0.071)*	*(0.045)*	*(0.124)*	*(0.116)*	*(0.098)*	*(0.041)*	*(0.095)*	*(0.111)*	*(0.077)*	*(0.028)*	*(0.054)*	*(0.143)*	*(0.147)*	*(0.121)*	*(2.123)*
Sex	1.179***	0.95	0.862***	1.076	1.618***	1.157**	0.606***	0.66***	1.174*	0.953	0.657***	0.691***	1.474***	1.264***	0.995	2.466***
	(0.069)	*(0.048)*	*(0.037)*	*(0.050)*	*(0.102)*	*(0.067)*	*(0.032)*	*(0.040)*	*(0.105)*	*(0.075)*	*(0.033)*	*(0.035)*	*(0.111)*	*(0.088)*	*(0.060)*	*(0.550)*
Social Group: ST's (reference)																
SCs	1.456***	3.23***	1.69***	0.427***	1.153	3.181***	2.434***	1.34**	1.426**	1.435***	4.04***	1.584***	2.98***	1.93***	1.797***	39860.3
	(0.191)	*(0.390)*	*(0.185)*	*(0.050)*	*(0.129)*	*(0.325)*	*(0.285)*	*(0.185)*	*(0.222)*	*(0.173)*	*(0.520)*	*(0.208)*	*(0.521)*	*(0.265)*	*(0.265)*	*(171.000)*

OBCs		2.267***	1.531***	0.446***		0.841*	0.824*	0.589***		0.551***	1.745***	0.878		1.077	0.78	4259.3
		(0.248)	*(0.148)*	*(0.046)*		*(0.080)*	*(0.088)*	*(0.077)*		*(0.062)*	*(0.209)*	*(0.108)*		*(0.133)*	*(0.105)*	*(180.000)*
Others	1.471***	1.711***	1.575***	0.714***	0.586***	0.571***	0.911	0.374***	0.725**	0.282***	1.144	0.659***	1.765***	0.925	0.692**	49018.6
	(0.173)	*(0.192)*	*(0.162)*	*(0.080)*	*(0.059)*	*(0.058)*	*(0.107)*	*(0.058)*	*(0.106)*	*(0.036)*	*(0.149)*	*(0.091)*	*(0.290)*	*(0.116)*	*(0.098)*	*(20.000)*
Land Ownership: Landless (reference)																
Marginal	0.051***		0.147***		0.087***		0.163***		0.098***		0.142***		0.138***		0.261**	
	(0.013)				*(0.023)*				*(0.028)*				*(0.040)*		*(0.158)*	
Small	0.009***		0.024***		0.031***		0.02***		0.017***		0.009***		0.038***		0.056***	
	(0.002)				*(0.008)*				*(0.006)*				*(0.011)*		*(0.034)*	
Semi-medium	0.005***		0.016***		0.019***		0.009***		0.009***		0.005***		0.021***		0.042***	
	(0.001)				*(0.005)*				*(0.003)*				*(0.007)*		*(0.026)*	
Medium	0.003***		0.005***		0.004***		0.001***		0.005***		0.001***		0.021***		0.025***	
	(0.001)				*(0.001)*				*(0.002)*				*(0.007)*		*(0.015)*	
Large	0.002***		0.003***		0		0.004***		0		0.00E+00		0.009***		0.001***	
	(0.001)				*(0.000)*				*(0.000)*				*(0.003)*		*(0.001)*	
Household Size	1.03***	0.982***	1.029***	1.12***	0.907***	1.015***	0.973**	0.88***	0.948***	1.011*	1.006	0.975**	0.98**	1.006	1.038***	0.731***
	(0.007)	*(0.004)*	*(0.009)*	*(0.010)*	*(0.010)*	*(0.005)*	*(0.011)*	*(0.014)*	*(0.014)*	*(0.007)*	*(0.011)*	*(0.011)*	*(0.009)*	*(0.005)*	*(0.012)*	*(0.052)*
BPL: Non-poor (reference)	1.447***		0.766***		0.785***		0.609***		1.302***		0.954		1.845***		1.465***	
	(0.076)		*(0.036)*		*(0.048)*		*(0.033)*		*(0.110)*		*(0.052)*		*(0.128)*		*(0.111)*	
Constant	5.994***	0.563***	54.848***	0.371***	197.955***	12.707***	974.483***	12.932***	14.463***	2.832***	67.189***	3.731***	2.227**	0.238***	2.336	0
	(1.808)	*(0.088)*	*(29.765)*	*(0.058)*	*(60.119)*	*(1.858)*	*(551.083)*	*(2.427)*	*(5.118)*	*(0.519)*	*(37.462)*	*(0.623)*	*(0.788)*	*(0.045)*	*(1.492)*	*(0.000)*

*Notes: a) ***,**,* represents level of significance at 1% , 5% and 10% respectively.*

b) figures in parentheses represents standard errors

c) NC-Category not classified in particular year

Source: Calculated from NSS EUS 50th, 61st and 68th Rounds (Government of India, 1993-94, 2004-05, 2011-12).

Table A.7.6: Micro Determinants of Rural Employment in Western Region (1993-94 to 2011-12)

Factors	SENA				CAL				CNAL/OTHER LABOURS				OTHERS			
	1993-94	1999-00	2004-05	2011-12	1993-94	1999-00	2004-05	2011-12	1993-94	1999-00	2004-05	2011-12	1993-94	1999-00	2004-05	2011-12
Education: illiterate (reference)																
Literate Without Formal Schooling	2.809	1.847	1.175	1.911	1.637	0.545	0.93	0.719	0.692	0.373	0.496**	0.795	0	0	1.467	87.634***
	(1.957)	*(1.385)*	*(0.234)*	*(1.051)*	*(1.149)*	*(0.392)*	*(0.239)*	*(0.637)*	*(0.789)*	*(0.445)*	*(0.138)*	*(0.726)*	*(0.000)*	*(0.000)*	*(0.426)*	*(109.468)*
Below Primary to Middle	2.614***	2.082***	1.238***	1.131*	1.27	1.389**	0.782***	0.688***	1.272	1.177	0.748***	0.747***	1.831***	2.89***	1.759***	4.402**
	(0.451)	*(0.348)*	*(0.087)*	*(0.082)*	*(0.191)*	*(0.196)*	*(0.066)*	*(0.069)*	*(0.244)*	*(0.214)*	*(0.060)*	*(0.071)*	*(0.386)*	*(0.547)*	*(0.184)*	*(2.838)*
Secondary to Higher Secondary	4.615***	3.357***	1.565***	1.114	1.467	0.977	0.709***	0.517***	0.963	0.913	0.557***	0.451***	4.953***	7.43***	4.529***	3.733*
	(1.173)	*(0.787)*	*(0.143)*	*(0.094)*	*(0.431)*	*(0.242)*	*(0.092)*	*(0.068)*	*(0.404)*	*(0.298)*	*(0.066)*	*(0.056)*	*(1.370)*	*(1.768)*	*(0.543)*	*(2.655)*
Diploma			2.152***	0.678*			7.07E-01	0.091**			0.857	0.238***			9.692***	0
			(0.413)	*(0.151)*			*(0.249)*	*(0.095)*			*(0.221)*	*(0.128)*			*(1.942)*	*(0.001)*
Graduate and Above	6.422***	1.219	1.104	0.791	0.881	0.382	0.544*	0.169***	0.656	1.503	0.315***	0.121***	3.733***	15.065***	6.359***	2.908
	(2.717)	*(0.717)*	*(0.171)*	*0.107**	*(0.778)*	*(0.281)*	*(0.170)*	*(0.072)*	*(0.740)*	*(1.082)*	*(0.083)*	*(0.049)*	*(1.688)*	*(5.218)*	*(1.040)*	*(2.637)*
Skill Level: Level IV (reference)																
Level III	0.332***	0.339***	0.207***	0.241***	0.007***	0.008***	0.007***	0.008***	0.06***	0.045***	0.12***	0.083***	0.109***	0.182***	0.209***	0.322
	(0.075)	*(0.071)*	*(0.023)*	*(0.021)*	*(0.001)*	*(0.001)*	*(0.001)*	*(0.001)*	*(0.013)*	*(0.009)*	*(0.013)*	*(0.008)*	*(0.026)*	*(0.040)*	*(0.028)*	*(0.181)*
Level II	30.418***	0.638	0.543	0.79	0.115**	0.055***	0.027***	0.019***	0	0.171	0.363***	0.036***	10.951***	0.658	5.596***	1.745
	(25.273)	*(0.646)*	*(0.166)*	*(0.153)*	*(0.108)*	*(0.052)*	*(0.013)*	*(0.011)*	*(0.000)*	*(0.213)*	*(0.136)*	*(0.026)*	*(9.812)*	*(0.562)*	*(1.504)*	*(1.597)*
Level I	0.62	0.313	3.731***	3.203***	0.007***	0.014***	0.013***	0	0.1*	0.061**	0.695	0.241***	1.312	2.283*	6.079***	3.842
	(0.362)	*(0.229)*	*(1.295)*	*(0.747)*	*(0.008)*	*(0.012)*	*(0.014)*	*(0.000)*	*(0.119)*	*(0.069)*	*(0.342)*	*(0.113)*	*(0.637)*	*(0.965)*	*(2.126)*	*(3.631)*
Skill Level not defined	2.704*	11.94***	3.936***	4.768***	0	0.032***	0.01***	0.011***	0	0	0.062***	0.09***	0.111**	0.705	0.549**	4.525**
	(1.375)	*(5.071)*	*(0.765)*	*(0.668)*	*(0.000)*	*(0.020)*	*(0.004)*	*(0.005)*	*(0.000)*	*(0.000)*	*(0.026)*	*(0.029)*	*(0.119)*	*(0.372)*	*(0.144)*	*(2.981)*
Age: 15-29 (reference)																
30-59	1.234	1.305*	1.089	0.876**	1.085	1.181	0.974	0.966	0.842	0.849	0.869*	0.718***	1.514**	1.732***	1.717***	1.174
	(0.179)	*(0.193)*	*(0.065)*	*(0.051)*	*(0.148)*	*(0.155)*	*(0.076)*	*(0.089)*	*(0.144)*	*(0.139)*	*(0.062)*	*(0.061)*	*(0.265)*	*(0.269)*	*(0.135)*	*(0.490)*
60 and above	1.616*	1.412	1.194*	0.702***	1.845**	1.218	1.246	0.768	0.249**	0.358***	0.475***	0.326***	0.831	2.201***	1.223	1.722
	(0.449)	*(0.376)*	*(0.122)*	*(0.071)*	*(0.484)*	*(0.282)*	*(0.176)*	*(0.128)*	*(0.138)*	*(0.139)*	*(0.068)*	*(0.055)*	*(0.358)*	*(0.593)*	*(0.192)*	*(0.995)*
Sex	1.288	1.082	0.878**	0.867**	1.025	1.272*	0.61***	0.483***	0.849	0.988	0.635***	0.585***	0.844	1.482**	1.075	1.549
	(0.205)	*(0.172)*	*(0.054)*	*(0.050)*	*(0.145)*	*(0.168)*	*(0.047)*	*(0.042)*	*(0.157)*	*(0.173)*	*(0.047)*	*(0.049)*	*(0.168)*	*(0.241)*	*(0.086)*	*(0.557)*
Social Group: ST's (reference)																
SCs	1.251	1.8**	3.97***	2.268***	0.952	0.987	1.709***	2.426***	1.916**	0.601	2.11***	3.44***	4.418***	0.67	1.767***	1.746
	(0.376)	*(0.526)*	*(0.488)*	*(0.278)*	*(0.234)*	*(0.205)*	*(0.222)*	*(0.351)*	*(0.580)*	*(0.147)*	*(0.263)*	*(0.461)*	*(1.774)*	*(0.187)*	*(0.250)*	*(1.357)*
OBCs	NA	1.524	2.49***	1.771***	NA	0.567***	0.797**	0.911	NA	0.283***	0.894	0.922	NA	0.497***	0.725***	1.082
		(0.393)	*(0.232)*	*(0.148)*		*(0.101)*	*(0.081)*	*(0.101)*		*(0.062)*	*(0.084)*	*(0.096)*		*(0.114)*	*(0.079)*	*(0.631)*

Others	1.037	1.666*	1.786***	1.043	0.904	0.465***	0.659***	0.653***	0.987	0.393***	0.786**	0.43***	2.073**	0.682	0.657***	1.124
	(0.239)	*(0.461)*	*(0.173)*	*(0.091)*	*(0.164)*	*(0.096)*	*(0.073)*	*(0.080)*	*(0.246)*	*(0.099)*	*(0.079)*	*(0.053)*	*(0.731)*	*(0.163)*	*(0.072)*	*(0.639)*
Land Ownership: Landless (reference)																
Marginal	0.345***	0.721	0.594		0.488**	0.744	0.851		0.357***	0.963	0.894		0.327***	0.669	0.43	
	(0.099)	*(0.256)*	*(0.278)*		*(0.137)*	*(0.263)*	*(0.455)*		*(0.107)*	*(0.388)*	*(0.486)*		*(0.111)*	*(0.280)*	*(0.225)*	
Small	0.049***	0.05***	0.106***		0.119***	0.16***	0.202***		0.039***	0.083***	0.119***		0.08***	0.179***	0.144***	
	(0.015)	*(0.019)*	*(0.050)*		*(0.035)*	*(0.058)*	*(0.109)*		*(0.014)*	*(0.037)*	*(0.066)*		*(0.029)*	*(0.078)*	*(0.076)*	
Semi-medium	0.015***	0.036***	0.054***		0.037***	0.045***	0.064***		0.012***	0.022***	0.058***		0.021***	0.125***	0.081***	
	(0.005)	*(0.014)*	*(0.026)*		*(0.011)*	*(0.017)*	*(0.035)*		*(0.005)*	*(0.013)*	*(0.032)*		*(0.009)*	*(0.054)*	*(0.043)*	
Medium	0.003***	0.01***	0.027***		0.006***	0.012***	0.024***		0.002***	0.042***	0.018***		0.03***	0.122***	0.025***	
	(0.001)	*(0.005)*	*(0.013)*		*(0.002)*	*(0.006)*	*(0.014)*		*(0.001)*	*(0.022)*	*(0.010)*		*(0.011)*	*(0.053)*	*(0.014)*	
Large	0.009***	0	0.014***		0.006***	0.009***	0.006***		0	0.00E+00	0.00E+00		0.021***	0.029***	0.007***	
	(0.003)	*(0.000)*	*(0.007)*		*(0.004)*	*(0.008)*	*(0.008)*		*(0.000)*	*(0.000)*	*(0.000)*		*(0.010)*	*(0.017)*	*(0.004)*	
Household Size	1.054**	0.979	1.033***	0.915***	0.941**	1.02*	0.926***	0.773***	0.981	1.019	1.018	0.812***	1.065**	0.984	1.027**	0.613***
	(0.025)	*(0.014)*	*(0.010)*	*(0.009)*	*(0.024)*	*(0.012)*	*(0.014)*	*(0.015)*	*(0.034)*	*(0.015)*	*(0.014)*	*(0.014)*	*(0.029)*	*(0.014)*	*(0.014)*	*(0.063)*
BPL: Non-poor (reference)	1.551***	NA	0.956	1.068	0.546***	NA	0.555***	0.54***	1.171	NA	0.755***	0.52***	1.958***	NA	2.111***	2.287
	(0.225)		*(0.062)*	*(0.091)*	*(0.077)*		*(0.043)*	*(0.058)*	*(0.205)*		*(0.056)*	*(0.053)*	*(0.350)*		*(0.210)*	*(2.372)*
Constant	1.094	0.962	4.49***	2.674***	164.884***	47.929***	264.314***	143.61***	16.767***	10.506***	24.3***	41.006***	0.776	0.637	0.958	0.01***
	(0.522)	*(0.523)*	*(2.248)*	*(0.475)*	*(69.455)*	*(22.180)*	*(151.243)*	*(35.286)*	*(8.462)*	*(5.750)*	*(14.017)*	*(9.552)*	*(0.459)*	*(0.371)*	*(0.549)*	*(0.016)*

*Notes: a) ***,**,* represents level of significance at 1% , 5% and 10% respectively.*

b) figures in parentheses represents standard errors

c) NC-Category not classified in particular year

Source: Calculated from NSS EUS 50th, 61st and 68th Rounds (Government of India, 1993-94, 2004-05, 2011-12).

Table A.7.7: Micro Determinants of Rural Employment in Central Region (1993-94 to 2011-12)

Factors	SENA				CAL				CNAL/OTHER LABOURS				OTHERS			
	1993-94	1999-00	2004-05	2011-12	1993-94	1999-00	2004-05	2011-12	1993-94	1999-00	2004-05	2011-12	1993-94	1999-00	2004-05	2011-12
Education: illiterate (reference)																
Literate Without Formal Schooling	0.011	0.209	1.321**	1.137	0.484	0.153***	0.701*	0.492	2.523	0	0.937	0.401**	0	0	1.576**	0
	(0.000)	*(0.184)*	*(0.145)*	*(0.288)*	*(0.541)*	*(0.101)*	*(0.132)*	*(0.290)*	*(3.384)*	*(0.000)*	*(0.161)*	*(0.161)*	*(0.002)*	*(0.000)*	*(0.308)*	*(0.001)*
Below Primary to Middle	3.01***	1.288	1.319***	1.249***	0.835	0.642***	0.968	1.252***	3.39***	1.006	0.965	0.873**	4.877***	1.886**	2.432***	1.137
	(0.919)	*(0.235)*	*(0.057)*	*(0.066)*	*(0.241)*	*(0.099)*	*(0.065)*	*(0.105)*	*(1.154)*	*(0.302)*	*(0.062)*	*(0.055)*	*(2.326)*	*(0.506)*	*(0.174)*	*(0.323)*
Secondary to Higher Secondary	3.277**	0.867	1.132**	1.029	0.742	0.269***	0.531***	0.666***	2.267	0.272**	0.672***	0.516***	15.703***	2.924***	5.037***	1.765*
	(1.534)	*(0.241)*	*(0.069)*	*(0.069)*	*(0.415)*	*(0.070)*	*(0.073)*	*(0.090)*	*(1.409)*	*(0.160)*	*(0.077)*	*(0.047)*	*(9.170)*	*(1.045)*	*(0.418)*	*(0.580)*
Diploma	NA		1.617**	1.703	NA		1.47E+00	1.536	NA		0.713	0	NA		8.282***	12.815***
			(0.413)	*(0.569)*			*(1.048)*	*(1.711)*			*(0.530)*	*(0.000)*			*(2.009)*	*(10.543)*
Graduate and Above	14.121***	2.21	1.245**	1.162	2.841	0.21**	0.637	0.585	0	0	0.597**	0.363***	5.021	11.343***	7.674***	3.259***
	(9.661)	*(1.077)*	*(0.125)*	*(0.120)*	*(3.358)*	*(0.152)*	*(0.190)*	*(0.206)*	*(0.001)*	*(0.000)*	*(0.147)*	*(0.074)*	*(5.144)*	*(6.274)*	*(0.836)*	*(1.408)*
Skill Level: Level IV (reference)																
Level III	0.236***		0.135***	0.241***	0.005***		0.005***	0.008***	0.025***		0.034***	0.036***	0.219***		0.13***	0.137***
	(0.092)		*(0.011)*	*(0.021)*	*(0.001)*		*(0.000)*	*(0.001)*	*(0.009)*		*(0.003)*	*(0.003)*	*(0.123)*		*(0.014)*	*(0.039)*
Level II	0.206		0.432***	0.826	0		0.016***	0.019***	0.164		0.069***	0.027***	1.648		1.843***	0.85
	(0.400)		*(0.068)*	*(0.149)*	*(0.000)*		*(0.006)*	*(0.012)*	*(0.312)*		*(0.023)*	*(0.013)*	*(2.910)*		*(0.272)*	*(0.463)*
Level I	0		1.207	2.425***	0		0.009***	0	0.18		0.048***	0.095***	9.923***		1.138	0.828
	(0.000)		*(0.216)*	*(0.471)*	*(0.000)*		*(0.006)*	*(0.000)*	*(0.226)*		*(0.026)*	*(0.033)*	*(8.595)*		*(0.216)*	*(0.522)*
Skill Level not defined	2210000000		2.603***	5.678***	134000000		0.012***	0.037***	0.045		0.017***	0.068***	1640000000		0.617***	0.185
			(0.448)	*(0.901)*			*(0.007)*	*(0.015)*	*(3923.171)*		*(0.012)*	*(0.018)*			*(0.141)*	*(0.194)*
Age: 15-29 (reference)																
30-59	1.209	1.023	1.076*	1.139***	0.841	0.714**	0.945	1.121	0.994	0.755	0.821***	0.881**	1.702	1.464	1.615***	0.655*
	(0.328)	*(0.167)*	*(0.042)*	*(0.055)*	*(0.212)*	*(0.100)*	*(0.059)*	*(0.090)*	*(0.303)*	*(0.206)*	*(0.048)*	*(0.053)*	*(0.658)*	*(0.349)*	*(0.092)*	*(0.154)*
60 and above	2.041	0.663	0.793***	0.709***	1.451	0.446***	0.697***	0.569***	1.348	0.313**	0.349***	0.379***	4.297**	2.371**	1.045	1.095
	(0.937)	*(0.179)*	*(0.053)*	*(0.056)*	*(0.655)*	*(0.099)*	*(0.085)*	*(0.090)*	*(0.803)*	*(0.166)*	*(0.043)*	*(0.041)*	*(2.775)*	*(0.821)*	*(0.113)*	*(0.373)*
Sex	0.845	0.971	0.899**	1.163***	0.819	0.877	1.086	1.84***	1.391	0.993	0.766***	1.025	2.038*	1.352	1.492***	1.852***

	(0.237)	*(0.150)*	*(0.039)*	*(0.058)*	*(0.202)*	*(0.114)*	*(0.071)*	*(0.152)*	*(0.423)*	*(0.260)*	*(0.050)*	*(0.063)*	*(0.800)*	*(0.297)*	*(0.094)*	*(0.436)*
Social Group: ST's (reference)																
SCs	19.459***	3.525***	1.81***	1.056	2.782***	2.057***	0.708***	0.713***	1.807	0.981	1.305***	1.532***	1.998	5.028***	0.73***	0.685
	(12.353)	*(1.050)*	*(0.151)*	*(0.090)*	*(1.269)*	*(0.480)*	*(0.067)*	*(0.084)*	*(1.060)*	*(0.499)*	*(0.123)*	*(0.149)*	*(1.643)*	*(1.758)*	*(0.069)*	*(0.229)*
OBCs	NA	2.31***	1.76***	1.065	NA	0.541***	0.375***	0.536***	NA	0.667	0.467***	0.75***	NA	**	0.42***	0.262***
		(0.461)	*(0.135)*	*(0.079)*		*(0.082)*	*(0.033)*	*(0.057)*		*(0.197)*	*(0.043)*	*(0.068)*		*(0.497)*	*(0.035)*	*(0.086)*
Others	10.914***	2.269***	1.254***	0.815**	1.003	0.501***	0.195***	0.278***	1.783*	0.675	0.295***	0.659***	1.549	1.62	0.432***	0.66
	(5.578)	*(0.598)*	*(0.105)*	*(0.069)*	*(0.268)*	*(0.119)*	*(0.024)*	*(0.044)*	*(0.617)*	*(0.319)*	*(0.035)*	*(0.072)*	*(0.704)*	*(0.638)*	*(0.039)*	*(0.217)*
Land Ownership: Landless (reference)																
Marginal	0.147***	0.553	0.205***	0.659	0.448**	0.597	0.113***	0.538	0.4*	0.702	0.142***	0.977	0.759	0.054***	0.104***	0.136*
	(0.070)	*(0.448)*	*(0.092)*	*(0.372)*	*(0.195)*	*(0.449)*	*(0.054)*	*(0.396)*	*(0.197)*	*(0.720)*	*(0.067)*	*(0.643)*	*(0.609)*	*(0.042)*	*(0.051)*	*(0.154)*
Small	0.028***	0.021***	0.034***	0.132***	0.058***	0.031***	0.037***	0.127***	0.014***	0.013***	0.016***	0.105***	0.135**	0.005***	0.042***	0.003***
	(0.014)	*(0.018)*	*(0.016)*	*(0.075)*	*(0.028)*	*(0.023)*	*(0.018)*	*(0.095)*	*(0.011)*	*(0.015)*	*(0.008)*	*(0.070)*	*(0.119)*	*(0.004)*	*(0.021)*	*(0.005)*
Semi-medium	0.009***	0.013***	0.02***	0.072***	0.011***	0.006***	0.005***	0.051***	0.018***	0	0.008***	0.024***	0.103***	0.005***	0.028***	0.04***
	(0.005)	*(0.011)*	*(0.009)*	*(0.041)*	*(0.006)*	*(0.005)*	*(0.003)*	*(0.040)*	*(0.011)*	*(0.000)*	*(0.004)*	*(0.017)*	*(0.087)*	*(0.004)*	*(0.014)*	*(0.047)*
Medium	0.005***	0.021***	0.008***	0.022***	0.005***	0***	0.003***	0.056***	0.028***	0.009***	0.003***	0.009***	0.02***	0.004***	0.012***	0
	(0.003)	*(0.017)*	*(0.004)*	*(0.013)*	*(0.003)*	*(0.000)*	*(0.002)*	*(0.045)*	*(0.018)*	*(0.011)*	*(0.002)*	*(0.007)*	*(0.019)*	*(0.003)*	*(0.006)*	*(0.000)*
Large	0	0.012***	0.008***	0.013***	0	0.00E+00	0.00E+00	4.19E-01	0	0.00E+00	0.002***	0	0	0	0.005***	0
	(0.000)	*(0.010)*	*(0.004)*	*(0.009)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.356)*	*(0.000)*	*(0.000)*	*(0.002)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.003)*	*(0.000)*
Household Size	0.868**	0.981	1.009*	1.003	0.897**	1.004	0.889***	0.854***	0.784***	0.983	0.889***	0.92***	1.046	1.044**	0.982**	0.856***
	(0.052)	*(0.015)*	*(0.006)*	*(0.007)*	*(0.047)*	*(0.012)*	*(0.010)*	*(0.013)*	*(0.056)*	*(0.024)*	*(0.010)*	*(0.009)*	*(0.074)*	*(0.020)*	*(0.008)*	*(0.040)*
BPL: Non-poor (reference)	0.865	*NA*	0.817***	0.924*	0.501**	NA	0.443***	0.548***	0.868	NA	0.554***	0.677***	2.355**	NA	1.513***	0.931
	(0.241)		*(0.031)*	*(0.043)*	*(0.145)*		*(0.028)*	*(0.043)*	*(0.281)*		*(0.033)*	*(0.039)*	*(0.863)*		*(0.088)*	*(0.232)*
Constant	1.814	2.632	18.313***	4.187**	409.604***	42.915***	980.013***	32.847***	14.094***	2.427	324.594***	35.784***	0.03***	1.397	5.147***	2.049
	(1.644)	*(2.303)*	*(8.557)*	*(2.434)*	*(297.487)*	*(34.204)*	*(495.422)*	*(25.068)*	*(12.050)*	*(2.801)*	*(161.979)*	*(24.204)*	*(0.039)*	*(1.298)*	*(2.646)*	*(2.635)*

*Notes: a) ***,**,* represents level of significance at 1% , 5% and 10% respectively.*

b) figures in parentheses represents standard errors

c) NA-Category not classified in particular year

Source: Calculated from NSS EUS 50th, 61st and 68th Rounds (Government of India, 1993-94, 2004-05, 2011-12).

LIST OF PAPERS PUBLISHED/COMMUNICATED

Published

- Kaur, A. and Singh, S.P. (2015). Extent of Employment Diversification in Rural India: An Inter-State Analysis. Paper presented at 57th Annual Indian Society of Labour Economics Conference, Institute for Human Development. New Delhi. (ISBN: 978-81-88315-50-5).
- Kaur, A., and Singh, S.P. (2019). Employment Diversification in Rural India: Nature, Patterns and Determinants. *Ager: Journal of Depopulation and Rural Development Studies*, 27, (ISSN: 1578-7168).
- Kaur, A., Arora, Akarsh and Singh, S.P. (Accepted). Is Rural Non-Farm Employment helping in Poverty Reduction as it is believed to be? An Empirical Analysis of Indian Regions. *Journal of Social Economic Development*.

Communicated

- Kaur, A., and Singh, S.P. (Communicated). Rural Non-Farm Sector: Understanding Definitional Ambiguities, *The Journal of Rural Studies* (Elsevier)