Growth, Composition and Determinants of Rural Non-Farm Employment in North East India

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Preface

One of the important mandates of North East Research Centre (NERC) at V.V.Giri National Labour Institute, NOIDA is to undertake and promote research on the issue of labour and employment in the North Eastern Region of India. It is in this context that a National Workshop was organised during 19-20th November, 2009 at Agartala, Tripura with an objective of identifying relevant issues and institutions. In this workshop invited resource persons presented papers and proposals on their proposed research. As a follow up to this workshop, a number of research projects were commissioned by the NERC on relevant issues/themes. The present working paper titled, 'Growth, Composition and Determinants' by Dr. Bhagirathi Panda is the outcome of one of these commissioned projects.

The North Eastern Region (NER) of our country, over the past few decades, has undergone very high decadal population growth, modest degree of urbanisation, substantial state sponsored developmental activities, worsening of cultivable land-man ratio and lately, increase in educated unemployment. All these developments have brought in obvious changes in the availability, nature and composition of the workforce, which have potential implications for policy making in this region. It is against this backdrop, the present study has been undertaken by the researcher. Based on primary data for the State of Assam and Meghalaya and secondary data for all the seven States of the region, the study analyses the growth, composition and determinants of rural non-farm employment in the NER. It explains, the temporal as well as spatial growth and spread of employment in the non-farm sector, finds out the dynamic sub-sectors of such employment creation and analyses the factors responsible for such employment diversification. Finally, the study also outlines the policy implication of the study and suggests some specific measures to help the rural non-farm sector to grow in a framework of overall development. I am confident that this study and its findings would be very helpful to various stakeholders working in the area of development theory, practice and policy both within and outside the region. I thank the researcher for identifying this topic and researching it out against obvious limitations in this part of the country. I also thank Mr. Anoop Kumar Satpathy for his able and continuing coordination of the project for NERC, VVGNLI.

(V.P. Yajurvedi)
Director General

Acknowledgement

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Growth Composition and Determinants of Rural Non-Farm Employment in North East India

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Introduction

1.1 The Genesis of the Rural Non-Farm Sector

One of the classical dual economy models that explain the growth process in the labour surplus developing economies is the Lewis model. As per this model, migration of workers from the subsistence agriculture sector to the modern industrial sector continues till the whole lot of surplus labour gets absorbed in the modern industrial sector. However, this model neglected the agriculture sector and oversimplified the spatial dimensions of economic development by locating the non-agricultural sector largely in urban areas. The complexities involved in the labour migration process were also overlooked. Indiscriminate rural-urban migration led to urban unemployment, underemployment and congestion. Urban informal sector emerged as an integral part of the urban economy as a result of this continuous migration from rural areas. Initially, development economists thought it to be a transitory sector to wither away in due course of time. However, eexperiences in development practice in developing countries demonstrate otherwise. In response to the negative developments in the urban sector because of this large scale migration, policies were mooted to check it. This was suggested to be accomplished by undertaking large scale rural development measures. Rural development, therefore, subsequently became the priority in development theory and practice.

However, discussions and action plans of rural development were for the most part focused on the institutional, technical, infrastructural, and economic aspects of agricultural development in the late Sixties and early Seventies. Rural development was identified merely with agricultural development. In contrast, non-farm activities in agricultural regions received little attention, and a number of models of agrarian economies in developing countries with non-farm activities have even predicted a decline of such activities with agricultural development (S. Hymer and S. Resnick, 1969). This has not happened though. What is being observed in these economies, recently, is the increasing role of the non-farm sector. Most of these economies exhibit increased diversification of rural employment structure away from agriculture in favour of non-agricultural activities.

1.2 The Concept of Rural Employment

The term Rural Non-Farm Employment (RNFE) may sound simplistic, but its formal conceptualization is not an easy task. Most commonly, RNFE broadly implies all rural employments in non-agricultural activities such as mining and quarrying, household and non-household manufacturing, processing, repairs, construction, trade and hotel, transport, storage and communications, and community, personal and other services in rural areas.

1.3 Growth of Rural Non-Farm Employment

Empirical evidences from a large number of countries all over the world show that rural non-farm activities are fast becoming important sources of employment and income generation for a large majority of rural workers. [World Bank: 1978, Chuta and Liedholm (1979), Kilby and Liedholm (1986), Haggeblade, Hazell and Brown (1987), ILO (1984), Reardon, et al. (1998), Berdegue, et al. (2001), Kaur et al. (2010)]

1.4 Composition of Rural Non-Farm Employment

Most of the studies undertaken on Rural Non-Farm Sector bring out the heterogeneity in the non-farm activity space. Employment and labour force surveys point to various types of 'primary', 'secondary' or 'supplementary' occupations in the non-farm sector. These activities are myriad and are undertaken with varied degree of intensity and time allocations. [Haggeblade, Hazell and Reardon (2003), Bhalla (1993a and b), Visaria (1995), Lanjouw and Lanjouw (2001), Reardon, Berdegué, and Escobar (2001), Jha (2009), Kaur et al., (2010)].

1.5 Determinants of Rural Non-Farm Employment

The analysis of the factors responsible for the growth of rural non-farm employment has been undertaken both at the macro level (region or State or district) and micro level (household). These factors are categorized as pull and push factors. At the macro level, among other things, the important pull factors that have been identified by numerous research studies happen to be (i) agricultural growth [John Mellor (1976), Anderson and Leiserson (1978), (1986), Papola (1987) & (1992), Singh (1989), Unni (1989), Dev 1990, Shukla (1991), Hazell and Haggblade (1991), Rao (1997), Heidhues et al. (1998), Reardon et al.(1998), Gaburici(1999), Haggeblade et al. (2002), Gaiha and Imai (2008), (ii) urbanization[(Sharma and Saxena (1984), Singh (1989), Unni (1989), Shukla (1991), Hazell and Haggblade (1991), Rao (1997) and Srivastav and Dubey (2002)], (iii) literacy [Reardon (2001) Samal (1997), Rao (1997), Lanjouw and Shariff (2002) and Moorthy et al. (2002), Ranjan (2008)], commercialization of agriculture[Sankaranarayan (1980), Vaidyanathan (1986)]. Similarly, the

important push factors that have been identified are declining land-man ratio, poverty and unemployment rates.

1.6 The Research Problem

Most of the studies undertaken in the Indian context on RNFE relate to the country as a whole or various parts of it, except the North-Eastern Region. The number of research studies undertaken in the context of the north east is very limited. This author (Panda, 1997) and VVGNLI (Mishra, 2007) had conducted two studies on the growth and determinants of RNFE in the context of Arunachal Pradesh in the year 1997 and 2007 respectively. Till date, there is no systematic study undertaken on the dynamics of RNFE neither for the whole region nor for the rest of the individual seven states. This region over the past three decades has undergone very high decadal population growth (more than 35% during the last three decades), modest degree of urbanisation and has also experienced a substantial across the sector developmental activities, mostly state sponsored. The cultivable land-man ratio has worsened during this period (due to population pressure and very less availability of cultivable land) as reflected in the declining trend in average size of land holdings. Of late, there has also been an increase in educated unemployment in this region, especially during the 1990s. The human development index (HDI) of the region ranks higher than the all India one, but, economic growth has been sluggish (1.2 per cent in per capita terms) particularly in the 1990s. Agricultural sector is slowly but gradually getting modernized. All these developments have brought in obvious changes in the availability, nature and composition of the workforce, which have considerable implications for policy making in this region. Further, rough estimates show the extent of RNFE in the region to be in around 39% and 32% as against the all India average of 29% and 24% as per census 2001 and NSS 55th Rd. respectively). Many of the economists and policy makers in this region opine that in the context of meagre economic growth and poor industrial growth, much of this employment diversification in the rural areas might have led to the creation of low-end services. The question arises, does this situation confirm to the 'residual sector hypothesis of Vaidyanathan?   In view of these reasons, we propose a systematic study on the nature, extent and determinants of RNFE in the North-East in general and Assam & Meghalaya in particular.

1.7 Economic Background of the Study Area and Role of RNFE

Our study area will be North-East in general and Assam & Meghalaya in particular. NE region includes the states of Arunachal Pradesh, Mizoram, Manipur, Meghalaya, Assam, Tripura and Nagaland. These seven states together have a population of 34 million as per 2001 census and constitute about 3.74% of the total population of the country. The decadal growth is the highest in Nagaland (64.61%), while Tripura registered the lowest growth in all India at

15.74%. The region covers an area of 2.55 lakh sq. km accounting for 7 % of the total land space of the country. The economy of this region in general is characterized by low per–capita income, inadequate infrastructure, geographical isolation, inadequate exploitation of natural resources like minerals, hydropower, forests etc., low industrialisation and high unemployment among the relatively high literate people. The per capita income which was once higher than the All India average during the 1950s and 60s, has been much lower than the national average in the 90s. Agriculture is the dominant occupation of rural households and labour contributions come from all members of the households in different proportions, some contributing labour only during peak agricultural seasons.

Looked at the backdrop of high population growth, underemployment, increase in educated unemployment and limited expansion of formal industrial activities in the rural areas in the North East in general and Assam & Meghalaya in particular, RNFE expansion is advocated as a viable solution to some of these problems. In the process it can be adopted as an explicit strategy of rural development.

1.8 Objectives of the Study

The specific objectives of the study are:

1. To examine the extent and growth of RNFE;

2. To examine the nature and sectoral composition of RNFE;

3. To identify the important factors responsible for the growth of RNFE both at the macro-level and micro level;

4. Finally, to derive policy implications based on the analysis.

1.9 Organisation of the Report

The organisation of this study is as follows:

Chapter 1   "Introduction".

Chapter 2   "The NE Economy and its Structural Transformation".

Chapter 3   "Research Methodology".

Chapter 4   "Growth, Composition and Determinants of RNFE in the North
            East".

Chapter 5   "RNFE in North East- Analysis of Field Data".

Chapter 6   "Summary, Conclusion and Policy Implications"

Chapter Two

The NE Economy and its Structural Transformation

2.1 Development and Structural Transformation

Economic Development today as a concept is multidimensional and as a process is the result of the interplay of a multitude of factors bringing in structural changes and transformation. Economic transformation, as a causal subset of development, can be defined as a forceful process through which a region's economy, society and institutions modernize and move to more advanced levels on a sustainable basis. It is difficult to explain the process of economic development and thereby its sub processes i.e. economic transformation, by means of any single theory or framework of analysis. However, this process can be to a great extent appreciated and understood by means of a number of stylized facts that are its outcome-manifestations, albeit, the uniqueness of regions and societies.

The various dimensions of the economy of the North Eastern region are much more connected with its socio-political, cultural and geographical undertones compared to any other part of our country. These myriad and close interrelationships make it all the more insightful and interesting to have a study of the economic transformation of this region during the past couple of decades. The dimensions of economic transformation process in the region can be many but here we make an appraisal of one of them i.e. transformation of income and employment.

2.2 Structural Transformation: Income and Work Participation

2.2.1 Net State Domestic Product (NSDP)

The time series estimates of NSDP provide an understanding of the transformation of the economy with respect to income. In the NER the problem is that such data of NSDP are not available for the present states right from the days of planned development in our country i.e. 1950. This is because; most of these states came to existence phase wise only in sixties, seventies and eighties. NSDP for undivided Assam is available from 1950-51 at current prices and for other states these data in a systematic manner are available only from 1980-81 onwards. Further as these data are not available in constant prices, reading them off is meaningless from comparison point of view. Hence an alternative methodology has been devised to have a meaningful reading off these time series data. Under this method, the NSDP per capita figures in current prices of the NER and the

states under it have been expressed as percentage ratios of the per capita income of the country at current prices (Bezbaruah, 2010). The temporal listing of these ratios has been given in table below and it provides an understanding of the performance of the region and its constituent states vis-à-vis the country as a whole.

Table 2.1

Per Capita NSDP of North-Eastern State as Percentage of NNP Per Capita of India

Year (1)	ARP (2)	ASM (3)	MAN (4)	MEG (5)	MIZ (6)	NAG (7)	TRP (8)	N.E.Region (9)
1950-51	N.A.	105.11	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1960-61	N.A	104.20	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1970-71	67.59	86.71	72.62	N.A.	N.A.	75.29	74.40	N.A.
1975-76	67.16	92.15	77.96	N.A.	N.A.	89.14	76.37	N.A.
1980-81	96.37	78.77	87.05	83.49	79.07	88.83	80.18	80.38
1985-86	124.64	95.67	85.05	82.41	97.36	94.90	74.17	93.25
1987-88	117.67	93.14	97.74	88.94	124.09	103.03	73.72	93.19
1988-89	114.70	83.39	85.94	80.01	104.79	96.51	78.47	84.38
1989-90	102.63	85.66	82.25	88.25	95.13	99.71	73.28	85.70
1990-91	108.31	85.91	79.79	87.80	89.79	98.33	67.63	85.23
1991-92	116.44	83.58	83.17	87.29	106.03	99.77	65.70	84.22
1992-93	120.06	79.42	80.22	84.19	105.39	100.18	60.41	80.59
1993-94	113.56	74.32	75.96	89.64	108.18	118.71	71.96	78.74
1994-95	103.29	73.31	68.93	82.95	99.28	114.88	63.86	75.94
1995-96	107.95	68.98	67.93	85.14	107.92	108.95	65.31	73.19
1996-97	93.53	63.94	68.42	79.93	105.59	102.08	15.64	53.09
1997-98	91.62	62.69	69.28	80.82	97.53	102.72	76.01	68.49
1998-99	89.99	61.31	67.61	82.76	93.63	86.19	76.49	66.98
1999-2000	87.48	64.51	70.78	83.76	103.53	88.82	88.90	69.88
2000-01	92.53	67.47	69.54	92.11	106.81	97.39	95.77	75.01
2001-02	93.90	66.54	75.81	94.52	109.26	101.65	103.29	76.34
2002-03	90.68	76.36	76.37	93.96	110.64	102.79	100.92	78.14
2003-04	92.58	74.20	77.76	95.51	105.23	94.87	101.27	72.04
2004-05	95.63	72.85	70.83	91.25	96.63	86.78	98.43	70.64
2005-06	85.72	70.67	68.34	89.81	92.40	77.89	98.83	68.40
2006-07	87.11	68.39	63.10	89.37	86.98	70.76	94.21	65.28

Source: Bezbaruah, 2010

Notes: Basic data taken from 'Indian Economics Statistics- Public Finance 1991', Ministry of Finance (Economic Division), Government of India, p. 83 for the early years and from various issues of the Economic Survey of the Government of India and Indiastat.com for 1980-81 onwards. The regional NDP per capita has been estimated as the weighted average of NDP per capita of the seven states with respective population shares as the weights. Both NSDP and NNP are expressed at current prices.

From table 2.1, it is clear that the per capita NSDP of the NER (Synonymous with undivided Assam) was higher than the per capita NNP of the country in 1950-51 and 1960-61. The per capita NSDP for the individual states of the NER are available form 1980-81 only. From there, it is evident that the per capita NSDP of the NER has continuously stayed behind the per capita NDP of the country and the situation has even worsened in the initial decade of liberalization and economic reforms in the country i.e. the 1990s. From 2000 onwards, as it is evident from table 1, the situation improved continuously for three years and after that has again started decelerating gradually.

2.2.2 Sectoral Composition

Decomposition of the NSDP gives us an understanding of the structural transformation situation in the state. It also provides us the basic background to analyse the structural transformation process. Data with respect to the sectoral composition of NSDP in different states of NER are given in table 2.3, table 2.4, table 2.5 and table 2.6 with respect to four periods of time i.e. 1980-81, 1990-91, 1999-00 and 2006-07 respectively. It is seen from these data that the contribution of the primary sector has gradually been reduced and the contribution of the services sector has gradually increased. However, the secondary sector did not exhibit any appreciable increase in its share up to 1999-00. It is only in 2006-07, in current prices, that the secondary sector exhibits somewhat increased share in total Net North Eastern Domestic Product (NNEDP). In 1980-81, in current price, the contribution of the primary, secondary and tertiary sectors to NNEDP was 47.60, 11.69 and 40.71 percent respectively. In 2006-07, after 26 years, in current prices, the contribution of the primary, secondary and tertiary sectors to NNEDP stood at 32.44, 18.43 and 49.13 percents respectively. As it is seen, over the period 1980-81 to 1999-00, the secondary sector's share increased marginally only.

The implications of this type of a skewed structural transformation in the economy of the NER in the backdrop of absence of any high-end services like IT and tourism etc. may be that, majority of the incremental workforce join low-end services with very low productivity and low income generation. All these lead, to question the sustainability of long term growth and development process in the region. Assam is the most populous state in the North East. However, on

the front of sectoral structural transformation, its record is quite dismal. In both the periods of time i.e. 1980-81 and 1999-00, the share of its secondary sector to its NSDP remained almost stagnant at 12 percent.

Table 2.2

State-wise Percentage Share of Sectors in NSDP of the NER at Current Prices 1980-81

Sectors	ARP	ASM	MAN	MEG	MIZ	NAG	TRP	NER
Primary Sector	47.28	47.63	49.11	41.88	32.34	32.5	55.93	47.60
Secondary Sector	22.21	11.54	7.65	14.55	17.01	14.12	7.56	11.69
Tertiary Sector	30.51	40.4	43.25	43.55	50.65	53.37	36.52	40.71

Source: Author's calculation based on data from Indiastat.com

Table 2.3

State-wise Percentage Share of Sectors in NSDP of the NER at Current Prices, 1990-91

Sectors	ARP	ASM	MAN	MEG	MIZ	NAG	TRP	NER
Primary Sector	46.44	50.39	39.89	34.77	32.2	31.56	46.87	47.3
Secondary Sector	18.21	17.47	11.16	14.06	17.92	12.16	6.42	15.96
Tertiary Sector	35.36	32.13	48.96	51.17	49.86	56.28	46.73	36.74

Source: Author's calculation based on data from Indiastat.com

Table 2.4

State-wise Percentage Share of Sectors in NSDP of the NER at current prices, 1999-00

Sectors	ARP	ASM	MAN	MEG	MIZ	NAG	TRP	NER
Primary Sector	35.91	41.93	28.09	31.34	24.25	29.3	31.35	38
Secondary Sector	18.04	12	21.39	13.7	14.15	13.03	13.24	13.11
Tertiary Sector	46.04	46.08	50.51	54.96	61.61	57.66	55.4	48.89

Source: Author's calculation based on data of Indiastat.com

Table 2.5

State-wise Percentage Share of Sectors in NSDP of the NER at Current Prices, 2006-07

Sectors	ARP	ASM	MAN	MEG	MIZ	NAG	TRP	NER
Primary Sector	29.37	35.25	27.45	30.19	16.94	33.64	24.92	32.44
Secondary Sector	31.79	16.14	31.56	18.9	18.21	16.79	22.9	18.43
Tertiary Sector	38.83	48.62	40.98	50.89	64.85	49.56	52.15	49.13

Source: Author's Calculation Based on Data of Indiastat.com

2.2. 3 Work Participation Rate (WPR)

An immediate understanding of the degree of workforce working and seeking and available for work is derived from the work participation rate. A look on the WPR in the rural sector in the NER (table 2.6) shows that the WPR in NER in 1991 as well as 2001 was slightly lower than all India level. Within the region, the dominance of Mizoram in all the three types of WPRs i.e. WPR percent, Male Work participation rate (MWPR) and Female Work Participation Rate (FWPR) is very much seen. What is interesting to note here is that the WPR percent in the hilly states of Arunachal Pradesh, Nagaland, Mizoram, Meghalaya and Manipur is significantly higher than the all India level but because of the very low level of WPR percent in Tripura and Assam, the regional WPR is slightly lower than the all India level. When it comes to FWPR, the magnitude of dispersion is very high. In 1991, Tripura was having the lowest FWPR of 14 per cent whereas Mizoram was having 47.11 percent. In 2001, the situation has somewhat improved with Tripura having 22.86 per cent of FWPR and Mizoram 54.73 percent. The gender gap in rural work participation rate was highest in both the periods of time in Tripura. It was lowest in Manipur in 1991 and Nagaland in 2001.

Table 2.6

Work Participation Rate in NER (Rural Sector)

States	1991			2001		
	Persons	**Males**	**Females**	**Persons**	**Males**	**Females**
Arunachal Pradesh	47.68	53.69	40.86	46.47	51.30	41.33
Assam	36.73	49.30	23.27	36.45	49.77	22.28
Manipur	45.21	47.12	43.21	46.72	50.07	43.20
Meghalaya	45.04	51.02	38.84	44.58	50.09	38.92
Mizoram	51.19	54.91	47.11	57.22	59.52	54.73
Nagaland	44.75	46.56	42.77	45.08	47.08	42.92
Tripura	31.54	47.52	14.58	37.11	50.61	22.86
NER	38.07	49.03	25.86	41.50	50.85	29.49
India	39.99	52.48	26.67	41.97	52.36	30.98

Source: Author's calculation based on NSS report for 61st Round

2.2. 4. Sectoral Distribution of Workers

When we look at the sectoral distribution of workers in NER (table 2.7) and its change over the period 1991-2001, we find the gradual decline of employment in the primary sector and the gradual increase of employment in the tertiary as

well as the secondary sectors. The increase by almost 4 percentage points in the employment share in manufacturing sector when looked against the backdrop of very marginal increase in the share of manufacturing sector in net domestic product at the NER level, signifies the low productivity of jobs created in the manufacturing sector.

Table 2.7

Changes in Sectoral Distribution of workers in NER: 1991 and 2001

Sl. No	Sectors	Percentage of Workers	
		1991	**2001**
A	Primary	80.9	69.2
B	Secondary sector	4.2	8.1
C	Tertiary sector (1+2+3)	14.9	22.7
	Total	100	100

Source: Author's Calculation Based on Data from Indiastat.com

Chapter Three

Research Methodology

Capturing the whole dynamics of employment and income diversification for a region like the North East is a challenging job. The Census and NSSO data capture some such important dynamics at the macro level. However, many of the subtle aspects of such dynamics happen at the micro level. These can be studied by undertaking some primary surveys at the micro level. We have attempted, in this study, to collect, analyse and present the results based on both the primary as well as secondary sources of data.

3.1 Data Sources

3.1.1 Secondary Sources

Secondary data have been collected for the whole region primarily from census sources. Other secondary sources that have been used to get some relevant data are the NSSO reports and publications of various government (central and state) departments /organisations and reputed journals.To be specific, census authority of India's spatial and temporal data relate to main workers participation, literacy rate, urbanisation, male- female composition etc. The time period of the study using these data is from 1981 to 2001. These data have been collected for all the districts of the seven north eastern states. Besides census data, NSSO data in CD-ROMs, publications of the departments of Agriculture, Statistics & Economics etc. of various state governments, North Eastern Council, Ministry of the Department of North Eastern Region (DONeR) have also been used wherever required. NSSO data relate to the industrial classification of workers. DoNER data relate to the infrastructure Index for all the districts of the region, NEC and state government data relate to agricultural yield, area, total food grains production etc.

3.1.2. Primary Sources

To study the dynamics of RNFE at the household level, primary data have been collected from 1000 hhs. spread over 10 villages and 5 districts in Assam and Meghalaya. Of these five districts three districts belong to Assam and two districts to Meghalaya. The sampling methodology is multi-stage sampling. In the first stage, five districts (three in Assam and two in Meghalaya) have been selected purposively. In the next stage, two villages from each of the districts have been selected purposively on the basis of their distance from the nearest urban centre. One of the villages in each of the districts is nearest to the urban centre and the other one is relatively far off. From every village, 100 households were required to be selected randomly from amongst the households residing in

the village. In the event of non availability of the required number of households in any village, the same was compensated from amongst the households in the other selected villages in the same district. In all, 1000 households were selected and surveyed.

Table 3.1 describes the details of the districts, village and other aspects of sample selection.

Table 3.1

Details of Sample Selection Particulars

Meghalaya	districts	Village	Farm	Non-farm	Total	Distance from nearest town (km)
1	Jaintia hills	a. Ummulong	53	47	**100**	16
		b. Nongbah	43	57	**100**	12
2	Ribhoi	a. Byrnihat	63	54	**117**	21
		b. Lawbyrwa	47	36	**83**	28
Total Meghalaya			**206**	**194**	**400**	
Assam						
1	Nagaon	a. Halowa	30	70	**100**	15
		b. Niz-Narikoli	40	60	**100**	36
2	Jorhat	a. Tarajan Gayan	2	98	**100**	2
		b. Azan Gaon	13	87	**100**	8
3	Kamrup	a. Beztula	0	100	**100**	26
		b. Nadia	46	54	**100**	33
Total Assam			**131**	**469**	**600**	
Total			**337**	**663**	**1000**	

Source: Field Data

3.2. Data Analysis and Presentation

Both the primary as well as secondary data were organised and databases on selected aspects of RNFE were created for analysis. To find out the trends in and composition of RNFE, we have resorted to simple percentages, tables and graphs. To analyze the determinants of RNFE, we have used models of regression and correlation. The regression model used to explain the determinants of RNFE with respect to secondary data is OLS $Y= a+b_1x_1+b_2x_2....+u$ and with respect to primary data a binary logit.

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Chapter Four

Trends, Growth and Composition of RNFE in North Eastern Region (NER)

The dynamics of the non-farm sector and particularly with respect to non-farm employment encompasses in its ambit, the trend, the growth, the composition and the determinants of non-farm employment. In this chapter we present the trends, composition and determinants of RNFE in the north east and compare it with the national situation. All the analyses of the secondary data have been done based on total main workers in the rural areas as per various census definitions for census data and the usual status(ps+ss) industrial classification of activities of NSSO for NSS data .

Table 4.1

Percentage Share of Rural Non-farm Employment both in NER and INDIA

NER/ INDIA	Census		NSSO				
	Percentage Share		Percentage Share				Growth rates
	1991	2001	1993-94	1999-00	2004-05	2009-10	1993-2009-10
NER	19.32	31.25	24.7	25.2	26.1	34.9	2.18
India	17.74	20.43	21.6	23.7	27.3	32.1	2.4

Source: Author's Calculation based on Various Census Reports for 1991 and 2001 and NSSO Reports of 50th, 55th, 61st, and 66th Rounds .

The above table explains the share of rural non-farm employment in India and in the NER pertaining to the periods of 1991 and 2001 based on census data and for the periods of 1993-94, 1999-2000, 2004-05 and 2009-11 based on NSSO data . Undoubtedly, based on both the data sources, it is evident that in the country and NER, there has been a continuous sectoral shift in favour of non-farm employment in rural areas. In both the cited census years i.e., 1991 and 2001, the percentage share of RNFE in NER is higher than the national average. NSS data, also reveal that the share of RNFE in NER has been higher than the all India level for the periods of 1993-94, 1999-2000 and 2009-11.

4.1. Trends in Male and Female RNFE in India and NER

In the literature review on RNFE undertaken by many, we find the mention of different proportions of non-farm employment with respect to male and female workers (gender bias in non-farm activity space). To know the north east situation in this respect, we have separately found out the percentage share of

male and female RNFE in total male and female employment with respect to each of the census periods and NSSO rounds.. These data have been reported in table below.

Table 4.2

Male-Female Employment in the Rural Non-Farm Sector in NER and INDIA

NER/ INDIA	Male/Female	Census		NSS			
		Percentage Share		Percentage Share			
		1991	2001	1993-94	1999-00	2004-05	2009-10
NER	Male	26.6	34.6	28.2	27.7	30.1	35.8
	Female	10.4	20.9	18.6	20.0	19.3	33.9
	Gender Gap(% point)	**6.2**	**13.7**	**9.6**	**7.7**	**10.9**	**1.9**
India	Male M	20.2	22.8	25.9	28.6	33.5	37.2
	Female	10.4	13.5	13.8	14.6	16.7	20.6
	Gender Gap(% point)	**10.8**	**9.3**	**12.1**	**14.0**	**16.8**	**16.6**

Source: Author's Calculation based on Various Census Reports for 1991 and 2001 and NSSO Reports of 50th, 55th, 61st, and 66th Rounds .

As is evident in the table 4.2, both at the NER and national levels, based on Census and NSSO data sources, the percentage share of male RNFE in total male rural employment has been higher than the percentage share of female RNFE in total female employment for the two consecutive census periods and the four mentioned NSSO rounds. This reveals the existence of a gender gap in the non-farm activity space in the rural economy of the NER and the country. However, this gender gap measured in terms of percentage point difference, has significantly narrowed down in 2009-10 in the NER vis-à-vis the country. At the all India level it still stands at 16.6 percentage point, whereas at the NER level it is only 1.9 percentage point, as per NSSO 66th round. What is interesting is that this gender-gap has continuously been increasing at the national level, whereas, at the NER level it has been erratic, going by the NSSO estimates for the last four rounds.

4.1.1. State wise Non-Farm Employment in North Eastern Region

Table 4.3 represents the situation of the individual states in NER with regard to their percentage share of RNFE.

Table 4.3

State wise Percentage Share of Rural Non-farm Employmentin NER

State/NSSO Rounds	50th Round (1993-94)	55th Round (1999-00)	61st Round (2004-05)	66th round (2009-10)	Growth Rates 1993-94 to 2009-10
Arunachal Pradesh	13.6	16.6	18.1	24.3	3.54
Assam	20.8	32.3	25.7	29.5	2.12
Manipur	36.2	24.7	30.7	46.6	1.53
Meghalaya	14	13.5	18.2	29.3	4.53
Mizoram	11.1	14.5	12.6	19.4	3.41
Nagaland	25.1	20.3	20.7	25.9	0.19
Tripura	52.4	54.3	56.8	69.4	1.7
North-East	24.7	25.2	26.1	35	2.18

Source: Author's Calculation Based on NSSO Reports of 50th, 55th, 61st, and 66th Rounds.

From the above table of the trends of RNFE in the states of NER, we can see that all the seven states have experienced an increase in the percentage share of RNFE. However, among, sates there are regional variations with regards to its percentage shares at different periods. In 2009-10, in Tripura, 69.4 percent of its rural workforce is engaged in nonfarm activities; where as the lowest percentage of RNFE of 19.4 percent is seen in the state of Mizoram. Nagaland has undergone the lowest annual growth rate in RNFE (0.19%), where as Meghalaya has experienced the highest growth rate of 4.53%. Nagaland is the only state where the share of RNFE has almost remained stagnant during this period of 1993-94 to 2009-10.

4.1.2. Male and Female in RNFE in states of NER

The table below presents the male and female work participation in the non-farm sector with regards to the four NSS rounds.

Table 4.4

State wise Male/Female RNFE in NER

States	Male/Female	Year				Percentage point change(1993-94 to 2009-10)
		1993-94	1990-00	2004-05	2009-10	
Arunachal Pradesh	Males	24.4	24.4	26	29.6	5.2
	Females	3.8	4.9	7.3	13.7	9.9
Assam	Males	21.8	35.3	30.4	33.4	11.6
	Females	16.8	20.6	11.7	13.8	-3
Manipur	Males	34	22	30.6	39.3	5.3
	Females	39.7	30.4	30.9	65	25.3
Meghalaya	Males	17.5	14	20.8	30.7	13.2
	Females	9.5	12.7	15.2	26.9	17.4
Mizoram	Males	13.4	14	15.1	21.2	7.8
	Females	6.6	12.5	8.9	16.4	9.8
Nagaland	Males	31.5	29.5	30.4	32.4	0.9
	Females	10.7	8.1	9.6	15.3	4.6
Tripura	Males	54.5	54.7	57.6	64.2	9.7
	Females	43.4	50.9	51.4	86.4	43
North-East	Males	28.2	27.7	30.1	35.8	7.6
	Females	18.6	20.0	19.3	33.9	15.3

Source: Author's Calculation Based on NSSO Reports of 50th, 55th, 61st, and 66th Rounds.

As it is evident from this table, except for Tripura and Manipur, the male share of RNFE has continuously been higher than the female share of RNFE in the rest five states of the region. However, the percentage point increase in the share of female RNFE during the period 1993-94 to 2009-10 has been reasonably higher vis-a-vis male share of RNFE in all the NER states except Assam. This increase has been as much as by 43 percentage points in case of Tripura. In this state the share of female RNFE has been lower than the share of male RNFE for the initial three NSS Rounds, but it has suddenly surpassed the male RNFE in 2009-10. This situation is totally different from the female RNFE situation in Assam. In Assam, the share of the female RNFE has undergone a secular decline and it is the only state in NER that has experienced negative percentage point change in female RNFE during the period 1993-94 to 2009-10. This may be indicative

of feminization of agriculture happening in Assam. In case of Tripura, we find out construction as the sector that has led to such an abnormal increase in female RNFE in 2009-10 and here again it is the subsidiary status in construction that has led to such phenomenal increase. This subsidiary employment status in construction sector for women mostly means casual employment. The other state to undergo such a significant increase in female RNFE has been Manipur. Here also it is the subsidiary employment in construction sector that has led to such a high increase in the share of female RNFE. It is hypothesized that programmes like MGNREGA have contributed to the growth of these employments in the construction sector.

4.2. Size and Class of RNFE in the North East

As we do not have access to disaggregated level data of NSSO, we could not classify the concentration of RNFE in NSS regions in to classes. In turn, making use of Census data, we could group the concentration of RNFE in to different classes and associate it with the number of districts. In doing so, we find that there has been an increase in the number of districts in 20 to less than 30 percent RNFE class in 2001 compared to 1991(table 4.5).

Table 4.5

Size and Class of RNFE across Districts in NER

RNFE Percentage Class	Frequency (No of districts)	
	1991	2001
10	6	0
10 to <20	26	12
20 to <30	18	23
30 to <40	4	14
40 to <50	3	6
≥50	0	2
Total	57	57

Source: Based on the Author's Calculation on Various Census Reports for 1981, 1991 and 2001.

Further in 1991, the highest RNFE concentration class was 10 to less than 20. In 2001, this has graduated to 20 to less than 30 percentage class. Another interesting reading is that in 2001, the number of districts in 30 to less than 40 percent class has significantly increased compared to 1991. There are eight

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districts in the region having RNFE concentration of more than 40%. All these point out the increasing role of RNFE in the total rural employment in NER.

4.3. Mean and Dispersion of RNFE Concentration in NER

Table 4.6

Calculated Mean and Standard Deviation of Concentration of RNFE in NER (Percent).

	1991	**2001**
Mean	20.3	28.7
Standard Deviation	8.14	11.29

Source: Based on the Author's Calculation on Census Reports for 1991 and 2001.

The average percentage concentration of RNFE in the NER has increased from 20.3 percent in 1991 to 28.7 percent in 2001. Along with this, the standard deviation of this concentration has also increased. This suggests the increasing unevenness in the spatial concentration of RNFE in NER during the period 1991-2001. This is a matter of concern as it also reflects upon the increasing unevenness in development-impact in NER and also increasing regional imbalance amongst states in the region.

4.4. Composition of RNFE in NER

After analyzing the trends and changes in the relative shares of RNFE, it becomes necessary to find out the specific sectors among all the constituents of RNFE which have become more dynamic in terms of growth of employment in NER. Table 4.7 below examines the trends in the composition of RNFE at the NER and national levels over the period 1993-94 to 2009-10 based on NSS data.

From this table, it is seen that at the NER level up to 2004-05, the services sector (public administration etc.) formed the highest share of RNFE. This situation has changed in 2009-10. In 2009-10, the construction sector has overtaken it and its relative share of 31.3 percent is even higher than the national average of 29.3 percent.

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Table 4.7

Composition of RNFE in North-East and India as Per Usual status (PS+SS) by Broad Industry Division for the Various NSSO Rounds (in percentage): Persons

Industrial Categories	NER				India				Growth Rate	
									NER	India
	1993-94	1999-00	2004-05	2009-10	1993-94	1999-00	2004-05	2009-10		
Mining & quarrying	0.8	1.1	1.1	2.0	2.8	2.1	1.8	1.9	8.14	0
Manufacturing	13.9	11.5	13.0	10.0	32.4	31.1	29.7	22.4	0.18	0.17
Electricity, water, etc.	1.2	0.8	1.1	0.6	0.9	0.8	0.7	0.6	-2.5	0
Construction	10.2	10.7	14.1	31.3	11.1	13.9	17.9	29.3	9.7	8.9
Trade, hotel & restaurant	18.8	19.4	23.4	21.3	19.9	21.4	22.3	19.9	3.1	2.51
Transport, storage and communication	5.3	5.1	6.6	6.6	6.5	8.8	9.2	9.1	3.63	4.65
Fin. inter, business act. etc.	0.8	0.8	0.8	1.1	1.4	1.3	1.8	1.9	4.42	4.42
Public admn., education, community service etc.	49.0	50.6	39.9	27.1	25.0	20.6	16.6	14.9	-1.44	-0.73

Source: Author's Calculation based on NSSO Reports of 50th, 55th, 61st, and 66th Rounds.

The services sector has experienced a secular fall. Next to construction, it is the trade, hotel and restaurant sector that has emerged as a dynamic sector within the RNFE space in NER. In terms of growth rate too, the construction sector has experienced the highest growth of 9.7 percent during the period 1993-94 to 2009-10. As has been explained earlier, this high rise in the share of construction sector in RNFE in NER can be attributed to the implementation of MGNREGA in providing manual work in road and other construction activities in the region and more aggressively in the state of Tripura along with a spurt in public as well as private construction works.

4.4.1. Composition of Male-Female Work Participation in RNFE

The two tables below show the percentage shares and growth rates of male and females in the various sectors of RNFE in the NER.

Table 4.8

**Composition of RNFE in North-East and India as Per Usual Status
(PS+SS) by Broad Industry Division (in percentage): Males and Females**

Industrial Categories		NER				India				Growth Rate	
		1993-94	1999-00	2004-05	2009-10	1993-94	1999-00	2004-05	2009-10	NER	India
Mining & Quarrying	Male	1.0	1.0	1.3	2.8	2.7	2.1	1.8	2.2	7.8	0.83
	Female	1.6	1.5	0.5	0.6	2.8	2.1	1.8	1.5	-2.5	-1.78
Manufacturing	Male	9.6	7.1	7.7	7.6	27.1	25.4	23.6	18.9	0	0
	Female	35.3	27.0	29.0	16.6	49.6	50.7	50.2	36.4	-1.02	0.43
Electricity, water, etc.	Male	0.7	0.7	1.7	0.8	1.2	0.7	0.6	0.5	2.56	-2.5
	Female	0.5	0.0	0.0	0.0	0.7	0	0	0	-100	-100
Construction	Male	11.0	12.5	15.7	25.2	12.3	15.7	20.2	30.4	6.88	8.2
	Female	5.9	4.5	7.8	47.7	6.5	7.5	8.9	25.2	18.2	11.6
Trade, hotel & restaurant	Male	20.6	17.9	22.0	21.6	21.2	23.7	24.8	22.2	1.78	2.52
	Female	14.5	15.5	20.2	18.0	15.1	13.7	14.8	13.7	5.22	1.81
Transport, storage and communication	Male	6.4	6.5	8.3	9.0	8.5	11.2	11.3	11.0	3.66	3.96
	Female	1.0	0.5	0.5	0.0	0.7	0.7	1.1	0.9	-100	4.42
Fin. Inter, business. Etc.	Male	1.5	0.7	1.0	1.1	1.5	1.7	2.1	1.9	0	3.55
	Female	0.5	0.5	0.5	0.0	0.7	0.7	0.6	0.9	-100	4.42
Public adm., education, community service etc.	Male	49.2	53.6	42.3	31.9	25.5	19.5	15.6	12.9	-1.23	-1.97
	Female	40.7	50.5	41.5	17.1	23.9	24.6	22.6	21.4	-1.67	2.01

Source: Author's Calculation Based on NSSO Reports of 50th, 55th, 61st, and 66th Rounds.

Decomposing the RNFE space with gender provides us with insightful findings. For the Females, up to 2004-05, public administration, education and community service (i.e. the services sector) was the sector accounting for more than 40 percent of the employment share in RNFE. This underwent a significant change in 2009-10, with construction sector emerging as the leading sector in female RNFE space accounting for nearly 48 percent of the employment share. Between the two rounds i.e. 2004-05 and 2009-10, the share of the construction sector has increased by 40 percentage points, which is a phenomenal rise. A significant percentage of it might have come as subsidiary employment status in public employment programmes like MGNREGA, explaining thus the increased casualisation of RNFE space in the NER. Another interesting finding is that except the construction and trade & hotel sectors, the other six sectors have witnessed negative annual growth during the period 1993-94 to 2009-10.

Female employment in construction sector exhibits a significant annual growth of 18.2 percent against 6.8 percent of male employment.

For the males, the services sector still occupies the highest employment share (32 %) in 2009-10 followed closely by the construction sector (25%) and the trade and hotel sector (22%). The male RNFE space is relatively more diverse than the female RNFE space.

4.4.2. State wise Sectoral Growth Rate of RNFE

Analysis of state wise and sector wise growth rate of RNFE(table 4.9) in the north east reveals that during the period 1993-94 to 2009-10, construction sector has experienced the highest growth in the states of Assam, Manipur and Tripura. In Arunachal Pradesh, it is the transport, storage and communication sector, in Meghalaya it is the mining sector and in Nagaland it is the manufacturing sector which have emerged as leading sectors in terms of positive growth rate in RNFE. However, it is the construction and trade & hotel sectors that have experienced reasonably modest positive growths in all the seven states of the NER.

Table 4.9

State wise Sectoral Growth Rate of RNFE in Different States of NER

States/ Industrial Category	Mining & quarrying	MFG.	Electricity, water, etc.	Construc-tion	Trade, hotel & restaurant	Transport, storage and communi-cation	Fin. inter, bus. etc.	Public Admn./ Edn./ Com. Ser. etc.
Arunachal Pradesh	NA	3.5	0.7	4.7	19.1	0.4	-1.8	2.7
Assam	2.5	0	NA	10.5	2.0	4.7	5.8	1.3
Manipur	7.1	-2.1	NA	10.4	5.8	1.8	-8.9	-1.5
Meghalaya	11.6	6.1	-6.6	8.3	4.4	6	NA	1.4
Mizoram	NA	5.6	NA	9.5	4.2	12	NA	1.1
Nagaland	-12.1	11.2	5.8	5.2	2.1	8.1	NA	-2.4
Tripura	NA	0.7	NA	11.5	0	1.2	NA	-6.7

Source: Author's Calculation Based on NSSO Reports of 50th, 55th, 61st, and 66th Rounds .

4.5. Determinants of RNFE in the NER

As discussed in the introduction chapter, at the macro level, agricultural growth, urbanisation, literacy, poverty, infrastructural development, commercialisation of agriculture etc. have been identified as the important determinants of RNFE. However, when it comes to NER as a whole, secondary data with regard to some of these variables are not available and in some cases the quality is poor. With

this limitation in sight, we have attempted a correlation and a regression analysis to find out the factors responsible for diversification of the employment situation in the rural economy of the NER.

Table 4.10

Correlates of RNFE in NER 2001

	PNFE	TCA	LIT	URB	INFIND
PNFE	1.000	.245***	.195	.165	.565*
TCA	.245***	1.000	-.326**	-.281	-.127
LIT	.195	-.326**	1.00	.586*	.411**
URB	.165	-.281	.586*	1.000	.629*
INFIND	.565*	-.127	.411**	.629*	1.00

*Correlation is significant at 0.01 level

**Correlation is significant at 0.05 level

*** Correlation is significant at 0.10 level

Table 4.10 reports for 2001 the correlation coefficient of Percentage of Non-Farm Employment (PNFE) with variables such as Total Cropped Area(TCA), LIT(Literacy Percentage), Urbanisation Percentage(URB) and Infrastructure Index(INFIND). PNFE, URB, LIT has been calculated from census data of 2001. TCA for 2001 has been taken from India Stat.Com and INFIND 2001 has been taken from the recently prepared estimates of Department of North Eastern Region (DONeR), Government of India. This correlation matrix shows a positive and statistically significant (at 1 percent level) correlation between PNFE and INFIND and positive and statistically significant (at 10% level) correlation between PNFE and TCA. The correlation coefficients between PNFE and URB and PNFE and LIT although positive are not statistically significant.

Putting these data in a linear regression model gives the following regression equation.

PNFE2001= -5.246+3.983TCA**+0.190LIT-0.228URB+0.168INFIND*

*Significant at 0.01 level and ** Significant at 0.05 % level.

R2 =0.469, Adjusted R2 0.424, F=10.391(significant at 1% level)

The results of this regression and correlation analysis explain that the growth of RNFE in the North East is basically because of the growth of infrastructure and agricultural growth. Agricultural growth here is represented by total cropped area (TCA). When it comes to infrastructure building in the NER, it is mostly the contribution of the Government. In fact this result read with the fact that

the services sector forms the highest share of employment within RNFE in NER, brings out clearly the role of Government in promotion of RNFE. The improvement in the field of physical and institutional infrastructure in the NER is largely due to the involvement of Government in this field. Similarly, the significance of agricultural growth in promoting RNFE can be explained in terms of consumption and production linkages.

Chapter Five

RNFE in North East-
Analysis of Field Data

In this chapter we report the socio-economic profile of the sample households, occupational characteristics of sample households and finally the determinants of the participation of households in non-farm activities.The village wise distribution of the selected sample households has already been presented in Table 3.1 in chapter 3. As mentioned in that chapter, data have been collected from 1000 hhs. spread over 10 villages and 5 districts in Assam and Meghalaya. Of these five districts three districts i.e. Nagaon, Jorhat, and Kamrup belong to Assam and two districts i.e. Jaintia Hills and Ribhoi to Meghalaya. The analyses based on the primary data collected from the villages are presented in the following tables:

5.1 Household Size and Type

Table 5.1

Sample Household Size and Type

Village	Size of HH	Household Type		Sex of the Head of Household		Total
		Nuclear	Joint	Male	Female	
Beztula	4.35	43	57	90	10	100
Nadia	5.06	67	33	87	13	100
Tarajan	4.36	113	4	84	32	117
Azan Gaon	4.6	82	18	93	7	100
Halowa gaon	4.3	83	0	65	18	83
Niz-Narikoli	4.2	50	50	98	2	100
Nongbah	6.6	61	39	85	15	100
Ummulong	5.7	96	4	81	19	100
Byrnihat	5.2	58	42	79	21	100
Lawbyrwah	6.04	100	0	56	45	100
Average/Total	**5.04**	**753(75.3)**	**247(24.7)**	**818(81.8)**	**182(18.2)**	**1000**

Source: Field Data
Figures in the Parenthesis Indicate Percent of the Total

From Table 5.1, it is seen that the average size of the sample household is 5.04. About 75 percent of the households are nuclear households and 25 percent happen to be joint households. Eighty two percent of the sample households are male headed and 18 percent are female headed.

5.2. Farm and Non-Farm Households

Table 5.2 presents the number of farm and non-farm households in each of the selected villages. Out of the 1000 sample households surveyed, 663 are nonfarm and 337 belong to farm HH.

Table 5.2

Sample Households by Farm and Non-Farm Category

Village	Farm/Non-farm		
	F	NF	Total
Azan Gaon	13	87	100
Beztula	0	100	100
Byrnihat	63	54	117
Halowa gaon	30	70	100
Lawbyrwa	47	36	83
Nadia	46	54	100
Niz-Narikoli	40	60	100
Nongbah	43	57	100
Tarajan	2	98	100
Ummulong	53	47	100
Total	**337**	**663**	**1000**

Source: Field Data

5.3 Occupational Distribution of Households

From table 5.3, it is evident that the highest percentage of people (30 percent) in all the villages under study depend on cultivation as their main occupation. This is closely followed by the other services sector including govt. service (28%) and trade & commerce sector (26%). The lowest dependent and practiced occupation is manufacturing (1% only). Analysing these figures district wise, it is seen that (table 5.4), there is great degree of unevenness in occupational distribution of households.

Table 5.3

Village-wise Classification of Households by Principal Occupation

	Cultivator	Agricultural labourer	Manufacturing	Constructions	Trade & commerce	Transport	Services	Total
Azan Gaon	13(4.40)			13(16.04)	21(8.17)		53(19.00)	100
Beztula				34(41.97)	37(14.40)		29(10.39)	100
Byrnihat	63(21.36)		1(7.69)		47(18.29)	4(12.5)	2(0.72)	117
Halowa gaon	30(10.17)				10(3.89)		60(21.51)	100
Lawbyrwa	47(15.93)		3(23.07)		19(7.39)	11(34.38)	3(1.08)	83
Nadia	47(15.93)			25(30.86)	13(5.06)		15(5.38)	100
Niz-Narikoli	40(13.56)		1(7.69)	9(11.11)	18(7.00)		32(11.47)	100
Nongbah		43(100)	2(15.38)		36(14.00)	12(37.5)	7(2.51)	100
Tarajan	2(0.68)				21(8.17)		77(27.60)	100
Ummulong	53(17.97)		6(46.15)		35(13.62)	5(15.63)	1(0.36)	100
Total	295(29.5)	43(4.3)	13(1.3)	81(8.1)	257(25.7)	32(3.2)	279(27.9)	1000

Source: Field Data

Note: Figures in Parenthesis are Percent of the Total

About 37 percent of the households (table 5.4) are engaged in cultivation in Ribhoi district of Meghalaya. All the households engaged in agricultural labour as their main activity, are in the district of Jaintia Hills. Similarly, 62 percent of the households having manufacturing as their main occupation are in Jaintia Hills, whereas 73 percent of households engaged in constructions as their main activity are in the district of Kamrup. It is only with respect to the households engaged in trade & commerce that are relatively evenly distributed amongst the five selected districts. Analysing the concentration of these occupations village wise, the unevenness in its spread is also evident. All the households engaged in agricultural labour are in Nongbah village. Similarly, 73 percent of the households engaged in construction are located in the two sample villages of Beztula and Nadia.

Table 5.4

District- wise Classification of Households by Principal Occupation

District	Cultivator	Agricultural labourer	Manufacturing	Constructions	Trade & commerce	Transport	Services	Total
Jorhat	15(5.08)	0	0	13(16.05)	42(16.34)	0	130(46.59)	200
Kamrup	47(15.93)	0	0	59(72.84)	50(19.45)	0	44(15.77)	200
Naogaon	70(23.73)	0	1(7.69)	9(11.11)	28(10.89)	0	92(32.97)	200
Ribhoi	110(37.29)	0	4(30.76)	0	66(25.68)	15(46.87)	5(1.79)	200
Jaintia Hills	53(17.97)	43(100)	8(61.54)	0	71(27.62)	17(53.12)	8(2.86)	200
Total	295(29.5)	43(4.3)	13(1.3)	81(8.1)	257(25.7)	32(3.2)	279(27.9)	1000

Source: Field Data

Note: Figures in Parentheses are Percent of the Total.

The whole dynamics involved in employment/occupation diversification cannot be fully understood without knowing the details about supplementary occupations/employment sources of selected households. Table 5.5 and 5.6 represent the supplementary/secondary occupation details of the households' district wise and village wise respectively.

Table 5.5

District Wise Classification of Households by Secondary Occupation

Districts	No Secondary Occupation	Cultivator	Agricultural labour	Livestocks	Mfg.	Construction	Trade & Commerce	Transport	Services	Total
Jaintia Hills	114(17)	1(3)	52(32.5)	1(50)	4(57)	12(50)	7(11)	2(33.3)	7(28)	**200(20.2)**
Jorhat	122(17.9)	5(15.6)	40(25)	1(50)			20(32)	2(33.3)	10(40)	**200(20)**
Kamrup	143(20.9)	25(78)	12(7.5)		2(28)	5(20.8)	10(16)		3(12)	**200(20)**
Nagaon	145(21)		35(21.8)			1(4.2)	15(24)	2(33.3)	2(8)	**200(19.9)**
Ribhoi	158(23)	1(3)	21(13.1)		1(14)	6(25)	10(16)		3(12)	**200(19.9)**
Total	**682(68.2)**	**32(3.2)**	**160(16)**	**2(0.2)**	**7(0.7)**	**24(2.4)**	**62(6.2)**	**6(0.6)**	**25(2.5)**	**1000**

Source: Field Data

Note: Figures in parentheses are percent of the total

Table 5.6

Village Wise Classification of Sample Households by Secondary Occupation

Village	No Sec. Occupation	Cultivator	Agricultural labourer	Livestocks	Mfg.	Constructions	Trade & Commerce	Transport	Other services	Total
Azan Gaon	55(8)		31(19.4)				5(8)		9(36)	100(10)
Beztula	83(12.2)	2(6.3)	3(1.9)			4(16.7)	7(11.3)		1(4)	100(10)
Byrnihat	87(12.6)	1(3)	16(10)			5(20.8)	7(11.3)		1(4)	117(11.6)
Halowa gaon	79(11.6)		5(3.1)				14(22.6)	2(33.3)		100(10)
Lawbyrwa	71(10.4)		5(3.1)		1(14.3)	1(4.2)	3(4.8)		2(8)	83(8.3)
Nadia	60(8.8)	23(71.9)	9(5.6)		2(28.6)	1(4.2)	3(4.8)		2(8)	100(10)
Niz-Narikoli	66(9.5)		30(18.8)			1(4.2)	1(1.6)		2(8)	100(9.9)
Nongbah	39(5.9)	1(1)	40(25)	1(50)	4(57)	1(4.2)	7(11.3)	2(33.3)	5(20)	101(10.1)
Tarajan	67(9.8)	5(15.6)	9(5.6)	1(50)			15(24.2)	2(33.3)	1(4)	100(10)
Ummulong	75(11)		12(7.5)			11(45.8)			**2(8)**	100(10.1)
Total	**682(68.2)**	**32(3.2)**	**160(16)**	**2(.2)**	**7(.7)**	**24(2.4)**	**62(6.2)**	**6(.6)**	**25(2.5)**	**1000**

Source: Field Data

Note: Figures in Parentheses are Percent of the Total

Table 5.5 and 5.6 show that about 32 percent of the households have some kind of secondary occupation. Of this 32 percent, only 3 percent undertake cultivation and 16 percent work as agricultural labourers. The rest 13 percent are engaged in different types of non-farm activities. Thus, the supplementary employment space is dominated by agricultural labour in our sample villages. Within the non-farm activity space, it is employment in trade and commerce sector that dominates, with a share of 6 percent of total supplementary occupation. In total, about 39 percent of the households having supplementary occupations in our sample villages are engaged in non-farm occupations. As with principal non-farm activities, here also the unevenness in the spread of the non-farm activities of the sample households is visible. Except in subsectors like trade & commerce, in the other non-farm occupation space, the spread is quite uneven.

5.4. Determinants of Participation of Households in Non-Farm Activities

As mentioned earlier during the course of literature review that the factors responsible for the expansion in RNFE can be basically pull(development) or push(distress) factors or a combination of them. Analysis of available secondary data for the year 2001 at the region level shows that the growth of RNFE in the north east has been basically because of the expansion of infrastructure and agricultural growth signifying the importance of pull (development) factors. We could not include the distress variable/s in the statistical models because of non-availability of appropriate data at the district level. However, in our household level data analysis we have included both the pull (development) variables like urban proximity, agricultural growth, access to credit, education of the head of the household as well as the push or distress variables like household poverty and land ownership. To determine the likelihood of the household engaging itself in non-farm occupation, we have constructed a binary logit model and the results of the model have been given in table 5.7. The model specification i.e. the variable details are given below:

(a) Dependent Variable i.e. engagement in primary occupation (PO) : PO=1, if engaged in non-farm , otherwise 0

(b) Independent Variables:

1. HEADEDU= Education of the Head of Household measured in terms of number of years of schooling.

2. HHSIZE= Size of the Household in terms of members

3. HHIAGL= Household Annual Income from Agriculture (proxy for agricultural growth)

4. LANDOWN= Land owned by the household

5. ACCRT_D= Access to Credit Dummy, =1 if, the household has access to credit; =0, otherwise.

6. HHPOV= Household Poverty Dummy, =1 if, the household is a BPL Household; =0, otherwise i.e. if APL Household.

7. DISNUC= Distance of the Household from the Nearest Urban Centre, measured in terms of KM.

Table 5.7

Determinants of Participation of Households in Non-Farm Activity: Binary Logistic Regression Results.

Variable	B	SE	WALD
HEADEDU	.036	.040	.777
HHSIZE	.102	.061	2.826
HHIAGL	.000*	.000	187.511
LANDOWN	-.034	.032	1.125
ACCRT_D	1.329*	.450	8.708
HHPOV	2.297*	.388	34.975
DISNUC	-.049*	.013	13.787
Constant	2.595*	.568	20.862
N	1000		
-2 Log liklihood	407.555		
Cox & Snell R Square	.581		
Nagelkerke R Square	.806		

* Significant at 1 percent level.

The model predictions are quite robust. The Cox & Snell as well as Nagelkerke R squares are high. The estimated Wald Statistic is very high for Household Income from Agriculture, Access to Credit, Household Poverty and Distance from Nearest Urban Centre. From the model result it is clear that the participation of the households in non-farm activity is significantly influenced by household income from agriculture, access to credit, household poverty and distance from nearest urban centre. Household income from agriculture (which is a proxy for agricultural growth) is positively and very significantly related with participation of the household in non-farm activities. This implies that agricultural growth in terms of leaving more surplus income with the households increases the capacity of the rural households to get engaged in other productive non-farm activities. This finding at the micro level considered with the positive significant impact of agricultural growth on non-farm employment at the macro level, makes it quite clear that non-farm employment growth in the NER has definitely happened

because of agricultural growth. Agricultural growth not only by means of consumption linkage but also by means of increasing the productive capacity of the rural economy (in terms of undertaking non-farm activities in producing goods and services) has expanded the magnitude and types of non-farm activities in the rural sector. The other development variables i.e. urban proximity and access to credit have also significantly affected the growth of RNFE in the study area. Access to credit variable is positively and significantly related with RNFE in the study area implying thereby that those households which have greater access to credit have diversified more into non-farm activities. Urban proximity variable DISNUC is negatively and significantly linked to the growth of RNFE implying thereby that lesser the distance of the household from nearest urban centre, the more is the scope to undertake non-farm activities.

The important distress or push variable that has influenced significantly the expansion of the magnitude of the non-farm activities in the study area is household poverty captured in terms of the household status of being BPL household or otherwise. Households having an annual income of 30000 or less have been classified as below poverty line households. The households' probability of participation in RNFE in the regression model is positively associated with the household status of being poor (BPL) households. Land owned is negatively associated with the probability of the households' participation in nonfarm activities, implying thereby that lower the magnitude of the land in possession, higher will be the probability of participation in non-farm activities. However, this relationship is not statistically significant.

Thus, both developments as well as distress factors are responsible for the growth of RNFE in the NER as evident from our household level data analysis.

Chapter Six

Summary, Conclusion and Policy Implications

The NER has experienced modest employment diversification in its rural economy. The share of RNFE in the region has increased from 18.54 percent in 1981 to 35 percent in 2009-10. The share of RNFE in NER has been higher than the all India level for the periods of 1981, 1993-94, 1999-2000 and 2009-11.The percentage share of male RNFE in total male rural employment has been higher than the percentage share of female RNFE in total female employment for the three consecutive census periods as well as the four NSSO rounds. This reveals the existence of a gender gap in the non-farm activity space in the rural economy of the NER and the country. However, this gender gap measured in terms of percentage point difference, has significantly narrowed down in 2009-10 in the NER vis-à-vis the country. At the all India level it still stands at 16.6 percentage point, whereas at the NER level it is only 1.9 percentage point, as per NSSO 66th round. What is interesting is that this gender-gap has continuously been increasing at the national level, whereas, at the NER level it has been erratic, going by the NSSO estimates for the last four rounds.

The percentage point increase in the share of female RNFE during the period 1993-94 to 2009-10 has been reasonably higher vis-a-vis male share of RNFE in all the NER states except Assam. This increase has been as much as by 43 percentage points in case of Tripura. In this state the share of female RNFE has been lower than the share of male RNFE for the initial three NSS Rounds, but it has suddenly surpassed the male RNFE in 2009-10. This situation is totally different from the female RNFE situation in Assam. In Assam, the share of the female RNFE has undergone a secular decline and it is the only state in NER that has experienced negative percentage point change in female RNFE during the period 1993-94 to 2009-10. This may be indicative of feminization of agriculture happening in Assam. In case of Tripura, we find out construction as the sector that has led to such an abnormal increase in female RNFE in 2009-10 and here again it is the subsidiary status in construction that has led to such phenomenal increase. This subsidiary employment status in construction sector for women mostly means casual employment. The other state to undergo such a significant increase in female RNFE has been Manipur. Here also it is the subsidiary employment in construction sector that has led to such a high increase in the share of female RNFE. It is hypothesized that programmes like MGNREGA have contributed to the growth of these employments in the construction sector.

There exits state wise variation in the share of RNFE. There has also been an increase in the number of districts in 20 to less than 30 percent RNFE class in 2001 compared to 1991. Further in 1991, the highest RNFE concentration class was 10 to less than 20 percent class. In 2001, this has graduated to 20 to less than 30 percentage class. The average percentage concentration of RNFE in the NER has increased from 20.3 percent in 1991 to 28.7 percent in 2001. Along with this, the standard deviation of this concentration has also increased. This suggests the increasing unevenness in the concentration of RNFE in NER.

The Services sector has experienced a secular fall in NER and it is the construction sector which has emerged as the leading sector of RNFE both in terms of percentage share and growth rate. Next to construction, it is the trade, hotel and restaurant sector that has emerged as a dynamic sector within the RNFE space. As has been explained earlier, this high rise in the share of construction sector in RNFE in NER can be attributed to the implementation of MGNREGA in providing manual work in road and other construction activities in the region and more aggressively in the state of Tripura along with a spurt in public as well as private construction works.

Analysis of filed data shows that Sixty six percent of these sample households were engaged in RNFE as their principal household occupation and the rest 34 percent on farm occupation. Within the non-farm sector, about 42 percent of households are engaged in services sector closely followed by 39 percent in trade and commerce sub-sector. Less than 1 percent of the households are engaged in manufacturing. There exits great degree of unevenness in the occupational distribution of households both at the district and village levels. About 32 percent of the sample households have some kind of secondary occupation. Of this 32 Percent, only 3 percent undertake cultivation and 16 percent work as agricultural labourers. The rest 13 percent are engaged in different types of non-farm activities. Thus, the supplementary employment space is dominated by agricultural labour in our sample villages. Within the non-farm activity space, it is employment in trade and commerce sector that dominates, with a share of 6 percent of total supplementary occupation. In total, about 39 percent of the households having supplementary occupations in our sample villages are engaged in non-farm occupations. As with principal non-farm activities, here also the unevenness in the spread of the supplementary non-farm activities of the sample households is visible.

Participation of the households in non-farm activity is significantly influenced by both pull and push factors. Analysis of secondary data shows that the growth of RNFE in the North East is basically because of infrastructure and agricultural growth. In fact this result read with the fact that the services sector forms the highest share of employment within RNFE in NER, brings out clearly the role

of Government intervention in promotion of RNFE. Similarly, the significance of agricultural growth in promoting RNFE can be seen in terms of creation of additional demand through consumption linkages. Analysis of field data explains that household income from agriculture, access to credit, household poverty and distance from nearest urban centre are the important variables that determine the participation of households in RNFE. Household income from agriculture (which is a proxy for agricultural growth) is positively and very significantly related with participation of the household in non-farm activities. This implies that agricultural growth in terms of leaving more surplus income with the households increases the capacity of the rural households to get engaged in other productive non-farm activities. This finding at the micro level considered with the positive significant impact of agricultural growth on non-farm employment at the macro level, makes it quite clear that non-farm employment growth in the NER has definitely happened because of agricultural growth. Agricultural growth not only by means of consumption linkage but also by means of increasing the productive capacity of the rural economy (in terms of undertaking non-farm activities in producing goods and services) ,has expanded the magnitude and types of non-farm activities in the rural sector. The other development variables i.e. urban proximity and access to credit have also significantly affected the growth of RNFE in the study area. Access to credit variable is positively and significantly related with RNFE in the study area implying thereby that those households which have greater access to credit have diversified more in to non-farm activities. Urban proximity variable DISNUC is negatively and significantly linked to the growth of RNFE implying thereby that lesser the distance of the household from nearest urban centre, the more is the scope to undertake non-farm activities.

The important distress or push variable that has influenced significantly the expansion of the magnitude of the non-farm activities in the study area is household poverty captured in terms of the household status of being BPL household or otherwise. Land owned is negatively associated with the probability of the households' participation in nonfarm activities, implying thereby that lower the magnitude of the land in possession, higher will be the probability of participation in non-farm activities. However, this relationship is not statistically significant. Thus, both development as well as distress factors are responsible for the growth of RNFE in the NER as evident from our household level of data analysis.

Policy Implications

The NE Region today suffers from a development crisis because of its historical neglect inflicted on it by the partition of the country, the elitist nature of its political arrangement, a perverse concept of development being perpetuated

where in development is considered as an exclusive offshoot of funds flow from Delhi, the declining per-capita cultivable land because of high population growth , the conflict between tradition and modernity and the meagre economic growth in the eighties and in the 1990s. Of late, the HDI for the region is higher than the national average. This has brought in increased empowerment of its people through civil society institutions like NGOs and student bodies. Expectations of the youth for jobs in the non-farm sector have also increased. Hence, there is no respite from diversification of employment from farm to non-farm. Our finding that both pull and push factors are responsible for growth of RNFE is perfectly in line with the manifestation of the socio-economic situations delineated above. With respect to the development factors, the role of agriculture, credit access, urbanisation, infrastructure are all found to be critical. The policy suggestion here would be to maximise on the full potential of these factors. Our own understanding is that with respect to all these four factors, their potential remain much underutilised in the region. The magnitude of agricultural productivity and the scale of commercialisation of agriculture in the region are below the national average. Much of agricultural productivity is hampered by the insignificant size and underdeveloped nature of the irrigation infrastructure compared to the national level. In fact, irrigation is one of the important infrastructures in the region that has regressed over the last three decades vis-a-vis the country. (Umdor and Panda, 2008). Access to credit is a recent phenomenon in the region particularly being spread through the SHG movement. Governments of the region need to fine tune it and calibrate the scale and efficiency of its selection and availability. Urbanisation should match improvements in the quantity and quality of transportation services between urban and rural areas.

Secondly, the unevenness in the spatial concentration of RNFE needs to be immediately tackled by intervention and inducement. A geographical mapping of the non-farm occupations can be carried out at the disaggregate level(district, CD Block, village etc) and further classification of the spatial spread in mapping can also be undertaken on the basis of the productivity and employment size of these occupations. This would lead to identify the leading sectors for policy intervention and appropriate interventions strategies can then be formulated to tackle this unevenness.

Thirdly, there exits a gender gap in the engagement of the households in RNFE. This needs to be bridged.

Fourthly, as our analysis reveals, it is poverty and to some extent the declining cultivable land- man ratio that push households to be engaged in low-end and low productive non-farm activities. This also reminds us the importance of planning in land use, land conversion and increasing the productivity of agriculture and crop diversification within agriculture.

Fifthly, since most of the infrastructure overheads like roads, irrigation channels etc. cut across state boundaries, the North Eastern Council (NEC) may be involved more intensely to take up such overheads so that its regional benefit impact is maximised and it gives impetus to the growth of high end non-farm jobs and activities in the region.

Finally, the necessity of sustained quality employment diversification in term of growth of more non-farm activities in the economy of the NER is all the more important, as this region is going to experience, in days to come, withdrawal of the state from some of its presently involved activities and lessen the scale of its operation in few other activities as an imperative of implementation of liberalisation and privatisation policies. A small retreat of the state from the public services segment of the services sector would mean a lot to the NER in terms of loss of jobs, as the absolute size of the presence of the state is as such large. Hence, governments of the region need to plan in advance how to encourage creation of more and more quality self-employments in the non-farm sector.

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