

DETERMINANTS OF RURAL NON-FARM EMPLOYMENT: A STUDY IN DIBRUGARH DISTRICT OF ASSAM

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ABSTRACT

Rural Non-farm sector has gained considerable importance as an alternative strategy for generating employment, reducing poverty, achieving higher rate of growth and development of rural areas. Majority of rural people nowadays are engaged in a variety of non-farm activities besides involving in farming which is their major activity. This study tries to assess the rural employment situation and also attempts to identify the factors which influence rural workforce to participate in non-farm employment as principal occupation. The study is based on primary data collected through field survey in two blocks of Dibrugarh district of Assam. In order to analyse the determinants that influence workforce to undertake non-farm activity as principal occupation, a Binary Logistic Regression Model is used. Five factors namely, land size, education level, household size, age and ratio of non-farm income to farm income have turned out to be significant determinants of rural non-farm employment.

Introduction

The economy of rural areas in India is predominantly based on agriculture and allied activities. Till today the share of workforce engaged in farm sector is about 52 per cent (NSSO 66th Round). But the contribution of agriculture and allied activities to India's GDP is only 14.5 per cent in 2010-11. This decrease in agriculture's contribution to Gross Domestic

Product from 30 per cent in 1990-91 to 14.5 per cent in 2010-11 has not been accompanied by a matching reduction in the share of agriculture in employment as more than half of the Indian population is dependent on agriculture directly or indirectly for sustenance. This has led to the widening gap of incomes between agriculture and non-agriculture sectors. The problem of rural unemployment and

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underemployment could not be solved because of the inherent structural problems associated with agricultural sector which is characterised by low productivity, unequal distribution of land, continuing high pressure of population on agriculture and increasing fragmentation of landholdings leading to decreasing availability of cultivated land area per household, failure to generate new productive employment opportunities to the growing labour force and thereby aggravating the problem of disguised unemployment. Despite the concerted efforts in the form of intensive cultivation, introduction of improved seeds and modern methods of cultivation introduced in recent years, agriculture has not come up to the desired levels of professionalism for providing remunerative employment. As a result, migration of people from villages to urban areas continues unabatedly resulting in capital drain from rural to urban areas. They mostly move to urban areas in search of better employment and income opportunities to improve their standard of living and to pursue higher education. All these factors have contributed to mismatched growth in the economy and inequity in the standard of living between rural and urban population (Kachru and Srivastava, 1990).

The rural non-farm sector has thus gained considerable importance nowadays as an alternative strategy for generating employment, reducing poverty, achieving higher rate of growth and development of rural areas. Majority of rural people in developing countries are engaged in a variety of non-

farm activities besides involving in farming which is their major activity. Some of the non-farm activities flow directly from agriculture or are closely related to it. Others are distinct, ranging from full-time but temporary wage employment in industry or construction to regular but part-time self-employment in home-based handicrafts and trading or other services (ILO, 1983). In India, economic opportunities in the non-farm sector have increased. The proportion of rural workers engaged in agriculture in relation to the total workforce remained stagnant at around 78 per cent until 1993-94 and then declined to 68 per cent in 2009-10 (Goswami and Bhattacharya, 2014). This breakaway from agriculture in favour of non-farm sector reflects the importance of the rural non-farm sector. In India, economic opportunities in the non-farm sector have been increasing. A combination of farm and non-farm income at the household level provides resilience against adverse situations in either of the sectors, though agriculture is known for more frequent adversity (More, 2014). The productivity and profitability in the non-farm sector are generally higher than in the farm sector and so people in rural areas are now accepting it as a substitute of farm activities. This indirectly helps in accelerating growth in rural areas by increasing the income of the rural people as non-farm wage is usually higher than the agricultural wage. It also provides security and reduces risk and uncertainty associated with farm income and reduces the pressure of labour on land.

The agricultural sector in Assam is traditional in nature with low level of technical progress and low productivity. Monocropping is generally practised which is characterised by huge underemployment in terms of unutilised labour time and low productivity. Agriculture has not been able to generate surplus for investment and augmenting purchase power and has failed to generate new employment avenues in order to absorb the increasing labour force. Moreover, factors like frequent occurrence of floods destroying crops, large number of small and fragmented landholdings, unequal land distribution structure, low use of modern agricultural inputs and negligible seed/variety replacement are threatening the livelihood sustainability of the rural people. In this context, the non-farm sector has emerged as an important segment of the rural economy in Assam in terms of employment to the growing labour force. The State witnessed a rising trend in the share of employment in the non-farm sector in rural areas in the post-liberalisation period. The annual compound growth rate share of employment in the non-farm sector was around 0.19 per cent during the period 1983-93, which significantly increased to 3.41 per cent during 1993-2010.

There has been very few significant works on rural non-farm employment in Assam, notably by Chakravorty (2006), Roy and Dey (2010), Saikia and Goswami (2013), and Goswami and Bhattacharyya (2014).

Rural households and individuals derive their incomes from diverse and multiple sources. Often large-scale official surveys found little or no information about their employment status, particularly about their secondary source of employment and income. In view of certain limitations of the aggregative nature of data provided by census and unavailability of unit level data of NSSO, it is essential to carry out micro level studies in order to capture the size, nature, composition and the main underlying factors influencing the people to be engaged in non-farm sector. So Dibrugarh district of Assam was selected for an intensive study about nature of rural non-farm employment.

Profile of the Study Area

Dibrugarh district is situated in the eastern part of Assam with tea and oil as the major revenue earning sources for the district. Large areas of both rural and urban areas are covered by tea gardens. The entire district has many oil and natural gas rigs owned by the Oil India Limited and Oil and Natural Gas Commission. People in rural areas are involved in cultivation of paddy, oilseeds, sugarcane, pulses and also in tea plantation. In rural areas of the district a large number of non-farm activities are performed by the farm households like bamboo and cane making, pottery making, making of handloom products, farm implements and utensils, selling of meat, vegetable vending, etc., in order to supplement their farm income. But the traditional hand-made products are facing stiff competition

from machine-made modern products. Moreover, cultivation is done only in one season and during the agricultural peak season people involved in agricultural activities are highly engaged in laborious farm activities. But during off-season they search for alternative employment opportunities in both rural and urban areas. Meanwhile more and more emerging non-farm activities are coming up in Dibrugarh district with increase in urbanisation and growing infrastructure which are creating avenues of non-farm employment.

Objectives

The specific objectives of the study are as follows:

- (i) To examine the rural employment situation in Barbaruah and Joypur blocks of Dibrugarh district;
- (ii) To identify the determining factors influencing rural workforce absorption in non-farm sector in the study area.

Methodology

The methodology adopted for the study on rural non-farm employment at household level in order to get a clear idea about the factors that influence workforce to undertake non-farm activities in Dibrugarh district is given below.

Sampling Design: Samples were drawn by following a multi-stage sampling technique using both purposive and random methods of sampling.

Selection of District: For the present study, Dibrugarh district was purposively selected from the nine districts of Upper Assam as it has the highest workforce participation rate in non-farm sector which is recorded to be 64.96 per cent as per census 2011. Here workforce participation rate in non-farm sector is defined as the percentage of workers in non-farm sector to total worker population, including main and marginal workers.

Selection of Blocks: Among the seven blocks of Dibrugarh district, viz., Barbaruah, Joypur, Khowang, Lahowal, Panitola, Tengakhat and Tingkhong, two blocks namely, Barbaruah and Joypur were selected on the basis of their proximity to various industrial sites, educational institutions, growing infrastructure which directly or indirectly influenced people to be engaged in non-farm sector. According to Unni (1991), urbanisation and development of infrastructure which emanate outside agriculture can lead to growth of non-agricultural activities within rural areas. Both these processes lead to shift of rural workers to productive jobs in the non-agricultural sector. Barbaruah block houses Dibrugarh University, newly established mega project- Brahmaputra Cracker and Polymer Limited (BCPL) and other growing infrastructures like Bogibeel bridge. Likewise, Joypur block is also a growing business hub due to its proximity to three main industries viz., Assam Petrochemicals Limited (APL), Brahmaputra Valley Fertiliser Corporation Limited (BVFCL) and Namrup Thermal Power Station. These industrial sites have transformed the area into a business hub creating various avenues of non-farm employment.

Selection of Villages: All the villages in the two blocks were selected on the basis of distance criterion from the urban centre which directly or indirectly influenced people to be engaged in non-farm sector. Distance to urban area gives an even distribution in access to markets and institutional environment. From the Barbaruah block three villages were selected. They are Gohain Gaon which is about 12 km, Hansora about 17 km and Nij Khanikar Gaon about 8 km from the Dibrugarh town. Likewise,

from Joypur block, three villages were selected. They are Faltutola which is about 6 km, Nigam about 10 km and Morankarigaon about 15 km from the Naharkatiya town.

Selection of Households: Finally from each of the sample villages 15 per cent of total households in each of the villages were selected randomly as the sample households for investigation. A total of 163 households were covered by the study.

Table 1: Design of the Sampling

District	Block	Total Number of Villages in the Selected Block	Name of Sample Villages (as per their proximity to the urban area)	Total Number of Households in Sample Villages	Number of Sample Households (15% of total households)
Dibrugarh	Barbaruah	190	Hansora (17 km)	90	14
			Gohain Gaon (12 km)	289	43
			NijKhanikar Gaon (8km)	196	29
	Joypur	185	Morankarigaon (15km)	112	17
			Nigam (10km)	215	32
			Faltutola (6km)	187	28

Survey Tools: Primary data were collected through a structured household questionnaire covering information on household particulars

such as age, education level, marital status, household type, family type, principal and subsidiary occupations, employment status, work

place of occupation, information on land, income from farm, income from non-farm activities, etc. Information was collected from the head or any other responsible member of the household. In our study, rural population working in urban areas and rural areas or in both rural and urban areas were included within the purview of rural non-farm work.

The study was conducted during July-September, 2014.

Results and Discussion

Demographic and Socio-economic Profile of the

Respondents: Before assessing the status of rural employment situation, a brief analysis of the demographic and socio-economic characteristics of households and workers of the selected villages of Dibrugarh district was made. This is depicted in Table 2.

Table 2: Demographic and Socio-economic Profile of the Respondents

Indicators	Sub-indicators	Barbaruah	Joypur	Total
Family type	Joint	30 (34.88)	36 (46.75)	66 (40.49)
	Nuclear	56 (65.12)	41 (53.25)	97 (59.51)
	Total	86	77	163
Caste	ST	18 (20.93)	28 (36.36)	46 (28.22)
	SC	1 (1.16)	4 (5.19)	5 (3.07)
	OBC/MOBC	66 (76.74)	37 (48.05)	103 (63.19)
	GENERAL	1 (1.16)	8 (10.39)	9 (5.52)
	Total	86	77	163
Household size (No. of family members)	0-5	66 (76.74)	50 (64.94)	116 (71.17)
	6-10	20 (23.26)	26 (33.77)	46 (28.22)
	10+	-	1 (1.30)	1 (0.61)
	Total	86	77	163
Age group	0-14	80 (20.30)	80 (20.51)	160 (20.40)
	15-59	282 (71.58)	266 (68.21)	548 (69.90)
	60+	32 (8.12)	44 (11.28)	76 (9.69)
	Total	394	390	784
Marital Status	Married	206 (52.28)	210 (53.85)	416 (53.06)
	Unmarried	166 (42.13)	164 (42.05)	330 (42.09)
	Widow/Widower	22 (5.58)	16 (4.10)	38 (4.85)
	Total	394	390	784
Size of landholdings (in hectares)	Less than or equal to 2 hectares	75 (87.21)	68 (88.31)	143 (87.73)
	Greater than 2 hectares and less than or equal to 5 hectares	9 (10.46)	9 (11.69)	18 (11.04)
	Greater than 5 hectares	2 (2.33)	-	2 (1.23)
	Total	86	77	163

Note: Figures within brackets represent percentages.

The sample households have been grouped under two forms of family pattern-joint and nuclear on the basis of family type. Out of total sample population, majority of the households fall under nuclear family (59.51 per cent) and 40.49 per cent fall under joint family. The percentage of joint family is more in Joypur (46.75 per cent) than in Barbaruah (34.88 per cent). It is found that households that live as joint family generally prefer to engage in diverse non-farm activities in order to supplement their household income.

The households were classified under four types of castes namely, Scheduled Tribe, Scheduled Caste, Other Backward Classes/ Minorities and General. Majority of the sample households belonged to OBC/MOBC (63.19 per cent), followed by ST population (28.22 per cent).

Household size is an important demographic determinant that affects workers' decision to be engaged in either farm or non-farm activity as a principal occupation (Atamanov, 2011). With an increase in household size the pressure on cultivated land and the number of dependents per worker increases. This increases the possibility that at least one working member would be in the non-farm sector to supplement the household income. Out of the total sample households, majority of household sizes were small (71.17 per cent). This implies that the family size is generally small comprising four to five members. Barbaruah block (76.74 per cent) has more households with small size than Joypur (64.94 per cent). Nowadays people

prefer to have small family due to economic problems.

The population was categorised into different age groups. It was observed that young dependents aged 0-14 years in the total sample population was 20.40 per cent while that of old dependents aged 60 years and above were 9.69 per cent. On the other hand, working age population of 15-59 years was 69.90 per cent. This population was more in Barbaruah block (71.58 per cent) than Joypur block (68.21 per cent).

Marital status of the sample population was categorised as married, unmarried, widow/ widower and divorcee. Of the total sample population, 53 per cent of the population was married, about 42 per cent was unmarried, about 5 per cent were widows/ widowers. In both Joypur (53.85 per cent) and Barbaruah (52.28 per cent) blocks, the percentage of married population is higher than the percentage of unmarried population and widows' population constitutes a small proportion.

Land is a basic physical asset in rural areas. Landholdings are generally small and fragmented. Majority of landholdings are marginal and with increase in population more and more operational landholdings are being fragmented. This has a negative impact on agricultural production. Most of the sample households possessed marginal and small landholdings (87.73 per cent). As agricultural income is less and agricultural activities are laborious, youth were reluctant to indulge themselves in agricultural activities and so many

households with large farm lands are opting for sharecropping.

Employment Situation

Occupational Status: Rural people pursue multiple occupations, which involve both farm and non-farm activities, to supplement their income. For analysing the employment status of the rural people in the study area, the occupations that rural workforce preferred were

first of all classified into principal and subsidiary occupations. When a person is pursuing more than one occupation, principal occupation is the one in which maximum labour time is spent. The other occupations were considered as subsidiary occupations in which relatively less labour time was spent. Principal occupations were then grouped under eight industrial categories as per industrial classification.

Table 3: Distribution of Sample Population by Principal Occupation

S. No.	Sector	Barbaruah	Joypur	Total
1.	Agriculture and allied activities	43 (24.29)	56 (35.89)	99 (29.73)
2.	Manufacturing	9 (5.08)	11 (7.05)	20 (6.00)
3.	Electricity, gas and water supply	3 (1.69)	-	3 (0.9)
4.	Construction	17 (9.60)	12 (7.69)	29 (8.71)
5.	Wholesale and retail trade, hotels and restaurants	24 (13.56)	17 (10.89)	41 (12.31)
6.	Transport, storage and communication	10 (5.65)	4 (2.56)	14 (4.20)
7.	Finance, insurance, real estate, business services	8 (4.52)	11 (7.05)	19 (5.71)
8.	Community, social and personal services	63 (35.59)	45 (28.84)	108 (32.43)
	Total	177	156	333 (100.00)

Figure 1: Distribution of Sample Population by Principal Occupation

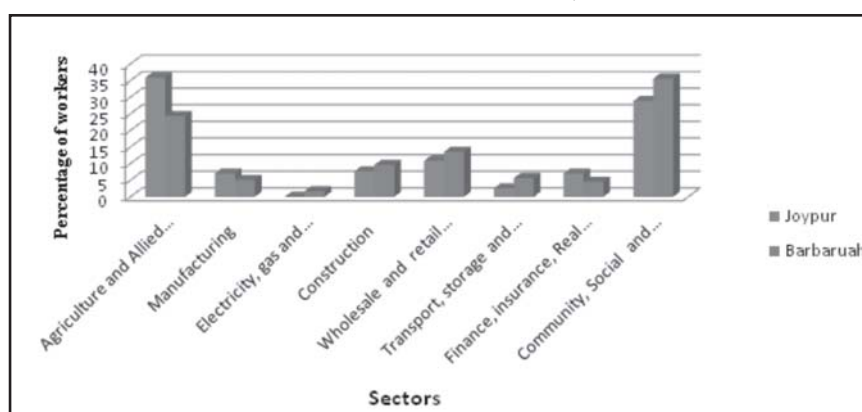


Table 3 reveals that out of total sample population, employment share as a principal occupation is highest in community, social and personal services (32.43 per cent) followed by agriculture and allied activities (29.73 per cent), wholesale and retail trade, and hotels and restaurants (12.31 per cent). Employment share in construction sector is 8.71 per cent which is higher in comparison to manufacturing sector (6 per cent). Between the two blocks, engagement in community, social and personal services are highest in Barbaruah than Joypur. They were engaged as clerks, chowkidars, storekeepers and employees in OIL, BCPL, BVFCL and Namrup Thermal Power Station, as teachers in various ventures and provincialised schools situated within the villages. Few women were engaged as ASHA workers and Anganwadi workers. Engagement in agriculture and allied activities was more in Joypur than Barbaruah. They were engaged in growing crops as well as rearing animals and setting up their own tea gardens in the vicinity of their house. Under wholesale and retail trade, hotels and restaurants sector, workers were engaged in selling of vegetables, fruits and meat. Few of them opened up dhabas (hotels) and tea stalls near roadside. They were engaged in various construction activities such as construction of roads, bridges, houses and in various industries such as BCPL, BVFCL and

thermal power stations. Workers engaged in finance, insurance, real estate and business services sector generally deal various businesses in sand and gravel. Few of them were involved as agents of various financial agencies like Rose Valley, Sahara, LIC, etc. Under transport and communication sectors, workers were engaged as rickshaw pullers, auto-rickshaw drivers, magic drivers, and van drivers. Within the manufacturing sector, workers in the surveyed blocks were engaged in various activities such as bamboo handicrafts, furniture making and manufacturing of concrete products such as bricks. Women were engaged in food processing activities such as pickle making, fish drying, etc., and were also involved in weaving under manufacturing sector.

In order to supplement their household income people, pursue subsidiary occupations. It is found that people who obtain high income from principal occupation still prefer to pursue some subsidiary occupations specially by engaging themselves in agricultural and allied activities provided they possess farm lands. People were generally seen to be engaged in farm activities specially in livestock and cultivation as their subsidiary occupations in both Barbaruah and Joypur blocks. This is depicted in Table 4.

Table 4: Distribution of Sample Population by Subsidiary Occupation

S. No.	Sectors	Barbaruah	Joypur	Total
01	Agriculture and allied activities	43 (95.56)	20 (86.95)	63 (92.65)
02	Mining and quarrying	1 (2.22)	-	1(1.47)
04	Electricity,gas and water supply	1 (2.22)	-	1(1.47)
05	Construction	-	1(4.35)	1(1.47)
06	Wholesale and retail trade, hotels and restaurants	-	1(4.35)	1(1.47)
08	Finance, insurance, real estate, business services	-	1(4.35)	1(1.47)
	Total	45	23	68 (100.00)

Note: Figures in parentheses show percentages.

Educational Status: Educational status of the principal workers who were employed under different industry groups are discussed in order to analyse how level of education would determine the type of economic activity an individual would be engaged in. This is depicted in Table 5.

Table 5: Sector-wise Distribution of Workers (as per their principal occupation) by Their Educational Attainment

S No.	Industry	Block	Illiterate	Primary	Middle Education Level	High School Level	Higher Secondary Level	Beyond Higher Secondary Level	Total
1.	Agriculture and allied activities	Barbaruah	8 (18.60)	10 (23.26)	9 (20.93)	7 (16.28)	9 (20.93)	-	43 (100.00)
		Joypur	10 (17.86)	9 (16.07)	7 (12.50)	14 (25.00)	13 (23.21)	3 (5.36)	56 (100.00)
2.	Manufacturing	Barbaruah	3 (33.33)	4 (44.44)	2 (22.22)	-	-	9 (100.00)	9 (100.00)
		Joypur	-	1 (9.09)	7 (63.64)	-	1 (9.09)	2 (18.18)	11 (100.00)
3.	Electricity,gas, water supply	Barbaruah	-	-	1 (33.33)	-	1 (33.33)	1 (33.33)	3 (100.00)
		Joypur	-	-	-	-	-	-	-
4.	Construction	Barbaruah	3 (17.65)	6 (35.29)	2 (11.77)	1 (5.88)	-	5 (29.41)	17 (100.00)
		Joypur	2 (16.67)	4 (33.33)	3 (25.00)	-	3 (25.00)	-	12 (100.00)
5.	Wholesale and retail trade, hotels and restaurants	Barbaruah	4 (16.67)	1 (4.17)	6 (25.00)	6 (25.00)	7 (29.17)	24 (100.00)	43 (100.00)
		Joypur	-	2 (11.77)	2 (11.77)	5 (29.40)	4 (23.53)	4 (23.53)	17 (100.00)
6.	Transport, storage and communication	Barbaruah	-	-	4 (40.00)	4 (40.00)	2 (20.00)	10 (100.00)	10 (100.00)
		Joypur	1 (25.00)	-	-	2 (50.00)	1 (25.00)	-	4 (100.00)

(Contd.....)

Table 5 (Contd.....)

7.	Finance, insurance, real Estate and business services	Barbaruah		5 (62.50)	1 (12.50)	2 (25.00)	8 (100.00)
		Joypur		3 (27.28)	4 (36.36)	4 (36.36)	11 (100.00)
8.	Community, social and personal services	Barbaruah	1 (1.59)	8 (12.69)	5 (7.94)	15 (23.81)	34 (53.97) 63 (100.00)
		Joypur	1 (2.22)	12 (26.67)	8 (17.78)	24 (53.33)	45 (100.00)

Note: Figures in parentheses show percentages.

In Barbaruah block, majority of the workers working in agriculture and allied activities as agricultural labourers and helpers in livestock keeping were educated up to primary level (23.26 per cent). On the other hand, in Joypur block, the level of education of the workers working in agriculture and allied activities was comparatively higher than Barbaruah, as majority workers were educated up to high school level. They were interested in growing commercial crops like tea which became a lucrative source of income. Majority of the workers working in manufacturing sector were educated up to middle education level in both the blocks. The workers engaged in electricity, gas and water supply were educated beyond middle education level in Barbaruah. In construction sector, majority of the workers were educated up to primary level in both the blocks. Wholesale and retail trade sector became an attractive source of income for educated youth. Majority of the workers engaged in this sector were educated beyond higher secondary level (29.17 per cent) in Barbaruah block and up to high school level in Joypur block (29.40 per cent). They indulged in various trading activities like opening up of electronic shops,

cloth shops and setting up of dhabas and lodges near roadside. Majority of the workers in transport and communication sector were educated up to high school level in the study blocks. With the improvement of road connectivity, many rural youth were inclined towards transport and communication sector. Majority of the workers dealing with finance, insurance, real estate and business services were educated up to high school level in Barbaruah block (62.50 per cent) and beyond higher secondary level (36.36 per cent) in Joypur block. They were generally working as insurance agents, postal agents and were also engaged in other business services. Majority of workers engaged in community, social and personal services sectors were educated beyond higher secondary level in Barbaruah (53.97 per cent) and Joypur (53.33 per cent) blocks.

Status of Employment of Rural Workers: An important dimension of employment is its composition in terms of status of employment of the rural workers. In order to examine the nature of employment it is divided into self-employment in agriculture and allied activities and non-agriculture activities, regular/salaried

employment and casual employment in agriculture and allied activities and non-agriculture activities. Self-employed are those who operate their own farm or non-farm enterprises or are engaged independently in a profession or trade on owner with one or few partners. Regular wage/salaried employees are those working in others' farm or non-farm enterprises and getting in return salary or wages on a regular basis. On the other hand, casual wage labour are those engaged in others' farm

or non-farm enterprises and getting in return wages according to the terms of the daily or periodic work contact (NSS 68th Round). Regular paid employment is generally considered secure and self-employment as fairly secure, even though income from certain types of self-employment activities might be highly irregular, inadequate and even uncertain (Sahu, 2012). But for the casual workers neither the duration of employment nor the income is certain.

Table 6: Distribution of Rural Workers by Their Status of Employment

S.No.	Status of Employment	Barbaruah	Joypur	Total
(i)	Self-employed in agriculture and allied activities	16 (26.67)	30 (48.39)	46 (37.71)
(ii)	Self-employed in non-agriculture	44 (73.33)	32 (51.61)	76 (62.29)
(iii)	Total self-employed (iii= i+ii)	60 (33.89)	62 (39.74)	122 (36.64)
(iv)	Regular/salaried	34 (19.22)	40 (25.64)	74 (22.22)
(v)	Casually employed in agriculture and allied activities	27 (32.53)	26 (48.15)	53 (38.69)
(vi)	Casually employed in non-agriculture	56 (67.47)	28 (51.85)	84 (61.31)
(vii)	Total casual employment (vii= v+vi)	83 (46.89)	54 (34.62)	137 (41.14)
	Total (iii+iv+vii)	177 (100.00)	156 (100.00)	333 (100.00)

Note: Figures within brackets represent percentages.

Table 6 reveals that the share of casual wage labourers (46.89 per cent) was higher than the share of regular/salaried employees (19.22 per cent) and self-employed (33.89 per cent) in Barbaruah block. And in Joypur block, the share of self-employed (39.74 per cent) was highest followed by the share of casual wage labourers (34.62 per cent) and regular employees (25.64 per cent). Among the self-employed, majority of them were engaged as self-employed in non-agricultural activities in both the blocks, by engaging themselves in petty trading business, opening up their own dhabas and indulging in transport, sand, gravel, brick-making, etc.

Educated youth nowadays are engaged as self-employed in various non-farm activities. Self-employed in various agriculture and allied activities set up various livestock farms, tea gardens and were growing crops commercially. Many of the regular wage earners were engaged in APL, BVFCL, Namrup Thermal Power Station and worked in various provincialised and government schools as well as in various developmental blocks. Among the casually employed workers, majority of them were engaged in non-agricultural activities in both the blocks, in construction and manufacturing activities. Those engaged as casually employed

in agriculture and allied activities were either engaged as agricultural labour in various farm activities or as casual labour in tea gardens.

Income Level: Income is the outcome of diverse portfolio of activities pursued by the rural households from cultivation, animal husbandry, casual wage work, regular wage work and self-employment in various non-farm activities. The level of income obtained depends upon various factors like level of education, skill attainment, employment opportunities available, whether the individual is indulged in

farm or non-farm activities, etc. It was found that income from non-farm was higher than farm income which influenced people in the working age group to be engaged in non-farm activities. The employment status of the individual who pursues non-farm activity will determine his/her income. If the individual is engaged as casual labourer or as wage labourer in non-farm activities, he/she earns lower income than those engaged as regular employee or as a self-employed. Table 7 below makes a comparison between annual income of farm and non-farm workers.

Table 7: Distribution of Farm Workers and Non-farm Workers by Annual Income Level (By Principal Status)

Income Category (₹)	Non-farm Workers			Farm Workers		
	Barbaruah	Joypur	Total	Barbaruah	Joypur	Total
Below 25000	9 (6.72)	2 (2.00)	11 (4.70)	15 (34.88)	17 (30.36)	32 (32.32)
25000-75,000	28 (20.90)	18 (18.00)	46 (19.66)	16 (37.21)	19 (33.93)	35 (35.35)
75000-1,00,000	12 (8.96)	13 (13.00)	25 (10.68)	4 (9.30)	1 (1.79)	5 (5.05)
1,00,000-1,50,000	30 (22.38)	11 (11.00)	41 (17.52)	4 (9.30)	8 (14.29)	12 (12.12)
1,50,000-2,00,000	20 (14.93)	10 (10.00)	30 (12.82)	3 (6.98)	7 (12.50)	10 (10.10)
Above 2,00,000	35 (26.11)	46 (46.00)	81 (34.62)	1 (2.33)	4 (7.14)	5 (5.05)
Total	134 (100.00)	100 (100.00)	234 (100.00)	43 (100.00)	56 (100.00)	99 (100.00)

Note: Figures in parentheses indicate percentages.

It is seen in Table 7 that out of the total sample non-farm workers, 34.62 per cent of them have annual income above ₹ 2 lakh and only 4.70 per cent have annual income below ₹ 25000. The percentage of non-farm workers whose income exceeds ₹ 2 lakh is higher in Joypur (46 per cent) than Barbaruah (26.11 per cent) as many of them are engaged as regular employees in schools, OIL, government offices, private services, thermal power, BVFCL, etc. And those with income range of below ₹ 25000 are

usually engaged as casual workers in various construction activities. But in case of farm workers, a contradictory picture is seen as 32.32 per cent of the farm workers earn income below ₹ 25,000 and 5.05 per cent earn income above ₹ 2 lakh. This shows that income obtained from farm activities is low and the people engaged in farm activities usually grow crops for meeting their own consumption needs and not for commercial purpose. A few of them whose income is above ₹ 2 lakh are generally engaged

in tea plantation which has turned out to be a lucrative source of income for the rural people.

Determinants Influencing Rural Workforce Absorption in Non-farm Sector: A Household Level Analysis

In this section, a special effort has been made to analyse the determinants which influence the workforce to undertake non-farm activities as principal occupation. To attribute weightage to these determinants in view of the discontinuation of the dependent variable, a Binary Logistic Regression Model was used. In order to determine the principal occupation, the majority time criterion was followed, i.e., occupation in which the household head had spent relatively longer time during 365 days preceding the date of survey. In logit model, the dependent variable is a dummy, i.e., a dichotomous variable which takes the value of 0 and 1. The probability of being engaged in non-farm occupation is measured by the logarithm of the odds ratio for the household to be engaged in non-farm employment. Here it takes the value of 1 if the household head is engaged in any non-farm activity as a principal occupation and 0 if he/she is engaged in farming activities.

The Functional Form of the Model: In order to analyse the determinants that influence workforce to undertake non-farm activities as principal occupation, a Binary Logistic Regression

Model is applied. To attribute weightage to these determinants in view of discontinuation of the dependent variable, whether or not the household head is engaged in non-farm activity as a principal occupation, the following model is used.

$$\ln \left(\frac{\hat{y}}{1-\hat{y}} \right) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + u$$

where \hat{y} = The probability that the household head is engaged in non-farm activity as a principal occupation which is coded as 1;

$1-\hat{y}$ = The probability that the household head is engaged in farming activity as a principal occupation is coded as 0;

u = disturbance term

$\beta_1, \beta_2, \beta_3, \dots$ stand for the coefficients of the predictor variables, X_1, X_2, X_3, \dots

X_1 = Size of operational landholdings;

X_2 = Mean years of schooling;

X_3 = urban proximity;

X_4 = Family size;

X_5 = Ratio of non-farm income to farm income;

X_6 = Age.

Table 8 details the variables included in the Binary Logistic Regression Model.

The results of the Binary Logistic Regression Model for Dibrugarh district are reported in Table 9.

Table 8: Specification of the Binary Logistic Regression Model

Variables along with Notation	Description
Dependent variable	1= if the household head is engaged in non-farm activity as a principal occupation;
Engagement in non-farm employment	0= if the household head is engaged in farming activity as a principal occupation.
Independent variables	
Size of operational landholdings (X_1)	Size of the operational landholdings in hectares (LS)
Mean years of schooling (X_2)	Level of educational attainment in terms of years of schooling by the household head
Urban proximity (X_3)	Distance of the village from the nearest urban area (in km) (DISTANCE)
Family size (X_4)	Number of members in the household (FS)
Ratio of non-farm income to farm income (X_5)	Ratio of income from non-farm sector to income from farm sector of the household (RNFFI)
Age (X_6)	Age of the household head (in years) (AGE)

Table 9: Determinants of Rural Non-farm Employment: Results of the Binary Logistic Regression

Regressor	$\hat{\gamma}$	Wald	Exp ($\hat{\gamma}$)
LS (X_1)	-1.009**	8.698	.365
MYS (X_2)	.408***	28.780	1.504
DISTANCE (X_3)	-.041	.340	.560
FS (X_4)	.436**	4.420	1.546
RNFFI (X_5)	.145**	4.817	1.156
AGE (X_6)	-.868**	3.066	.420
Constant	-4.127	7.855	.016
*** 1 % level of significance			
** 5% level of significance			
N= 163			
Cox and Snell $R^2 = .40$			
Nagelkerke $R^2 = .57$			
Hosmer and Lemeshow goodness of fit test statistic = 4.455 (p = .814)			
Convergence achieved after 6 iterations.			

In the binary logistic regression analysis, five factors namely, land size, education level, household size, age and ratio of non-farm income to farm income have turned out to be significant determinants of rural non-farm employment.

Size of operational landholdings has a significant negative impact on household head's decision to be engaged in non-farm activity as a principal occupation. One hectare increase in landholdings reduces the odds of employment in non-farm as a principal occupation by about 63.5 per cent. With increase in the size of operational landholdings farm activities increase. The household heads with large operational landholdings engross themselves in growing various commercial crops like vegetables and non-food crops like tea which significantly improve the household income from farm.

Mean years of schooling is found to have positive significant impact on household head's decision to be engaged in non-farm activity as a principal occupation. The exponential of the coefficient for mean years of schooling indicates that for one year increase in the years of schooling the odds of employment in the non-farm sector as a principal occupation increases by about 1.5 times. Except the jobs under various rural development programmes like MGNREGS, other works in the non-farm sector have to face significant entry barriers in terms of age, education and gender (Jatav and Sen, 2013).

Family size has a positive significant impact on RNFE. The odds of being engaged in non-

farm activity as a principal occupation increases by about 1.55 times with the increase in household size by one member.

Ratio of non-farm income to farm income has a significant positive impact on non-farm employment. With one unit increase in the ratio of non-farm income to farm income, the odds of being engaged in non-farm activities as principal occupation increases by 1.15 times. Higher income from non-farm activities in comparison to farm activities induces the worker to spend more days in non-farm activities.

Age of the household head has a significant negative impact on non-farm employment. The exponential of the coefficient indicates that, holding other factors constant, for one year increase in the age, the odds in favour of being engaged in non-farm activities as principal occupation decreases by about 58 per cent.

The other factor i.e., urban proximity is not found to have significant impact on RNFE, but the coefficient is found to be in the expected direction.

Conclusion and Policy Implications

In order to capture the actual rural employment situation, a micro level study was carried out in two blocks of Dibrugarh district which depicts the reality that engagement of rural workforce in non-farm activities is more in comparison to farm activities. Majority of the workforce preferred to be absorbed in non-farm activities as their principal occupation.

Many of the workers were self-employed and casually employed in various non-farm activities and agricultural and allied activities. Casualisation of jobs creates problems of uncertainty in the duration of employment and income. Likewise, self-employment activities adopted by the rural masses were highly irregular, inadequate and uncertain. But the self-employed people were fairly secure than those of casual workers. Non-farm avenues need to be generated in the rural areas through increase in investment in various sub-sectors of non-farm sector through public-private partnership. Mere increase in investment in the sub-sectors will not give fruitful results. The government has to revamp the educational system in the rural areas of Assam in order to generate adequate productive workforce, which can meet the requirements of emerging marketing-driven trades.

Development of both farm and non-farm sectors is equally important for inclusive growth of the rural economy. It was found that income from non-farm activities was higher than farm income which influenced people in the working age group engage in non-farm activities. So, to enhance income of those who are engaged in farm activities, proper extension

strategies need to be undertaken to educate them regarding the sources from where they could avail of the agricultural inputs in time and also about rational use of inputs. Government needs to take initiatives in encouraging farmers to adopt integrated farming in order to reduce production risks by the provision of training regarding management of multiple enterprises within the same farm. The farmers should carry out the whole agricultural process in a cooperative manner from production to its marketing which shall help in reducing the production risks, enhance their income and reduce the influence of middlemen. They could also set up food processing units in a cooperative manner which shall add value to their products and help them to earn a remunerative income.

Government need to adopt various pension and social security benefit schemes for farmers, small tea growers, casual workers and self-employed people whose incomes are irregular and uncertain. A monthly pension should be payable to the enrolled beneficiaries when they attain the age of 60 years provided that they contribute regularly to the pension fund after their enrolment even though their income is limited.

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