DETERMINANTS OF LIVELIHOOD DIVERSIFICATION AMONG RABHA TRIBES OF ASSAM: A CASE STUDY

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ABSTRACT

North Eastern India is home of more than 200 dominant tribes and many sub tribes reflecting a complex social structure. Tribal community of Assam are concentrated mostly on rural areas and agriculture is their main sources of income. But, tribal's income from agriculture has become barely at more or less subsistence level, depending solely on agriculture for their survival is not sufficient. In order to overcome from uncertainty and risk these people tends to adopt multiple sources of income and thus diversify their livelihoods in order to survive. This study carried out to investigate the pattern and process of livelihood diversification by using Simpson diversification index. This study also tries to investigate the determinants of livelihood diversification among Rabha tribes in Assam with the help of tobit regression model. Rabha is one of the most important plains tribe inhabited in Assam. This study is based on primary data collected from two Rabha villages of Kamrup (rural) District of Assam. Multistage sampling technique has been used to select the sample size. Result indicates that household size, family type, education and land holding plays a significant role in determining livelihood diversification.

I. Introduction:

In India, there is wide range of people in rural areas living in below poverty line even after 60 years of independence. For them it is a very challenging task to earn even a subsistence type of livelihood. The farm sector of this country has viewed as the safe and secured sector or absorbing huge number of rural community, but the farm sector has experienced disguised unemployment now a days due to population pressure. Consequently, the productivity has been decreasing day by day. For instance, the portion of primary sector in GDP during 1950-51 was 56.7% and in 2000-01, it becomes 26.2%. Finally, it was

decreased to 14.9% in 2014-15 (Govt of India report). The contribution of agriculture and allied activities in the GDP has reduced in the past reform period (Basu, 2007). It was observed that farm household in developing country face considerable uncertainty and risk in their income path. Amidst high level of risk and uncertainty in agricultural sector, rural household diversify their sources of livelihood. They may adopt livelihood diversification strategy as a means of reducing the negative impact of any single income source (Adekunle and Shittu, 2014). Various empirical evidence also suggest that upgrading existing livelihood activities to augmenting income could be more realistic than encouraging specialisation within existing livelihood activities for improving standard of living. Rural economy, now a day's not based solely on agriculture but rather on a diverse portfolios of activities for their livelihood and survival.

The concept of livelihood diversification came up during 1990's by Frank Ellis. According to Frank Ellis livelihood diversification is a strategy by which household construct diverse portfolio of activities and social support capabilities for survival and in order to improve their standard of living. Various empirical studies found difference between livelihood diversification and income diversification. Economic studies of diversification focus on different income sources and their relationship to income levels, income distribution, assets, farm output and other variables (Reardon et al 1992, Adams and He, 1995). The term income diversification refers to the composition of household incomes at a given instant in time. In contrast, livelihood diversification interprets this as an active social process whereby households are observed to engage in increasingly complex portfolios of activities over time.

Assam, one of the North Eastern states of India has low level of income, low rate of saving and investment, low rate of industrialisation and high unemployment. As a land of diversity Assam has different ethnic groups with their distinctive cultures. Except Kamrup (Metro) district, all other districts have a majority of rural population. As per Tendulkar committee, the percentage of poor in Assam was 36.40 in rural areas and 21.80 in urban areas. Assam is a home for heterogeneous population comprising with various castes and tribes. According to 2011 census, total number of population in Assam is 31,205,576, out of which 12.44 % are ST. Most of the tribal community of Assam are living in rural areas with vulnerable condition. As per HDI report (2014) among social groups ST have the lowest annually per capita income in Assam and the poverty ratio among them is 40.5 percent. Agriculture is their main source of income but due to primitive nature of agricultural activity and increase in population led to fall in the agricultural production and income of the masses. As the income from agriculture has become barely at more or less subsistence level, depending solely on agriculture for their survival is not sufficient. Hence, In order to overcome from poverty these people tends to adopt multiple sources of income and thus diversify their livelihoods in order to survive. Accordingly, this study accomplished to investigate the pattern of

livelihood diversification and to study the factors that determines livelihood diversification among Rabha tribes in Assam.

Tribe under the study:

Tribals are minority in the populous states of Assam, Manipur and Tripura. The North Cachar Hills and Karbi Anglong is the only tribal majority district of Assam. The major schedule tribe community living in the state are the Bodo-Kacharis, the Mising, The Karbis, the Sonowal Kacharis, the Tiwas, the Rabhas, the Garos and the Deoris etc. There are some tribes which are minor in terms of population is also found in Assam, such as Hmar, Chakma, Any kuki tribes, Nagas, Lusai, Hajong, Singpho, Khamti etc. Tribes in North East as well as Assam are numerous as well as differ widely in their habitat, level of development, modes of production, exposure to the wider world, traditional values etc. Some tribes are inhabited in inaccessible hill tops, having minimal contact with the world beyond them. There are tribes in the plain living with non tribal population and having a large degree of interdependence.

The Rabhas are one of the important Schedule Tribe plains communities in the state of Assam. It is the 3rd largest plain tribes in Assam as per 2011 census. Rabhas are distributed in the district of Goalpara, Kamrup, Darrang, Dhubri and Kokrajhar. In Kamrup (rural) district a good number of Pati Rabhas are seen in Boko areas. Pati Rabhas are one of the endogenous sections of Rabha tribes and it represents a major portion of Rabha. Hence, in this study Pati Rabhas are taken for the analysis.

Review of literature:

Burgeoning study on livelihood diversification across the developing countries has identified various factors influencing the rural people to diversify income sources. Ellis, (1999) opined livelihood diversification as a survival strategy of rural households in developing countries. Study found multiple motives that give rise the households and individual to diversify their income portfolios. Barret, 2000; Reardon, 2001, of the view that some diversifies because they have little choice and better off household may diversify because they have lot of choice. Diversification may occur either a deliberate household strategy or as an involuntary response to the crisis (Adi, 2007). According to Niehof (2004), livelihood insecurity, constructed a situation in which current livelihood strategies not able to produce sufficient benefits and are largely compromised in the future which represents an important driver for livelihood diversification in rural economy. Empirical evidence found various socio economic and demographic factors that impact household's diversification strategy. Scooners (1998), identify four types of asset i.e. physical, human, social, economic and natural capital influence livelihood diversification. Islam, (1997) observed that education and access to credit facilities plays a significant role. On the other hand Reardon, (1997) considered land area, family size, access to capital and education has an important role in determining livelihood

diversification. Adenkunle and Shittu, (2014), observed that educated household tend to diversify more towards non farm sector than less educated households and also say that farm income is the most important factor influencing livelihood diversification.

Several economic studies differentiate various categories and sub categories of income source when referring to diverse income portfolios. The primary categories are farm, off farm and non-farm income sources (Saith, 1992). Farm income comprising livestock and crop income which includes both consumption-in-kind of own farm output and cash income from output sold. Off farm income includes wage or exchange labour on other farm, such as the harvest share systems and other non-wage labour contracts that remain prevalent in many parts of the developing world. Non-farm income refers to non-agricultural income sources. Several secondary categories of non farm income are non-farm rural wage employment, non-farm rural self-employment, property income, urban to rural remittances arising from within national boundaries and international remittances arising from cross border and overseas migration. Different literatures define various types of sources of income differently. Bhoumik, (2007) observed two types of sources of income, Farm sector including crop production, livestock, fishery etc and agricultural labour. In addition, non-farm sector including regular employment, self-employment and casual labour. According to (Datta & Singh, 2011) income sources are divided into two categories. Farm income comprising agricultural, livestock and rearing and agricultural wage labour and non-farm including service, business sector, migration, non-farm wage earnings and CPR (Common Property Resources) related income.

Assam is a state which is predominantly inhabited by various indigenous communities living in rural areas. Though agriculture is their main sources of livelihoods, but due to primitive nature of agricultural activity and increase in population there is fall in agricultural production and income of the masses. Most of this indigenous community are lived in vulnerable condition and depending solely on agriculture is not a solution for coping with risk and uncertainty. Hence, these people adopt multiple sources of income for survival. Therefore this study tries to shed light on the various sources of income they have adopted and also to analysis the socio economic factors which may affect their livelihood diversification. The remainder of the paper is structured as: Section I presents the introduction comprising literature review, section II represents data and methodology, section III shows discussion and analysis and section IV concludes.

II. Methodology:

Study area:

This study is based on the livelihood diversification of Rabha tribes in Assam. Assam is one of the among eight North Eastern starts in India. It is a land of various ethnic communities living from hills to plains. Rabha is one of

the major plains tribes inhabited in various regions in Assam. A major portion of Rabha tribes is predominantly found in Kamrup district, hence this study is conducted on two Rabha inhabited villages of Kamrup district. Kamrup is an administrative district of Assam situated in the Brahmaputra valley region. The greater part of the district consists of wide plains, through the lower portion of which the river Brahmaputra flow a steady course from east to west. The total area of district is 3105 Sq. Km (Rural: 3031.46 Sq. Km and Urban: 73.54 Sq. Km). Total population of this district is 1,517,542 and total rural population is 1,375,148 as per 2011 census. Total Rabha population in Kamrup District is 103,757 as per 2011 census.

Sample Technique and Sample Size:

For the collection of Data multistage sampling technique has been used. In the 1st stage Kamrup district was selected because it contains the 2nd highest Rabha population after Goalpara district. Therefore, Kamrup district was selected in the 1st stage. In the 2nd stage two Community Development Block named Boko and Rani was selected among 14 CD block. In the 3rd stage one village from each block was selected randomly and in the 4th stage 100 households from each village was selected randomly.

Data Sources:

The study is developed on the basis of primary data collected with the aid of well structured questionnaire and oral interview. Data related to socio economic characteristics of the respondents such as age, educational status, sources of income, number of households, types of family, farm size, number of livelihood activities, etc was also collected.

Analytical Tool:

In order to study the pattern of livelihood diversification Simpson Diversification Index was used. Simpson Diversification Index is mathematically expressed as:

$$\text{SID} = 1 - \sum_{i=1}^{n} p2 \quad \text{...} (1)$$

Where,

SID= Measure of diversification.

P = Proportion of income.

$$P = \left(\frac{mi}{mt}\right) \quad \text{...} (2)$$

Where,

n = number of income sources.

mi = income from each activity.

mt = households total income

The value of SID lies between 0 and 1. When SID is less than 0.01 (no diversification), SID is equal to 0.01-0.25 (Low diversification), SID is equal to 0.26-.50 (Average diversification), SID is greater than or equal to 0.51 (high diversification).

To analyse the determinants of livelihood diversification, tobit regression model has been used. Taking livelihood diversification as the dependent variable, the regression model has been constructed as follows:

SID= F (AGE, EDU, HHS, FAT, LAH, FAI, DEP)

As the range of the SID score is from 0 to 1, therefore, a both side censored Tobit regression model has been formulated.

$SID^* = \beta_0 + \beta_1 AGE + \beta_2 EDU + \beta_3 HHS + \beta_4 SID + \beta_5 FAT + \beta_6 LAH + \beta_7 FAI + \beta_8 DEP + U$

Where, SID = 1 for SID^* greater than 1

= SID^* for $0 \leq SID^* \leq 1$

= 0 for MPI^* less than 0

Where,

SID= Simpson Index of Diversification

AGE= Age

EDU = Years of education

HHS = Household Size

FAT = Family type

LAH = Land holding

FAI = Farm income

DEP= Dependency Ratio

U = Disturbance term

Table 1: Description of the Variables

Variables	Type	Description	Value
SID	Continuous	Censored value of Simpson Diversification Index of household	

Age	Continuous	Age of the respondents	
Education	Continuous	Number of years of education of the respondents	
Household size	Continuous	Number of members of the households	
Family type	Categorical	Family type of the households	0= joint 1 = nuclear
Land holding	Continuous	Total land holding of the households in *bighas*	
Farm Income	Continuous	Monthly income earning from farm	
Dependency ratio	Continuous	Number of dependents aged to 0 to 14 and over the age of 65	

Source: Authors Calculation

III. Discussion and Analysis:

Socio Economic Characteristics of sample respondents:

In any society, socio-economic and demographic features such as educational attainment, health status, income, etc have an enormous impact on development as a whole (Buragohain, 2013). The present study attempts to make a brief survey of the socio-economic and demographic features of the sample households. Table: 1 represents some of the notable socio-economic features of the sample household of the Rabha Community of Kamrup (R) district by using frequency table and percentage.

Table 2: Socio economic characteristics of the sample household

Distribution of Respondents on the basis of their Age		
Age Group	**Frequency**	**Percentage**
Less than 30	18	18
31 – 40	40	40
41 – 50	22	22
51 – 60	10	10
Above 60	10	10
Distribution of Respondent Households on the basis of Gender Heads		
Gender	**Frequency**	**Percentage**
Male	90	90
Female	10	10
Level of Education of the Respondents		

Education level	Frequency	Percentage
Illiterate	16	16
Primary	16	16
Middle English	23	20
High School	36	36
Higher Secondary	5	5
Graduate and Above	4	4
Distribution of Sample Households on the basis of Household Size		
Household Size	**Frequency**	**Percentage**
2 – 4	50	50
5 – 7	44	44
Above 7	6	6
Distribution of Sample Households on the basis of Family Type		
Family Type	**Frequency**	**Percentage**
Nuclear	78	78
Joint	20	20
Distribution of Sample Households on the basis of their Income Sources		
Occupation	**Frequency**	**Percentage**
Government Job	10	10
Private Service	18	18
Business	20	20
Agriculture	40	40
Daily Wage Earners	11	12
Professionals	1	1

Source: Author's Calculation

It is seen that 40 per cent of the household respondents belong to age group 31-50 years implying that the major part of the households surveyed are in the economically active years of age with a scope to engage themselves with multiple sources of income. 90 per cent of the sample households are headed by male members indicating that most of the economic activities taken up by the households are male dominated livelihood activities. The level of education of the household head is often assumed to influence the livelihood pattern of the household. In the study area, a little more than 45 per cent of the head of the households have attained education from high school to graduation with the rest 55 per cent having read up to middle school. Household size has both positive and negative effect on livelihood diversification – households with large families may have multiple sources of income generating activities but may also have high expenses. It is found that majority of the households in the study area have nuclear families with 2-4 members with 20 per cent having joint families. The sample households have been found to be engaged in diverse income earning activities. With 40 per cent of the respondent households having agriculture as the source of income, the other sources of

income identified are government and private jobs, business, daily wage earning activities and professionals.

Pattern of livelihood diversification in the study area:

Pattern of livelihood diversification indicates various income generating activities of household. For the analysis income sources are categorized as farm income including crop income, livestock and agricultural labour; non farm income including non-farm self employment, non-farm wage employment and remittances. Based on these income sources, livelihood diversification index has been calculated. Although it is found that the Rabha households acquire income from multiple economic activities in the study area and all activities are not equally important. While the farm sector contributes the income for majority of the households, the non-farm sector too contributes their share. Table: 3 depicts the distribution of household heads by the extend of livelihood diversification. With 22 per cent of the households attaining high diversification, majority of the households i.e. 40 per cent are found to have attained average diversification in the study area. While 34 per cent have attained low diversification and 4 per cent of the households have failed to diversify their livelihood activities.

Table: 3: Distribution of household by the extend of livelihood diversification

Level of diversification	Frequency	Percentage
Not diversified (SID < 0.01)	4	4
Low diversification (0.01<SID<0.25)	34	34
Average diversification (0.26<SID<0.50	40	40
High diversification (SID> 0.51)	22	22

Source: Author's Calculation

Determinants of livelihood diversification:

Tobit regression model was used to determine the factors influencing livelihood diversification by taking Simpson Diversification Index as the dependent variable and age of the respondents, years of education, household size, land holding, farm income, dependency ratio and family type as independent variables. Table: 4 presents the summary statistics of the variables used in the regression.

Table: 4: Summery statistics of the variable

Variables	N	Minimum	Maximum	Mean	Std. Deviation
Simpson diversification index	100	0.000	0.641	0.405	0.157
Age	100	24	81	44.36	13.08
Years of education	100	0.00	15.00	7.17	3.84
Household size	100	2.00	9.00	4.73	1.29
Family type	100	1.00	1.00	1.29	0.45

Land holding	100	0.00	8.00	2.17	1.16
Farm income	100	0.00	20000	3542.42	2111.48
Dependency ratio	100	0.000	1.50	0.44	0.46

Source: Author's Calculation

Ranging between 0.00 to 0.64, the average of the diversification score stands at 0.40. Again, the average age of the respondents stands at 44.36 and it ranges between 24-81 years. In case of educational status, the average years of education of the sample population is 7.17 years. The average landholding of the sample households stands at 2.17 bighas and average farm income earned by the sample household per month is 3542.42 rupees.

Table: 5: Regression result:

Variables	Coefficient	Standard Error	Significant
Age	0.00196	0.00142	0.1663
Years of Education	0.00807	0.00419	0.0543
Household Size	0.44468	0.01337	0.0009
Family Type	0.09458	0.09458	0.0128
Land Holding	-0.06413	0.01583	0.0001
Farm Income	1.00011	7.00009	0.1607
Dependency ratio	0.01570	0.00142	0.1663

Source: Author's Calculation

The estimated result in table: 5 reveal that education, household size, family type and land holding plays a remarkable role in determining livelihood diversification. The table: 5 shows these factors has significant at 5 percent level of significance. In case of education it can be seen that there is a positive relation between level of education and livelihood diversification. It indicates, as level of education increases i.e. as people are more educated they are more likely to diversify their income sources as better education help them to get more income earning opportunities compared to less educated people. It can be inferred that education is an important influential factor that determine level of diversification. Household size also plays a significant role in determining livelihood diversification. As more active person present in household, there is scope for diversifying more. Like size of household, types of family also play an important role, because joint family represents larger number of family members than nuclear family. Large number of family members can contribute more to income generation form multiple income sources. The result also revealed a negative relation between agricultural land holding and livelihood diversification. Agriculture is the primary source of rural economy among the tribal people of Assam and size of land plays crucial role in agricultural

production. As population increases per capita land holding decreases and it leads to decrease in agricultural production. Therefore, the result shows that the household which have larger land holding than the other, they are unlikely to diversify their income sources. The household which have smaller amount of land, they diversify more because based solely on the small agricultural land is not sufficient for their livelihood.

IV. Conclusion:

   The study investigated the pattern and determinants of livelihood diversification among Rabha household in Kamrup district of Assam. By using Simpson index to study the pattern of livelihood diversification it was found that majority of household are under the category of average diversification. It implies that majority of sample household is more or less adopted multiple sources of income for their livelihood. The result of tobit regression analysis also inferred that household size, family type, education and land holding significantly influence livelihood diversification pattern. On the other hand age, farm income and dependency ration is not found significant in determining diversification in the study area. Finally, it can be concluded that the livelihood of tribal community in rural area of Assam is not solely based on single sources of income. These people are more likely to adopt multiple sources of income to cope with uncertainty and risk.

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