Extension Journal

International Journal of Agriculture Extension and Social Development

Composition and utilization of workforce for livelihood by farm households: An empirical study in Lower Brahmaputra Valley Zone of Assam

[1]Kishor Kumar Roy, [2]Sanjib Bhuyan and [3]Smrita Barua

[1]Assistant Professor, Department of Agricultural Economics, SCS College of Agriculture, AAU, Dhubri, Assam, India

[2]Assistant Professor, Department of Extension Education, SCS College of Agriculture, AAU, Dhubri, Assam, India

[3]Assistant Professor, Department of Agricultural Statistics, College of Agriculture, AAU, Jorhat, Assam, India

DOI: https://doi.org/10.33545/26180723.2026.v9.i1Sb.2902

Corresponding Author: Kishor Kumar Roy

Abstract
Livelihood strategies are the diversified portfolio for income generation. Composition and utilization of workforce available with the farm household considerably define livelihood outcome of the rural households. Majority workforce of the rural households of Assam rely on agriculture and allied activity for livelihood (Annual Report, 2017-18) and is characterized by smaller landholdings, labour-intensive cultivation practices, and a high dependence on family labour (Roy, *et al*. 2024).

The present study to evaluate composition and utilization of workforce was conducted in the Lower Brahmaputra Valley Zone of Assam. Multistage stratified random sampling technique was used for selection of 500 numbers of farm households, 100 each from five districts selected for the study. Farm households were categorized into four size classes as marginal (<1.00 ha), small (1.00-2.00 ha), medium (2.00 - 4.00 ha) and large (4.00 ha and above). Primary household level information were collected for the study.

The findings of the study revealed that the composition of male and female population in the households was 51.11 percent and 48.89 percent of the total population, respectively. On average, total working population constituted 50.35 percent of the total population, comprising male (29.08%) and female (21.27%) of the total workers. The gender variation in worker population was attributed to lesser participation of female workforce in non-farm activities accounting for 46.3 percent to their male counterpart (52.61%) in primary occupation, whereas it was 53.06 percent to 61.06 percent in secondary occupation, respectively. The farm households found to utilize the workforce (46.59%) in agriculture and allied occupations followed by salary and wages (32.12%), business (16.61%) and remittance (4.69%). The marginal and small groups of households were found to involve in multiple activities to utilize workforce throughout the year based on availability of opportunities both in farm and non-farm sector compared to their larger peers. The size of workforce of the rural households, gender-wise composition, qualification and skill set found to be the deciding factors for better utilization of the workforce for higher income and livelihood security.

Keywords: Composition, utilization, farm households, workforce, livelihood

Introduction
The livelihood patterns of households in any region mainly depend on a variety of economic, climatic, social, and geographical factors. Farm households generally practice various livelihood strategies to generate income and manage their family's livelihood security. Livelihood strategies are the range and combinations of different activities and choices that farm households carry out to achieve a livelihood outcome (DFID, 1999) [6]. Livelihood strategies are basically a diversified portfolio of different income-earning activities performed by the able workforce available with the farm household. These strategies generally depend on the composition of the workforce and proper utilization of the existing opportunities in the locality concerned.

Agriculture remains the principal source of livelihood for a large proportion of rural households in India, and a similar trend is followed in Assam (Annual Report, 2017-18) [2], where the workforce is deeply embedded in traditional farming systems and diverse subsidiary occupations. The state's agrarian landscape is characterized by small and marginal landholdings, labour-intensive cultivation practices, and a high dependence on family labour (Roy *et al*., 2024) [10]. In this context, understanding the composition and utilization of the workforce among farm households is vital for assessing livelihood security, productivity, and socioeconomic resilience. The workforce composition distributed across gender, age groups, education levels, and skill categories usually plays a significant role in shaping farm and non-farm occupations.

Assam's farm households engage in a spectrum of livelihood activities that extend beyond seasonal crop cultivation, including livestock rearing, fishing, wage labour, petty trade, small businesses, handicrafts and seasonal migration. These diversified activities are often driven by fluctuations in agricultural income, climate variability, limited access to land and technology, subsistence farming practices characterized by low input and low investment, and the basic human need for year-round sustenance. Consequently, the allocation of the workforce within and outside agriculture reflects not only

economic necessity but also social norms, resource availability, and household-level decision-making patterns. Gender-based division of labour is particularly prominent, with women contributing substantially to farming and allied activities, whereas their participation is comparatively less in non-farm activities.

Therefore, examining the composition and utilization of the workforce in Assam's farm households is essential for understanding how rural families adapt to changing socioeconomic and environmental conditions in the state. Such an analysis provides insights into workforce availability, workforce utilization, diversified livelihood portfolios, and the role of human capital in enhancing farm productivity. It also helps identify gaps and opportunities for policy interventions aimed at strengthening rural livelihoods, promoting gender equity, and improving employment outcomes in the agricultural sector. By exploring these dynamics, this study contributes to a deeper understanding of how farm households manage their workforce to sustain and enhance their livelihoods in Assam.

Methodology

Description of Study Area

This study was conducted in the Lower Brahmaputra Valley Zone (LBVZ) of Assam. The zone is composed of 12 (twelve) districts and is located in the westernmost part of Assam, sharing borders with Bhutan and Arunachal Pradesh in the North, Bangladesh and Meghalaya in the south, Central Assam in the East and West Bengal in the West. It covers a geographical area of 20163 square kilometers, which is 25.84 percent of the total area of Assam. The topography is mainly plain, with some undulating areas comprising hills and hillocks. The zone has plenty of water resources, with the river Brahmaputra flowing through the valley from East to West and a few major tributaries flowing from north to south in the zone (Department of Environment, Govt. of Assam, 2015). The total population of the zone is 11.25 million, which is 36.60 percent of the total population of Assam (Agricultural Census, 2010-11, GOI).

Being situated in the sub-tropics, the climate of the LBVZ zone as well as of Assam is humid and sub-tropical, characterized by warm, humid summers and cool, dry winters. LBVZ is situated in a high-rainfall zone with an annual average rainfall of 1700 mm. The zone receives 66 percent of its annual rainfall during the southwest monsoon season. The maximum temperature rises up to 36°C in July-August, and the minimum falls to 10°C in January. The soils of this zone consist of new alluvium on both banks of the Brahmaputra and old alluvium towards the foothills. The soil was mostly sandy and sandy loam in texture. The soils of the zone are generally acidic in nature, although a large area is covered by nearly neutral soils. Winter paddy, summer paddy, autumn paddy, pulses, rapeseed and mustard, jute, vegetables, sugarcane, banana, Assam lemon, arecanut, and coconut are the major crops in the zone.

Sampling Design

This study used a multistage stratified random sampling design. Districts, blocks, villages, and households sequentially represent the different sampling stages. Five districts from the study area and two blocks from each district were randomly selected for the study. Five villages from each block and ten households from each village were selected for the study. In total, 500 households were ultimately selected, with a ratio of 4:3:2:1, representing marginal, small, medium, and large farm household groups, respectively. Farm households were stratified into four distinct size groups based on operational holdings as per the stratification given by the Agricultural Census, India, 2010-11, Department of Agriculture & Co-operation, Ministry of Agriculture, Government of India, with slight modifications to suit and justify the needs of the study area. The operational holding of the marginal size group is below 1.0 ha, followed by small (1.0 - 2.0 ha), medium (2.0 - 4.0 ha), and large (4.0 ha and above) groups.

Data Source

Primary information from individual farm households was collected for demographic patterns, workforce employment, land use patterns, farm (crops and allied activities), and non-farm (salary and wage, non-farm business, and remittance and government. scheme payout) activities undertaken by the farm households during the period of study.

Period of Study

The field investigation was started in the first week of November 2020 and was completed by the end of October 2021. The data collected pertain to the agricultural year 2020-21 (July 2020 to June 2021).

Data Collection Technique

To collect data, a pretested survey schedule was used to gather information from individual farm households in the study area. Personal interviews were done devoting 30-40 minutes per household. group discussions were conducted to better understand the critical field situations and overall assessment of agricultural occupations. To estimate net income from farm and non-farm occupations for the sampled 500 farm households, total expenses were deducted from total income. Descriptive statistical tools were used to present the study results.

Classification of Livelihood Source

Income sources have been broadly classified into two major groups to present the results regarding income generated by different occupations by farm households. They are as follows: Farm Sector income (Agri. and Allied) and Non-farm Sector income. The farm Sector consists of (1) crop enterprises or crop farming and (2) allied enterprises consisting of Livestock and Fishery enterprises. Similarly, the non-farm sector comprises (1) Salary and Wage income, (2) Non-farm Business income, and (3) Remittance and Government welfare scheme payout income.

Definitions

Farm Household

A farm household is defined as "a household that operates some land and is engaged in agricultural activities during the previous year". Thus, a household qualifies as a farm household if (i) they possess some land (either owned or leased in or otherwise possessed) and (ii) is engaged in some agricultural activities on that land during the previous year.

Principal and Secondary occupation

The occupation from which farm households generate the highest proportionate income among all other occupations for the year has been termed their principal occupation. Similarly, the occupations other than the principal one, in which the farm households engage themselves to earn additional income to improve their livelihood security, have been termed as secondary occupations.

Results and Discussion

Demographic characteristics

The demographic characteristics of the sample households are presented in Table 1. The results are discussed in terms of the distribution of the population by age group and sex in the sample households. The findings revealed that the population between the ages of 15 and 59 years, which can be considered the potential labour force, constituted 61.87 per cent of the total population in the sample households. The proportion of the total population, in the age group of below 15 years and above 60 years, individually and collectively, was less than the proportion of the working population, indicating a smaller number of dependents compared to active persons. The male and female populations in the sample households accounted for 51.11 per cent and 48.89 per cent of the total population, respectively. The sex ratio was 957 females per 1000 males, as against the state average sex ratio of 958 females per 1000 males, according to the 2011 census. of the Indian census (Statistical Handbook of Assam, 2020) [11]. The average family size of the sample farmers was 5.76.

The data also reveal that the proportion of the male working population in the 15-59 years age group in the study area was slightly higher in the smaller size groups (34.01%), showing a negative relationship between farm size and male workers. The medium group (32.62%) followed, depicting a positive relationship with farm size. On the other hand, the proportion of the female working population was higher in the small group, while the same was similar in the marginal and medium-sized groups. Overall, the male working population (31.78%) is slightly higher than the female population (30.08%). The proportionately lower participation status of the female workforce was found because of the crisis of suitable employment opportunities compared to their male counterparts (Bedamatta, 2021) [3] as well as the negative income effect on the employment of women because of the structural transformation of the Indian economy from agriculture-based to non-agriculture-based. (Chand and Srivastava 2014; Ghose 2016; Mehrotra and Parida, 2017) [4, 7, 9].

Composition of Workforce

Table 2 presents data on the distribution of the population according to work participation status in the study area. On average, the total working population constituted 50.35 percent of the total sample population, with male and female workers accounting for 29.08 and 21.27 percent of the total population, respectively. The gender variation in work participation status is because of the lesser participation of the female workforce in non-farm activities, accounting for 46.3 percent of their male counterparts (52.61%) in the primary occupation, whereas it was 53.06 percent to 61.06 percent in the secondary occupation. The proportion of the total working population was highest in the marginal group (60.04%), followed by the small group (52.92%). On average, for the entire study area, non-working and helper members made up 25.99 per cent and 21.30 per cent of the total sample population, respectively. The highest number of workers per farm was observed in the marginal category (3.37 workers) with smaller variation among the groups, while the average value for the entire zone was 2.90 workers per farm. The workforce of smaller-sized group households significantly depends more on non-farm sector income for their livelihood, as smaller landholding size works as a push factor for moving into the non-farm sector (Kaur, 2019) [8].

The female workforce was proportionately found to be higher in primary (53.70%) and secondary (46.94%) occupations in agriculture. & allied sector than their male counterpart at 47.39 percent and 38.94 percent respectively. This is because of the double role played by women in the household as caretakers for the family as well as seasonal workers in the crop field and managing livestock throughout the year. Family commitment of the female workforce is the leading deterring factor, which makes them less mobile than their male counterparts. It was also found that because of the fact that dependency on females was higher in the smaller-sized groups of households, the male counterpart often travelled out of the village for non-farm activities to secure livelihood.

It can be observed that the proportion of the dependent population was less than that of its independent counterpart in terms of age category (Table1). This signifies a low dependency ratio in nominal terms. However, the proportion of actual working members of the total sample population was slightly above 50 percent, which was 50.35 percent to be precise in the study area, indicating a higher dependency ratio in actual terms. A lower level of the workforce engaged in productive work was directly related to a lower level of income for farm households. Lack of proper employment opportunities, voluntary non-participation in the workforce, especially by school/college-going students, and underemployment of the majority of the workforce were found to be the main reasons for the lower work participation status in the study area. Creation of suitable earning avenues for these categories of the population in diverse fields of activity in the farm or non-farm sector can positively contribute to enhancing family income, thus providing livelihood security and a better standard of living for the masses.

Table 1: Distribution of population in the sample farm households according to age and sex across size class

Size classes	No. of farm households	Population below 15 years			Population between 15 to 59 years			Population of 60 years and above			Total Population			Sex Ratio
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	
Marginal	203	154	159	313	345	344	689	70	69	139	569	572	1141	1005
		0.76	0.78	1.54	1.70	1.69	3.39	0.34	0.34	0.68	2.80	2.82	5.62	
		(13.50)	(13.94)	(27.43)	(30.24)	(30.15)	(60.39)	(6.13)	(6.05)	(12.18)	(49.87)	(50.13)	(100)	
Small	151	114	98	212	268	246	514	20	42	62	402	386	788	960
		0.75	0.65	1.40	1.77	1.63	3.40	0.13	0.28	0.41	2.66	2.56	5.22	
		(14.47)	(12.44)	(26.90)	(34.01)	(31.22)	(65.23)	(2.54)	(5.33)	(7.87)	(51.02)	(48.98)	(100)	
Medium	98	68	57	125	198	183	381	53	48	101	319	288	607	903
		0.69	0.58	1.28	2.02	1.87	3.89	0.54	0.49	1.03	3.26	2.94	6.19	
		(11.20)	(9.39)	(20.59)	(32.62)	(30.15)	(62.77)	(8.73)	(7.91)	(16.64)	(52.55)	(47.45)	(100)	
Large	48	51	48	99	105	94	199	27	21	48	183	163	346	891
		1.06	1.00	2.06	2.19	1.96	4.15	0.56	0.44	1.00	3.81	3.40	7.21	
		(14.74)	(13.87)	(28.61)	(30.35)	(27.17)	(57.51)	(7.80)	(6.07)	(13.87)	(52.89)	(47.11)	(100)	
Pooled	500	387	362	749	916	867	1783	170	180	350	1473	1409	2882	957
		0.77	0.72	1.50	1.83	1.73	3.57	0.34	0.36	0.70	2.95	2.82	5.76	
		(13.43)	(12.56)	(25.99)	(31.78)	(30.08)	(61.87)	(5.90)	(6.25)	(12.14)	(51.11)	(48.89)	(100)	

Figures in bold indicate population per farm
Figures within parentheses indicate percentage of the total sample population in respective size class

Table 2: Distribution of population in the sample farm households according to work participation status across size class

Size classes	No. of farm households	Total population			Worker			Non worker			Helper		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Marginal	203	569	572	1141	387	298	685	154	159	313	28	115	143
		2.80	2.82	5.62	1.91	1.47	3.37	0.76	0.78	1.54	0.14	0.57	0.70
		(49.87)	(50.13)	(100)	(33.92)	(26.12)	(60.04)	(13.50)	(13.94)	(27.43)	(2.45)	(10.08)	(12.53)
Small	151	402	386	788	231	186	417	114	98	212	57	102	204
		2.66	2.56	5.22	1.53	1.23	2.76	0.75	0.65	1.40	0.38	0.68	1.35
		(51.02)	(48.98)	(100)	(29.31)	(23.60)	(52.92)	(14.47)	(12.44)	(26.90)	(7.23)	(12.94)	(25.89)
Medium	98	319	288	607	148	91	239	68	57	125	103	140	179
		3.26	2.94	6.19	1.51	0.93	2.44	0.69	0.58	1.28	1.05	1.43	1.83
		(52.55)	(47.45)	(100)	(24.38)	(14.99)	(39.37)	(11.20)	(9.39)	(20.59)	(16.97)	(23.06)	(29.49)
Large	48	183	163	346	72	38	110	51	48	99	60	77	88
		3.81	3.40	7.21	1.50	0.79	2.29	1.06	1.00	2.06	1.25	1.60	1.83
		(52.89)	(47.11)	(100)	(20.81)	(10.98)	(31.79)	(14.74)	(13.87)	(28.61)	(17.34)	(22.25)	(25.43)
Pooled	500	1473	1409	2882	838	613	1451	387	362	749	248	434	614
		2.95	2.82	5.76	1.68	1.23	2.90	0.77	0.72	1.50	0.50	0.87	1.23
		(51.11)	(48.89)	(100)	(29.08)	(21.27)	(50.35)	(13.43)	(12.56)	(25.99)	(8.61)	(15.06)	(21.30)

Figures in bold indicate population per farm
Figures within parentheses indicate percentage of the total sample population

Utilization of workforce
The workforce utilized by the farm household in different occupation is presented in Tables 3 and 4. The workforce of the sample farm households was found to practice various occupations based on resource endowment, employment opportunities in the near vicinity, skillset, physical ability, and personal preferences. In the study area, the proportion of the total worker population engaged principally for their livelihood in agriculture and allied enterprises was 49.56 per cent. Among the different size classes, agriculture and allied activities as the principal occupation was highest in the large size class (68.06%), followed by the medium (47.70%), small (44.98%), and marginal size groups (36.80%). A clear trend indicates that proportionally larger farm households earn their livelihood by practicing agriculture and allied activities as their primary occupation.

The second most important source of livelihood among the sample households was wages and salaried jobs, with 31.64 percent of the working population deriving their livelihood from this category. Smaller farm households were found to depend more on wages and salaries for their livelihood. The

highest 41.84 percent of the marginal size class of farm households was found to depend on salary and wages occupation, followed by large, small, and medium class of farm households with 29.17 percent, 24.45 percent, and 12.45 percent, respectively. This trend of involvement of a larger proportion of the workforce of the smaller size group of farm households is obvious because their farm income is not enough to support livelihood security; therefore, they explore various salaried jobs as well as wage-earning avenues to supplement their income for livelihood security. Non-farm business as the principal occupation was found to be practiced the most by small-sized group (23.14%), followed by marginal (13.06%), large (2.78%), and medium (1.67%) size classes of farm households. The smaller size classes of farm households were found to involve themselves proportionately more in trade, shops, small businesses, contractual jobs, commission earnings, etc., compared to larger size groups because of smaller land holdings and lack of other productive resources. It is worth mentioning that the migrant labour force working outside the district or state as a livelihood source, though very few

in numbers, was found to a considerable extent in the marginal and small category of farm households. It was found that 8.31 percent of marginal and 7.42 percent in the small size classes of small-sized farm households had remittance income as the principal source of livelihood for the family members living here.

Table 3: Distribution of worker population across size class in the sample farm households according to principal occupation of work force

Size classes	No. of farm households	Total workers			Occupational Pattern of Workers (numbers)											
					Primary occupation (Principal source of livelihood)											
					Agriculture& Allied			N0n-Farm Business			Salary & wages			Remittance		
		M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Marginal	203	212	125	337	70	54	124	25	19	44	89	52	141	28	-	28
		1.04	0.62	1.66	0.34	0.27	0.61	0.12	0.09	0.22	0.44	0.26	0.69	0.14	-	0.14
					33.02%	43.20%	36.80%	11.79%	15.20%	13.06%	41.98%	41.60%	41.84%	13.21%	-	8.31%
					(28.57)	(37.24)	(31.79)	(40.98)	(45.24)	(42.72)	(53.61)	(62.65)	(56.63)	(62.22)	-	(62.22)
Small	151	155	74	229	65	38	103	33	20	53	40	16	56	17	-	17
		1.03	0.49	1.52	0.43	0.25	0.68	0.22	0.13	0.35	0.26	0.11	0.37	0.11	-	0.11
					41.94%	51.35%	44.98%	21.29%	27.03%	23.14%	25.81%	21.62%	24.45%	10.97%	-	7.42%
					(26.53)	(26.21)	(26.41)	(54.10)	(47.62)	(51.46)	(24.10)	(19.28)	(22.49)	(37.78)	-	(37.78)
Medium	98	101	48	149	78	36	114	2	2	4	21	10	31	-	-	-
		1.03	0.49	1.52	0.80	0.37	1.16	0.02	0.02	0.04	0.21	0.10	0.32	-	-	-
					77.23%	75.00%	47.70%	1.98%	4.17%	1.67%	20.79%	20.83%	12.97%	-	-	-
					(31.84)	(24.83)	(29.23)	(3.28)	(4.76)	(3.88)	(12.65)	(12.05)	(12.45)	-	-	-
Large	48	49	23	72	32	17	49	1	1	2	16	5	21	-	-	-
		1.02	0.48	1.50	0.67	0.35	1.02	0.02	0.02	0.04	0.33	0.10	0.44	-	-	-
					65.31%	73.91%	68.06%	2.04%	4.35%	2.78%	32.65%	21.74%	29.17%	-	-	-
					(13.06)	(11.72)	(12.56)	(1.64)	(2.38)	(1.94)	(9.64)	(6.02)	(8.43)	-	-	-
Total	500	517	270	787	245	145	390	61	42	103	166	83	249	45	-	45
		1.03	0.54	1.57	0.49	0.29	0.78	0.12	0.08	0.21	0.33	0.17	0.50	0.09	-	0.09
					47.39%	53.70%	49.56%	11.80%	15.56%	13.09%	32.11%	30.74%	31.64%	8.70%	-	5.72%
					(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	-	(100)

Figures in bold indicate population per farm
Figures with percentage sign indicate percentage of the respective total worker population in a particular size classes
Figures within parentheses indicate percentage of total working population of different occupation category

Table 4: Distribution of worker population across size class in the sample farm households according to secondary occupation of work force

Size classes	No. of farm household	Total workers			Secondary occupation (Secondary source of livelihood)											
					Agriculture			Business			Salary & wages			Remittance		
		M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Marginal	203	175	173	348	65	82	147	26	37	63	75	54	129	9	-	9
		0.86	0.85	1.71	0.32	0.40	0.72	0.13	0.18	0.31	0.37	0.27	0.64	0.04	-	0.04
					37.14%	47.40%	42.24%	14.86%	21.39%	18.10%	42.86%	31.21%	37.07%	5.14%	-	2.59%
					(52.00)	(50.93)	(51.40)	(40.00)	(50.68)	(45.65)	(69.44)	(49.54)	(59.45)	(39.13)	-	(39.13)
Small	151	76	112	188	34	43	77	10	17	27	21	52	73	11	-	11
		0.50	0.74	1.25	0.23	0.28	0.51	0.07	0.11	0.18	0.14	0.34	0.48	0.07	-	0.07
					44.74%	38.39%	40.96%	13.16%	15.18%	14.36%	27.63%	46.43%	38.83%	14.47%	-	5.85%
					(27.20)	(26.71)	(26.92)	(15.38)	(23.29)	(19.57)	(19.44)	(47.71)	(33.64)	(47.83)	-	(47.83)
Medium	98	47	43	90	18	27	45	16	14	30	10	2	12	3	-	3
		0.48	0.44	0.92	0.18	0.28	0.46	0.16	0.14	0.31	0.10	0.02	0.12	0.03	-	0.03
					38.30%	62.79%	50.00%	34.04%	32.56%	33.33%	21.28%	4.65%	13.33%	6.38%	-	3.33%
					(14.40)	(16.77)	(15.73)	(24.62)	(19.18)	(21.74)	(9.26)	(1.83)	(5.53)	(13.04)	-	(13.04)
Large	48	23	15	38	8	9	17	13	5	18	2	1	3	-	-	-
		0.48	0.31	0.79	0.17	0.19	0.35	0.27	0.10	0.38	0.04	0.02	0.06	-	-	-
					34.78%	60.00%	44.74%	56.52%	33.33%	47.37%	8.70%	6.67%	7.89%	-	-	-
					(6.40)	(5.59)	(5.94)	(20.00)	(6.85)	(13.04)	(1.85)	(0.92)	(1.38)	-	-	-
Total	500	321	343	664	125	161	286	65	73	138	108	109	217	23	-	23
		0.64	0.69	1.33	0.25	0.32	0.57	0.13	0.15	0.28	0.22	0.22	0.43	0.05	-	0.05
					38.94%	46.94%	43.07%	20.25%	21.28%	20.78%	33.64%	31.78%	32.68%	7.17%	-	3.46%
					(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	-	(100)

Figures in bold indicate population per farm
Figures with percentage sign indicate percentage of the respective total worker population in a particular size classes
Figures within parentheses indicate percentage of total working population of different occupation category

The importance of secondary occupations in supporting the livelihood of farm households in the study area was profound. It was reported by sizeable population that primary occupation was not enough to support their livelihood throughout the year. It was found that 54.23 percent of the total workforce was engaged in secondary

occupations. Overall, in agriculture and allied highest (43.07%) proportion of the workforce was involved as a secondary occupation, followed by salary and wage (32.68%), business (20.78%), and remittance (3.46%). Almost all size class of farm households show similar trend about the proportion of households engaged in secondary occupation. Workforce of the smaller size households were found to practice multiple activities in the non-farm sector to supplement income. It was found to be an important adaptive strategy to increase family income, spread risk, stable salaries, reduce income inequalities to cope up to the income differentials and give them security of control over productive resources by around 28 per cent of the workforce (Subramanian, 2018) [12].

While combing both primary and secondary occupation practiced by the sample farm household it can be seen that agriculture occupied the first place as source of occupation with 46.59 percent workforce engagement followed by salary and wages (32.12%), business (16.61%) and remittance (4.69%).

The distribution of workforce irrespective of gender in both primary and secondary occupational activities revealed that larger households involved more in service to earn salary income. Members of 39.54 percent of large households involved in service of various stature in the organised sector in government and private organization for income generation, followed by medium (23.67%), small (17.38%) and marginal (4.93%). Members of comparatively affluent larger households possesses higher education and skill set, making them more eligible for employment in organised sector as compared to their smaller peers. Only, workforce of marginal (31.53%) and small (27.81%) households found to participate in farm wage earing activity for supporting their livelihood, whereas medium and large households did not participate as they have other better choices. Similar was the case with non-farm sector wage earning where marginal (21.67%) and small (18.54%) household engaged their workforce. Marginal households distribute their workforce in businesses like shops (5.42%), transport (6.90%), trades (10.84%), commission agents (3.45%), weaving (14.28%), tailoring (6.90%) and bamboo craft (5.42%) for spreading their income earning activity. The activities mentioned above were both permanent and seasonal in nature and their adoption was based on location, viability of the business and existence of able workforce in the household. In absolute value terms, these non-farm sector occupations together contributed Rs. 27,113.05 per annum per household, which was 53.21 percent of the total earning. In case of small category of households, it was shops (7.28%), transport (3.97%), trades (9.93%), commission agents (5.96%), weaving (9.27%), tailoring (6.62%) and bamboo craft (3.31%), where the households engaged their workforce. The estimated income was Rs. 32,684.38 in absolute terms representing 42.07 percent of total income of average household per annum. The marginal and small households were found to involve in larger number of activities so as to employ workforce throughout the year based on availability of opportunities in both farm and non-farm sector avenues. This was a strategy they followed out of compulsion to earn a decent income for securing their livelihood. The case was little different for the medium and large households; they found to diversify not merely for livelihood security but for

better utilization of their resources and manpower for higher income and achieving better standard of living. Examining the workforce distribution of medium category of households revealed that their workforce involved in shops (12.24%), transport (7.14%), trades (8.16%), commission agent (4.08%) and tailoring (5.10%). The non-farm sector contributed Rs. 34,856.52, accounting for 31.24 percent of total income per household. Similarly, large households employ their workforce in shops (18.75%), transport (18.75%) and commission agent (12.50%). The large households generated 31.79 percent of their income from these non-farm sector which was Rs. 52,687.50 per annum. Many of the aforesaid income earning avenues were found to be practiced by all categories of households, but it was observed that there was distinction in scale and modus operandi among smaller and larger peers. Shops used to be large in investment, scale and profitability in case of larger households compared to smaller ones. In case of transport business like auto-van, smaller household engage own family member to operate whereas larger households hire driver to operate.

Conclusion
Securing livelihood essentially a profound challenge for sizable households in India. When it comes to the rural households of a under developed region like Assam, it's magnitude increases. To overcome all the challenges, households design comprehensive strategy to utilize their in-house workforce in such a way that they achieve livelihood security and at the same time take care of family needs, societal obligations, customs and religious duties. The size of workforce of the rural households, gender-wise composition, qualification and skill set found to be the deciding factors for the better utilization of the workforce for higher income and livelihood security. Considering all limitations within households, basic resource endowment, education level, skill set possessed play a substantial role in utilizing the workforce in more convenient and productive way. Higher resource endowment empowers larger households to invest and focus on fewer activities offering secular employment of workforce in comparatively higher productive avenues to their smaller counterparts. Smaller households rely on temporary, seasonal and low productive avenues for utilizing their available workforce. Therefore, smaller households engage workforce in multiple activities in farm as well as in non-farm sector for their livelihood.

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