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Determinants and Constraints of Rural Household Livelihood Diversification among the Scheduled Caste Families: Evidence from West Bengal

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Abstract

Livelihood diversification is the key to a sustainable rural economy. The study aimed to assess livelihood diversity, determinants, and constraints among the scheduled caste families in Beraberia village of North 24 Parganas, West Bengal to plan a foolproof developmental program. Simple random sampling was followed to select a sample size 108 from the study area. The Simpson livelihood index formula was used to assess the level of livelihood diversification, and the Tobit model was used to find the determinants of the livelihood diversity index. A preferential ranking technique was followed to analyze the constraints in livelihood diversification. The most common livelihood activity in the study was agriculture, with an income contribution of 60.72%. Around 66 percent of the households had a medium to high livelihood diversity index. The Tobit regression model result showed that income, economic motivation, and access to credit were the significant determinants of livelihood diversification in the study area. At the same time, the family dependency ratio negatively influenced the Diversification index. Further, the constraint analysis in livelihood diversification revealed that lack of capital (RBQ 0.77) and livelihood assets (0.75) were significant impediments to livelihood diversification. The study suggests that government bodies must prioritize credit access and capacity building among SC families in rural areas to create more profitable and sustainable livelihoods among the weaker sections of society.

Keywords: Diversification, Livelihood, Rank Based Quotient, Scheduled caste, Tobit Model.

INTRODUCTION

Livelihood diversification is the process in which rural families create diverse income earning activities to improve their living standards and ensure their survival. In other words, livelihood refers to the methods and means people live. On the other hand, diversification can refer to both on-farm and off-farm activities that households undertake to generate additional income from their primary activity. In India, Scheduled Castes and Tribes (SCs/STs) are

primarily involved in agricultural labor. However, according to a study by Dev *et al*. (2002), Scheduled Caste members in Andhra Pradesh are more involved in wage employment, relying on remittances from migration. Even tribal groups engage in various livelihood strategies, including wage employment, on-farm and off-farm activities as they move away from forested areas. The increase in population, land fragmentation, and climate changes intensify the need for diversification among small and marginal holders. The reasons for and the implications of livelihood diversification are complex. However, in general, decisions to diversify are either "opportunity-led" and driven by pull factors or "survival-led" and driven by push factors (Barrett *et al*., 2001; Ellis, 2000). Livelihood diversification can be adopted as a strategy for the survival of the poor and accumulation by the rich. When pursued as a survival strategy, it is known as desperation-led or distress-push diversification, and when adopted as an accumulation strategy, it is known as opportunity-led diversification (Mutenje *et al.*, 2010). Livelihood diversification has long been recognized as a risk management strategy and source of resilience. Livelihood diversification is beneficial to mitigate economic and environmental risks and to improve livelihood sustainability and regional sustainable development. A critical pathway toward sustainable livelihoods for the inhabitants of marginal environments involves the avoidance of long-term dependency on only one income source (Block & Webb, 2001). Oraon (2012), in his study on changing patterns of tribal livelihood in Sundargarh district, Odisha, India, inferred that poor tribal households in risky environments adopt livelihood diversification as a coping strategy to protect their livelihoods.

For rural households in the developing countries of Africa and Southeast Asia, livelihood diversification is a strategy for meeting household consumption needs, generating additional income, and coping with or adapting to the impacts of environmental and economic shocks (Anderson & Deshingkar, 2005). Livelihood diversification is a continuous adaptive cycle in which households add new practices and maintain existing ones or drop others, thus retaining diverse and evolving livelihood portfolios (Admiral, 2012). According to Anderson & Deshingkar (2005), the causes of diversification are mainly explained by the asset-based and insurance-based theories. The former states that a household's livelihood portfolio's diversity is determined by the assets that accrue to a household. The latter explains livelihood diversification as a strategy for ameliorating the adverse effects of income shocks and that its demand is directly related to the extent to which a household is risk-averse.

In India, over 80 percent of farmers belong to the small and marginal farmers' category, whereas it is around 96 percent in West Bengal (Mandal, 2016). The West Bengal agriculture and rural economy is diversifying faster than all India levels (Singh *et al.*, 2006). In India, the

land-based livelihoods of small and marginal farmers are increasingly becoming unsustainable since their land can no longer meet the requirements for food for the family and fodder for their cattle (Khatun & Roy, 2014). Due to the decrease in land size and variations in weather, the farmers need help to meet the requirements of their households on their farms. Mittra and Akanda (2019) identified some critical constraints to adopting diversification in Bangladesh. They reported that lack of capital and job opportunities, limited access to road facilities, lack of education and training, lack of market, and access to credit are the main barriers to increasing diversification levels. Pradhan *et al*. (2020) reported in their study that the majority of the respondents suggested that there should be support from non-government agencies on the different programs, followed by the availability of credit to people in time for livelihood diversification. Dinku (2018) argued that diversifying economic activities is constrained by a lack of basic infrastructure and natural disasters such as cyclones, droughts, and floods. The primary constraints faced by the farmers in West Bengal, despite the vast potentiality to diversify the livelihood towards farm and non-farm activities in the study area, were problems such as negative perception of the community, lack of marketing facilities for the product, absence of storage infrastructure, lack of improved technology and skills, etc. (Saha & Bahal, 2012).

An analysis of livelihood diversification by the farm families is required to understand the existing situation and location-specific constraints and plan for their betterment of the future. Diversification is an infinitely heterogeneous social and economic process, and the research on this topic should emphasize the importance of the local context to suggest policies tailored according to local circumstances (Ellis, 1998; Davis *et al.*, 2010; Gautam & Andersen, 2016). In this background, the present study was done with the following objectives.

a) To assess the level of household livelihood diversification and the contribution of various livelihood activities to household income.

b) To find out various factors influencing the livelihood diversification

c) To analyze the constraints in livelihood diversification

MATERIALS AND METHODS

The study was conducted in Beraberia village in Amdanga block of North 24 Parganas district, West Bengal (Figure 1). The village was selected purposely as it was one of the villages where the developmental activities under the Science for Equity, Empowerment and Development Division under the Department of Science and Technology, Government of India, were planned to be implemented with 149 direct beneficiaries. Considering a

confidence level of 95% and a margin of error of 5 %, a sample size of 108 was calculated and selected using the simple random sampling technique.Due to obscurity in data from eight samples, a final smple size of 100 was considered for the study.

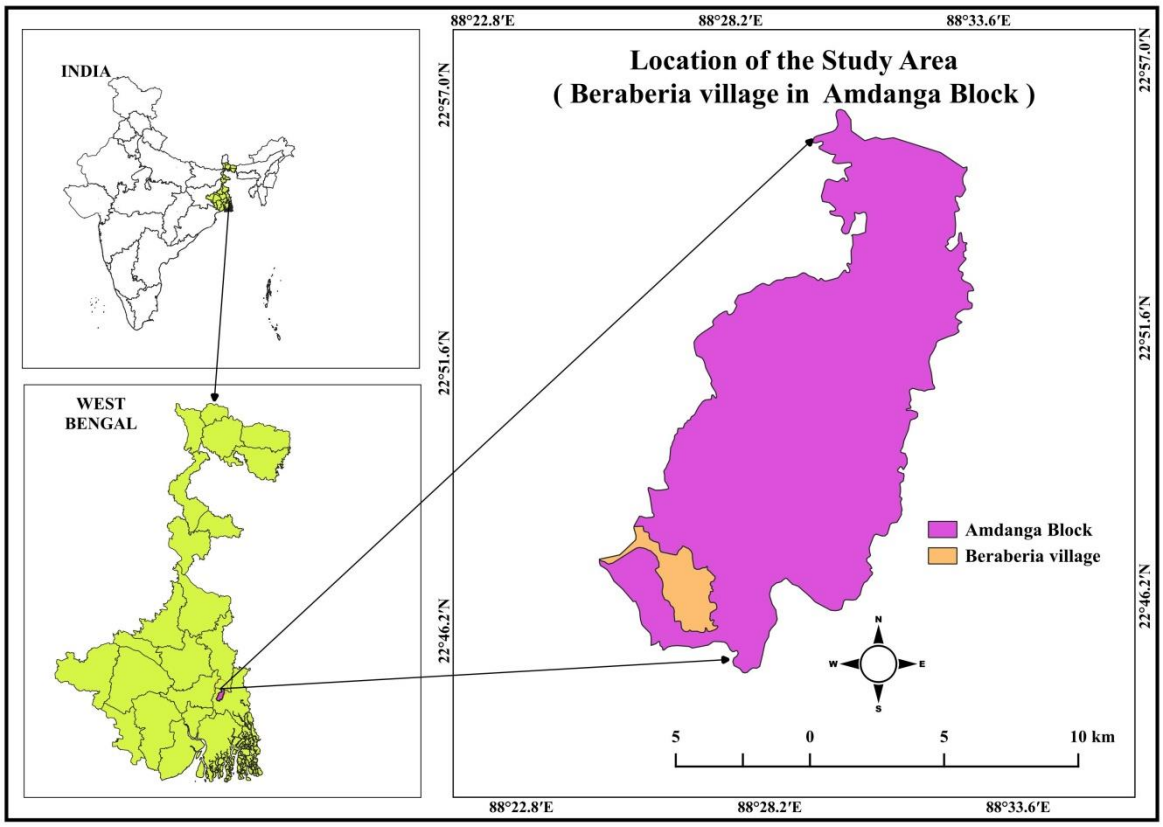

Figure 1. Location map of the study area.

Data was collected from respondents using a structured interview schedule to examine the livelihood diversity in the selected village. The dependent and independent variables used in the questionnaire and tools for their measurement are given in Table 1. The schedule was pre-tested in non-sample areas for its practicability and relevance. Reliability was assessed using the test-retest method with a minimum sample size of thirty and a time gap of two weeks. The Pearson coefficient was 0.801, which indicates that the tool is reliable. The research adopted content validity through a panel of experts in the concerned subject matter who have analyzed the contents of the tool for its validity. The final schedule was used to collect the information from the respondents by personally interviewing them in the study area.

Table1. Dependent and independent variables used in the study.

Variables	Scale/module/questions used in the schedule
Diversification of livelihood	Simpson Index of Diversity (SID). (Simpson, 1949)
Education	The Education level of the household head is categorized based on primary, secondary, or higher education levels.
Income	The annual income of the household
Age	Age of the household head
Land owned	Area of land owned by households
Farming Experience	The number of years in which the household is involved in farming
Membership	Membership in society, clubs, Self Help Groups, and FPOs.
Extension participation	Module (Shamna, 2006); consisted of extension activities participated by the respondents and the extent of participation like always, sometimes and never was scored 2,1 and 0
Mass Media Participation	Module (Shamna, 2006) consisted of different mass media used by the respondents and the extent of participation/use like always, sometimes and never was scored 2,1 and 0
Material Possession	The physical materials (farm machineries, electronic items, vehicles, tractor etc) possessed by the households were considered for scoring
Household expenditure	The total annual expenditure of the households
Credit access	Access to credit with banks or other private means
Economic Motivation	Scale developed by Supe (1961),(scale consisted for four positive and two negative statements)
Distance to Market	The actual distance to the market in kilometers
Family Dependency Ratio	The ratio of number of dependent members to earning members.

The diversification index was measured with the help of the Simpson Index of Diversity (SID). The Simpson Index of Diversity is defined as:

$$SDI = 1 - \sum_{i=1}^{n} p_i^2$$

Where Pi is the proportion of income coming from source i, the value of SID always falls between 0 and 1. If there is just one source of income, then Pi will be 1and SID will be zero. As the number of sources increases, the shares (Pi) decline, as does the sum of the squared shares, so SID approaches 1. If there are no sources of income, then SID falls between zero and 1-1/n. Accordingly, households with the most diversified incomes will have the largest SID and households with less diversified incomes will be associated with the smallest SID. For least diversified households, SID takes on a minimum value of 0. The upper limit for SID is 1, depending on the number of income sources available and their relative shares. The higher the number of income sources and the more evenly distributed the income shares, the higher the value of SID. The Simpson Index of Diversity is affected by the number of income sources and income distribution between the different sources. The farmers were categorized into different groups based on the livelihood index score. No Livelihood Diversity: LDI value > 0.01, Low LDI: 0.01-0.25, Medium LDI: 0.26-0.50, High LDI: 0.51 -0.75, Very High LDI: 0.76-1.00, (Khatun & Roy, 2012).

Descriptive and inferential statistics were used in the study. R software is used for data analysis to find the determinants of the livelihood diversity index. In this study, the dependent variable is the livelihood diversity index, the value of which ranges from zero to one. Respondents have Livelihood Diversification Index values of zero, One, and values that lie in between. Here, respondents with zero LDI mean we only have information on the repressors but not the regressand. The censored regression or Tobit model is used in cases where the sample consists of the censored sample. The Tobit model is often used in econometrics to analyze censored data, where the dependent variable is observed only under certain conditions. Censoring occurs when the dependent variable is not fully observed, usually because it is truncated at a certain threshold. This model benefits econometrics and social sciences when dealing with limited or bounded dependent variables. Determinants of livelihood diversification were analyzed at the household level of farming. The effect of numerous socio-economic factors on the extent of livelihood diversification adopted by each household will be determined. In this case, the dependent variable is bounded between 0 and 1, which means the variables are censored at 0.0 and 1.0, and the conventional regression methods do not consider the qualitative difference between zero and continuous observations Schwarze (2004).

The Variance inflation factors technique was employed to detect multicollinearity in independent variables. The preferential ranking technique was followed to prioritize the constraints of livelihood diversification. The RBQ indicates the problem that is perceived to be affecting most stakeholders. The respondents were asked to indicate their constraints in diversifying their livelihood activities. Among these, 12 constraints reported by most respondents were selected for preferential ranking purposes. The respondents were asked to rank the constraints listed according to their severity. Constraints were prioritized based on rank-based quotients by following the formula given by Sabaratnam (1988).

$$\text{R.B.Q.} = \frac{\sum f_i \left(n+1-i\right)}{N \times n} \times 100$$

Where in, f_i = number of respondents reporting a particular problem under i^{th} rank
N = Number of Respondents
i = number of rank
n = number of constraints identified.

RESULTS

Characteristics of respondents in the study area

The data in Table 2 provides a detailed picture of the characteristics of the respondents in the study area. Most of the respondents (70%) belonged to the above 35 age group. Education level was categorized based on primary level (low), up to secondary level (medium), and above the higher secondary level in the Indian education system. Around 50 percent of the respondents had a medium to high level of education. Half of the respondents possessed land areas from one to three acres. More than 50 percent of respondents had access to credit, but only 41 percent had membership in any organization related to farmers or Self Help Groups. The classification was based on mean and standard deviation in all other independent variables studied. Over 75 percent of farmers had medium to high farming experience, Extension participation, and Family Dependency Ratio. Only 14 percent of the respondents were highly motivated, whereas 55 percent were in the medium level of motivation category.

Table 2. Characteristics of respondents in the study area.

Variables	Category	Percentage	Variables	Category	Percentage
Age	18-35 yrs	30	Mass media participation	Low	25
	36-55 yrs	49		Medium	62
	> 55 yrs	21		High	13
Education	Nil	9	Annual expenditure	Low	13
	Low	43		Medium	71
	(Medium)	29		High	16
	High	19	Economic motivation	Low	31
Income level	low	2		Medium	55
	medium	82		High	14
	High	16	Distance to market	Low	13
Land owned	<1 acre	48		Medium	51
	1-3 acre	50		High	36
	> 3acre	2	FDR	Low	9
Farming experience	Low	22		Medium	65
	Medium	56		High	26
	High	22	Credit access	Yes	55
Extension participation	Low	3		No	45
	Medium	88	Membership in organization	Yes	41
	High	9		No	59

Livelihood sources in the study area

A range of diversification activities are undertaken in the study area, as illustrated in Figure 2. The intensity of livelihood diversification of the sampled household was indicated by the share of their income from different sources (Table 3). For most respondents (96 percent), crops were one of the sources of income. The overall income portfolio in the study area consisted of various income-earning activities. The most common livelihood activity was

agriculture (96%), followed by non-agricultural wages (18%), public and private services (16%), agricultural wages (14%), and small-scale business (14%).

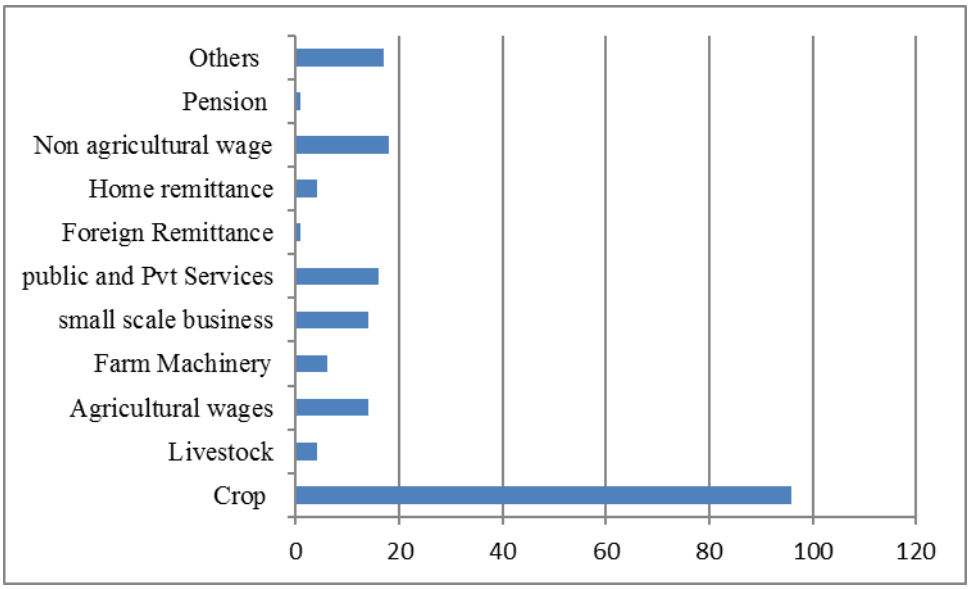

Figure 2. Proportion of households and source of livelihood in the study villages.

Table 3. Contribution of Income from different sources in the household.

Sl. No	Source of income	Percentage to total income
1	Crop	60.72
2	Livestock	0.38
3	Land rented out	0.00
4	Agricultural wages	2.80
5	Farm Machinery	0.69
6	Small scale business	6.75
7	Public and pvt services	8.47
8	Foreign remittance	0.80
9	Home remittance	1.30
10	Non-Agricultural Wage	8.70
11	Pension	0.05
12	Others	4.25

Distribution of respondents based on livelihood diversification

The respondents' main livelihood was agriculture, as most of their income was from agriculture. The livelihood diversity index was calculated for the farm households, and 0.34 was the average livelihood index value as per the Simpson livelihood index formula. It is evident from Table 4 that 42 percent of farmers had a medium livelihood index (LDI: 0.26-0.50), 22 percent of households had a high Livelihood index LDI (0.50-0.75), 17 percent of the respondents had a low livelihood index LDI (0.01-0.25), and 19 percent had no livelihood diversity (LDI value is zero).

Table 4. Level of livelihood diversification among the respondents.

Sl. No	Livelihood diversity index	Percentage
1	No LDI (< 0.01)	19
2	Low LDI (0.01-0.25)	17
3	Medium LDI (0.26 – 0.50)	42
4	High LDI (0.50-0.75)	22
5	Very high LDI (0.75-1.00)	0

Multicollinearity diagnosis

Multicollinearity occurs when two or more independent variables are highly correlated in the model (Quinn & Keough, 2001). One way to detect multicollinearity is using a metric known as the variance inflation factor (VIF), which measures the correlation and strength between the predictor variables in a regression model. The larger VIF value, usually exceeding 10, shows a serious multicollinearity problem. The result indicated that none of the selected variables had a VIF of more than or equal to 10, which suggested no multicollinearity between the selected independent variables.

Table 5. Collinearity statistics of selected variables.

Variables	Collinearity Statistics	
	Tolerance	VIF
Education	0.431	2.319
Income	0.799	1.252
Age	0.285	3.506
Land owned	0.762	1.312
Farming Experience	0.339	2.948
Membership	0.833	1.200
Extension participation	0.613	1.632
Mass Media Participation	0.579	1.726
Material Possession	0.691	1.446
Household expenditure	0.684	1.462
Credit access	0.677	1.477
Economic Motivation	0.757	1.321
Distance to Market	0.905	1.105
Family Dependency Ratio	0.719	1.391

Determinants of livelihood diversification among households in the study area

The Tobit regression model was employed to determine the determinants of livelihood diversification. Table 6 shows the result of the Tobit model employed to examine the determinants of livelihood diversification among households in the study area. The coefficient of income and credit access is positive and significant at 5 % ($p<0.05$), while the coefficient of economic motivation was significant and positive at 1% ($p<0.01$). The coefficient of the Family Dependency Ratio was significant and negative at 5 % ($p<0.05$).

Table 6. Tobit Model results on determinants of livelihood diversification strategies**.**

Variable	Coef.	SE	z	P>|z|	[95% Conf. Interval]	
_cons	0.30094	0.12279	2.45000	0.01600	0.05685	0.54503
Education	0.02133	0.01400	1.52000	0.13100	0.04916	0.00651
Income	0.00012	0.00000	2.50000	**0.01400**	0.00000	0.00000
Age	-0.00220	0.00219	-1.00000	0.31800	-0.00654	0.00215
Land owned	-0.00475	0.00738	-0.64000	0.52200	-0.01942	0.00993
Farming Experience	0.00012	0.00188	0.06000	0.94900	-0.00361	0.00385
Membership	-0.01157	0.03286	-0.35000	0.72600	-0.07689	0.05376
Extension Participation	0.00425	0.00524	0.81000	0.42000	-0.00617	0.01467
Mass Media Participation	0.00889	0.00552	1.61000	0.11100	-0.00209	0.01986
Material Possession	-0.00878	0.00790	-1.11000	0.27000	-0.02450	0.00693
Expenditure	-0.0000002	0.0000002	-1.07000	0.28600	-0.0000007	0.0000002
Credit access	0.07104	0.03459	2.05000	**0.04300**	0.00227	0.13981
Economic Motivation	0.11404	0.01111	10.27000	**0.00010**	0.09196	0.13612
Distance to market	-0.01384	0.01324	-1.05000	0.29900	-0.04016	0.01247
Family Dependency Ratio	-0.20042	0.09996	-2.01000	**0.04800**	-0.39912	-0.00171

LR $chi^2(14)$= 109.91 Prob> Chi^2= 0.000 Log likelihood= 28.359441 Pseudo R^2= 2.0664.

Constraints in Livelihood Diversification

The constraints of livelihood diversification were obtained using Rank-based Questionnaires (RBQ) from 100 respondents in the study area. The data in Table 7 indicate that lack of sufficient funds was the most prominent constraint in livelihood diversification reported by farmers, with a rank-based quotient value of 0.77, followed by lack of livelihood assets (RBQ 0.75). The least ranked one was the lack of sufficient family labor and climatic risk.

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248 **Table 7.** Preferential ranking of the constraints in livelihood diversification strategies.

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Sl. No	Constraints													RBQ	Rank
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**		
1	Lack of sufficient funds	33	15	14	10	3	6	6	0	3	4	4	2	0.77	1
2	Lack of knowledge about new opportunities	12	4	26	11	16	4	7	9	1	4	4	2	0.68	3
3	Low risk-bearing ability	2	18	13	7	19	7	6	6	9	13	0	0	0.63	4
4	Lack of proper guidance	8	2	9	21	12	22	4	4	12	3	1	2	0.62	5
5	lack of proper market linkage	5	0	3	8	14	10	21	8	18	9	3	1	0.51	7
6	High labour charges	3	10	5	7	5	14	29	16	6	0	5	0	0.57	6
7	Lack of sufficient family labor	0	3	3	11	9	9	3	8	19	7	13	15	0.41	11
8	Lack of proper credit linkage	0	3	9	9	6	14	17	9	5	14	4	10	0.48	8
9	Inadequate support from Government agencies	4	0	6	5	7	2	5	23	11	16	10	11	0.43	9
10	Climatic risk	3	1	5	0	0	0	0	7	10	12	26	36	0.25	12
11	Lack of infrastructural facilities	7	11	2	9	5	5	1	1	4	15	19	21	0.42	10
12	Lack of livelihood assets	23	34	8	1	7	4	2	8	1	0	9	3	0.75	2

DISCUSSION

Household income portfolios were analyzed initially to identify the farmhouse's significant income-earning source and other diversified income sources (Fig-1). The respondents' main livelihood was agriculture, as the significant income was obtained from agriculture. Depending upon the individual's capability, knowledge, skill, infrastructural facilities, income, or credit facility, farm households engage in various activities to enhance their livelihood security. The participants in the study area also depended on non-agricultural and agricultural wages, small-scale businesses, and public and private services. The results agree with the findings of Melketo *et al*. (2020). Roy and Basu (2020), Adam *et al.* (2018, 2020). Table 1 represents an average annual income share from various economic activities of households. The intensity of livelihood diversification of the sampled household was indicated by the share of their income from different sources. The table indicates the role of agriculture in rural household income, as 60.72 percent of the income comes from agriculture. Dependence on all other sources could have been higher, and the underlying reasons were to be brought out for the better planning the developmental programs. Since agriculture is associated with risk and uncertainties, farming households rely on agricultural and non-agricultural activities to secure their livelihood, Asmah (2011) and Martin & Lorenzen (2016). It is imperative to know about these different livelihood activities of a locality or region and the factors influencing or determining the level of such activities before planning for any developmental activity in the region so that an efficient plan can be made for the overall development of the people.

Only 22 percent of the respondents had a high livelihood diversity index, and more than one-third of the participants had low or no livelihood diversity index values, indicating a considerable scope for improving the livelihood diversity of the farm households. Indian agriculture is mainly subsistence-based. As the population continues to grow, the land is becoming more fragmented. Agriculture serves as the primary source of income and nutrition for rural households, with much less emphasis on diversification into other income-earning ventures. Although it is recommended to diversify income sources to reduce the uncertainty that can arise from agriculture, only about one-fifth of the participants had a high livelihood index. The low level of diversification can be attributed to a lack of knowledge about profitable ventures, low risk-taking ability, and limited resources. Access to credit and extension services can help improve the livelihood diversification status of households.The results confirm the studies of Alemu (2023), who reported that access to enough extension

services endows them with different information, knowledge, and skills about confrontation and prospects of diversified livelihood strategies.

Factors like income, access to credit, economic motivation, and family dependency ratio significantly influenced the livelihood diversification of farm households. Households with higher income are more likely to engage in diversifying their livelihood activities compared to low-income households. Farming households with sufficient annual income can easily overcome financial constraints and allocate funds for various diversified income-earning activities. When their financial situation is stable, they are better placed to make use of diversification options that strengthen their ability to earn a living.This study is in agreement with the previous studies by Abera *et al.* (2021), Gecho *et al.* (2014), Sunanda *et al.* (2014), Pradhan *et al.* (2021), Dagar & Upadhyay (2022), Gautam & Jha (2023).

Access to credit had a positive and significant effect on the farmers' livelihood diversification. Access to credit can play a crucial role in promoting the diversification of livelihood activities among farmers, particularly those with limited means. The majority of farmers in the study area are small-scale and have limited resources. By providing them with access to credit, their risk-bearing capacity can be improved, and they can explore new livelihood opportunities.This is similar to the study of Asmah (2011), Saha and Bahal (2010), Oluwatayo (2009), and Babatunde and Matin (2009) on the other hand; this finding supports the findings of Gebru *et al.* (2018) Also, the findings of Arega *et al.* (2013) on access to credit showed a positive and significant correlation with the annual income of households. Debele and Desta (2016) reported that access to credit services was found to affect the diversification of livelihoods positively.

Economic motivation, was found to have a positive and significant relation with livelihood diversification. This means that the higher the economic motivation, the higher the likelihood of diversifying livelihood activities. The result is supported by the study of Reddy *et al.* (2021), which reported a strong correlation between the economic motivation of farmers and livelihood diversification.Though the coefficients of age, land owned, membership in SHG or farmers associations, and distance to market had negatively influenced the livelihood diversification index, the influence was non-significant. The coefficient of the family dependency ratio significantly negatively influenced participants' livelihood diversity index value. This means the likelihood of farmers diversifying their livelihood activities decreases with an increased family dependency ratio. An increase in dependency ratio increases the number of household members below 18 years and above 60 years who cannot engage in some activities. Diversification demands the involvement of more funds and more working

hands, and due to the low risk-bearing ability of the small and marginal farmers who had to support the non-earning members of the family, they hesitate to diversify their livelihood activities. The study supports the findings of Khatun and Roy (2012) and contrasts with the studies of Tizazu *et al.* (2018) and Dessalegn and Ashagrie (2016).

Understanding the constraints of the livelihood diversification strategy is critical for identifying rural development challenges and intervening to improve rural communities' livelihood and food security (Mehta *et al.*, 2022). The most critical constraint reported by farm households was the lack of sufficient funds. The majority of the farmers face capital shortages. Lack of livelihood assets, knowledge about new opportunities, and Low risk-bearing ability were other prominent constraints reported. Most high-ranked constraints were oriented toward financial crisis, indicating that increased access to credit may help increase livelihood diversification. The poor asset base and lack of institutional support contribute to the low risk-bearing ability of farmers, Khatun and Roy (2012). Since insufficient funds and knowledge about new income-earning opportunities are reported as essential constraints inhibiting livelihood diversification, this must be addressed with utmost priority. Credit support and capacity building on different livelihood diversification activities can bring about a significant change among farm families. This would teach farmers about different entrepreneurial activities and improve their risk-bearing ability.

CONCLUSIONS

Livelihood diversification is crucial now, more than ever, in the face of changing climate conditions. This is especially important in rural areas where agriculture-based livelihoods are common to mitigate economic and environmental risks. Generally, respondents are more likely to have diversified livelihoods with higher incomes or access to credit. Livelihood diversification is found to be more significant among economically motivated farmers. The government should ensure that rural families have access to credit and provide training and skill development in profitable livelihood activities to revamp the livelihood diversification status of SC households in rural areas. Policies and actions to improve rural farmers' livelihoods must consider the determinants of rural livelihood diversification, which are imperative and crucial for the sustainable livelihood outcome of any area under consideration. **The limitation of present study is that it is location specific and most respondents were small or marginal farmers. Research covering different communities from a wider area can provide more focused results on different livelihood diversification patterns. The present study did not consider changes in livelihood diversification over time, which**

would have been a more comprehensive and efficient approach. Future research should explore these aspects.

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