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DETERMINANTS OF LIVELIHOOD DIVERSIFICATION IN RURAL PUDUCHERRY

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Abstract : This study attempts to find out the determinants of livelihood diversification in the rural areas of Puducherry District of the U.T. of Puducherry in India. Livelihood diversity has been measured by using Inverse Simpson index and Hierarchical regression has been used to find out the factors that determine livelihood diversification. It is observed that levels of diversification are low among the sample households and Diversification as a livelihood strategy is more of a survival strategy than an accumulation strategy in the study area. Female headed households are diversified more than the male headed households and more female workers in the household leads to more diversification whereas educational level of the head of the household has a negative influence on diversification. Livelihood diversification is determined by number of cattle in the households where as land holdings and involvement in social activities does not have significant influence.

Key words : Diversification, Determinants Of Livelihood, survival

Introduction

Rural households can generate income from a wide range of farm and non-farm activities apart from remittances and social support capabilities. Each household has its' own strategy of decision-making on allocation of resources among different income-generation activities. Household members can engage in different activities to generate income. Some time a member find multiple sources of income in a particular time or different times of the year. Diverse livelihood systems are less vulnerable to natural calamities, market fluctuations, risk, and poverty than non-diversified livelihoods (Reardon et al., 1992; Hart Gillian, 1994) and sustained flow of income usually requires diversified economic activity.

Globalisation generates a new environment for development with special implications for those who are living in rural areas. It can influence people's capabilities to secure and improve their livelihood goals. Livelihood changes in a household will have influence on household income, standard of living, livelihood security and gender relations (Ellis Frank, 1998; Sujithkumar, 2007). Livelihood strategies adopted by the rural households in the era of globalisation have to be investigated in relation to household's natural capital, human capital, physical capital, financial capital, social capital and political capital. In this contest the present study measures and analyse income diversification among different strata of rural households by using data collected from three villages of Pondicherry region of the U.T. of Puducherry. Inverse Simpson index has been used for measuring income diversification and the determinants of income diversification have been identified by using OLS Regression.

This paper proceeds as follows: Section 2 states the methodology Section 3 discusses the characteristics of Puducherry district and sample villages. Section 4 discusses the basic characteristics of the sample households. Section 5 measures and analyse income diversification in the sample and trace out the determinants of income diversification. Section 6 summaries the result.

Methodology

Present study considers increase in the number of income sources or the balance

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among different sources as diversification. A household with more number of income generating sources would be more diversified than a households with less number of income generating sources and a household that generates equal amount from each activity that involved is more diversified than the household with same number of income generating activity but unequal income share from each income source.

The inverse Simpson Index of diversity is selected for measuring livelihood diversity. A household with more number of income generating sources would be more diversified than a households with less number of income generating sources and a household that generates equal amount from each activity that involved is more diversified than the household with same number of income generating activity but unequal income share from each income source. According to the index if there are n number of different income sources and let P_1, P_2, ….Pn denote the proportion of household income generated by different activity, diversity can be measured by the following index.

$1 / \Sigma Pi^2$, where i = 1 to n.

The index considers the number of income sources and the distribution of income between different sources. Household with more diversified income will get highest diversity value. Household with only one source of income will get the value 1 which is the minimum possible. The more uniformly distributed is the income from each source, the more closely the index comes to measuring the number of income sources. Since the income is classified into four groups in the present study, the inverse Simpson index can have the value between 1 and 4.

Data and Survey villages

Puducherry district of the U.T. of Puducherry in India is selected for the study. As per 2011 census, total population in the Puducherry district is 9, 46,600 in which 30. 87 percent is living in rural areas. Sex ratio of the districts is 1031 and among rural population it is 1025. Literacy rate of the district is 86.13 percent. The primary occupation of the area is agriculture with a little textiles, chemical, and electronic industry. The district presents more or less a flat land. The main soil types are red ferrallitie, black clay and coastal alluvial. The percentage of cultivable area to total area and percentage of irrigated area to total cultivable area are 78.62 % and 54.27 % respectively. This region cultivates mainly rice, sugarcane, coconut, betel vines, millets etc. In some parts cotton and also flowers such as jasmine, rose, marigold, etc., are grown. Major industries in the area are swadeshi cotton mills Ltd, Sri Bharathi Mills, and Anglo-French textiles. Small scale industrial units are mainly engaged in the manufacturing of furniture, dry cells, cosmetics, steels utensils, cement products, etc. Cottage industrial units include pottery, carpentry, blacksmith, basket making, dying, pipe making, cane works, handmade paper, agarbathi making, embroidery, etc.

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Table. 1
Characteristics of the Survey Villages

Survey villages	Geographical features	Access to infrastructure	Remarks
Korkadu	Block: Villianur Area :345 sq.mt. Nearest town : Puducherry Distance from head quarters: 14 k.m.	Near to main road Access to drinking water supply Electrified	Low agriculture potential Presence of industries
Ramanathapuram	Block: Villianur Area :333 sq.mt. Nearest town : Puducherry Distance from head quarters: 15 k.m.	Near to main road Access to drinking water supply Electrified	Good agriculture potential Large land holdings
Manamedu	Block: Bahour Area: 220 sq.mt. Nearest town : Nellikuppam Distance from head quarters: 40 k.m.	Distanced from main road Access to drinking water supply Electrified	Good agriculture potential Relatively less connected to urban centres High concentration of scheduled caste population

The sample is collected from three villages of Puducherry district namely Korkadu, Ramanathpuram and Manamedu. The villages are selected primarily based on their proximity to the district headquarters and considering socio-economic characteristics of the villages. Manamedu is a remote village far from town and relatively less connected to urban centres. High concentration of scheduled caste population is a special feature of this village. Korkadu and Ramanathapuram villages are nearer to urban centre. We can observe the presence of industries in Korkadu and nearby villages. Ramanathapuram is known for its agriculture base and one could locate many big farmers in this location.

The sample households have been selected on random. Sample constitutes 367 households, 25 % of the total households in the respective villages 138 households from Korkadu, 118 from Ramanathapuram and 111 from Manamedu. Percentage of households with operational landholdings is 11.59%, 12.71%, and 15.32% in Korkadu, Ramanathapuram and Manamedu respectively. Collecting information on income from rural households is a challenging task mainly because of seasonal nature in many of the activities which they are engaged. For tackling this problem surveys were repeated for three times considering different seasons and that took place in the year 2012.

Demographic Profile and Household Characteristics

This section gives an idea about demographic profile and the household characteristics

Table 2
Demographic Profile of the Sample Households

Characteristics	Village			Total
	Korkadu	Ramanatapuram	Manamedu	
Sample households	138	118	111	367
Sample population				
Male	282	215	211	708
Female	277	231	211	719
Total	559	446	422	1427
Household size (mean)	4.05	3.78	3.80	3.89
Age of the head (mean)	45.01	45.32	41.91	44.17
Sex of the head of the household (percentage to total sample of the village)				
Male				

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Female	86.2 13.8	84.7 15.3	81.1 18.9	84.2 15.8
Educational status of the HH (mean years of schooling)	5.58	5.10	5.03	5.26
Community (percentage to total sample of the village) SC BC MBC OC	 39.1 26.8 31.9 2.2	 22.0 51.6 25.4 0.8	 61.3 10.8 23.4 4.5	 40.3 30.0 27.2 2.5

Source: Primary data

It can be observed from table 2 that the number of female is more than the number of male in the sample population; this is in line with the District's history of favourable sex ratio. The sample population consist of 1427 and the mean household size is less than 4 members indicating nuclear families. Average age of the head of the household in the sample is 44.17 years. Female headed households are less in numbers (15.8 %). Mean years of education of the head of the household (5.26 years of schooling) shows that households are headed by less educated persons. SC households are prominently represented in the sample (40.3 %) followed by BC and MBC households and in the Manamedu village SC households have a representation of 61.3 % that agrees with the percentage of SC households in the Manamedu village as a whole.

Table 3
Household Characteristics

Characteristics	Village			Total
	Korkadu	Ramanatapuram	Manamedu	
House Type (in percentages) Pucca Semi Pucca Kutcha	 31.9 35.5 32.6	 25.4 30.5 44.1	 31.5 24.3 44.1	 29.7 30.5 39.8
Household Annual Income (mean) Rs.	69,495	77,591	77,440	74,501
Per Capita Income (mean) Rs.	17,517	21,351	22,515	20,262
Operational landholdings Frequency Mean (Acres)	 16 0.72	 15 4.58	 17 2.23	 48 2.46

Source: Primary data

Poor housing facility in the sample villages is reflected in the house type information as per table 3. Kutcha houses house around two fifth of the households. Mean annual income of the household is highest in Ramanatapuram (77,591) followed by Manamedu (77,440) and Korkadu (69,495) whereas mean per capita annual income is highest in Manamedu (22,515). Size of operational landholdings is high in Ramanathapuram (4.58 acres) followed by Manamedu and Korkadu. Ramanatapuram village has better agriculture prospects with better irrigation facilities and fertile land. Village Knowledge Centre (VKC) an initiative of M. S. Swaminathan Research Foundation (MSSRF) which aims to empower the rural villages through giving them access to knowledge via networked ICT is active in this village.

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Livelihood Diversity among Sample Households

Table: 4.1

Levels of livelihood diversification

Levels of diversification	Frequency	Percentage	Cumulative percentage
1	107	29.2	29.2
1.01 to 1.50	133	36.2	65.4
1.51 to 2.00	76	20.7	86.1
2.01 to 2.50	29	7.9	94.0
2.51 to 3.00	16	4.4	98.4
More than 3	6	1.6	100

Source: Computed from primary data

It is observed that levels of diversification are low among the sample households. It is observed that 29.2 % of the households receive income from a single source only and another 36.2% of the households diversified in the extent of 1.01 to 1.50 only in a four point scale. Households that diversified more than 2 in the Simpson index constitute only 13.9 %.

Diversification is a heterogeneous process and differs in different population groups. Studying the difference in the levels of diversification, index has been calculated for different groups and the difference has been tested using relevant tests.

Table: 4.2

Income Diversification among the Sample Households

Groups	Frequency	Mean	SD	Test value	Sig.
Village					
Korkadu	138	1.40	.51		
Ramanathapuram	118	1.37	.42	F = 10.47	.000
Manamedu	111	1.66	.64		
All Villages	367	1.47	.54		
Community					
SC/ST	148	1.52	.54	T = 1.52	.130
Non SC/ST	219	1.43	.54		

Source: Computed from primary data

Difference in levels of diversification among various groups has been tested in the table 4 .2. Simpson index of diversity for the sample households is 1.47, shows a low levels of diversity among the sample households. Households in the Manamedu (1.66) village are diversified more than the households from Korkadu (1.40) and Ramanathapuram (1.37) villages. SC/ST households are diversified slightly higher than that of non SC/ST households, but the difference is not statistically significant.

Table: 4.3

Income Diversification among Different Income Groups

Groups	Frequency	Mean	SD	Test value	Sig.
Major source					
Farming	32	1.92	.76		
Agri. labour	77	1.51	.54	F = 18.57	.000
Nonfarm	232	1.35	.42		
Transfer	26	1.86	.69		
Income group					
Lowest	92	1.63	.66		
Second	92	1.54	.50	F = 7.22	.000
Third	91	1.40	.55		
Highest	92	1.30	.35		
PCI group					
Lowest	92	1.55	.60		
Second	92	1.59	.60	F = 6.43	.000
Third	92	1.45	.50		
Highest	91	1.27	.36		

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Household's major source of income vs. levels of diversification in table 4.3 shows that farming households are diversified (1.92) more than any other categories and nonfarm households are diversified the least (1.35). It is interested to observe that households in the two lower income groups are diversified than households in the higher income groups. Same pattern is visible with respect to PCI groups. It can be inferred that diversification of livelihood is more of a survival strategy than accumulation strategy in the study area.

Determinants of Livelihood Diversification

Potential variables that can be determinant in income diversification have been identified from the literature. Hierarchical regression model has been used to identify the role of each variable in determining income diversity. Diversity index has been treated as dependent variable and all the independent variables can be grouped into (a) demographic variables (b) access to various capital (c) income from different sources

Table 4.9
Hierarchical Regression

Variables	Model 1 β	Model 2 β	Model 3 B
Step 1 control			
Demographic factors			
Sex of head of the household (M=1,F=2)	**.264****	**.241****	**.211****
Educational level of the head of the household (years)	**-.160****	**-.181****	**-.105***
Female earning members (numbers)	**.211****	**.212****	**.163****
Step 2 predictor			
Access to various capital			
Land holdings (in acres)		**.092**	**.023**
Cattles (number)		**.156****	**.151****
Social capital		**-.003**	**.048**
Step 3 predictor			
Income			
Farming income			**.139***
Agricultural labour income			**.084**
Nonfarm income			**-.177****
Transfer income			**.229****
R Square	**.228**	**.260**	**.358**
Adjusted R Square	**.221**	**.247**	**.339**
F	**32.93**	**19.39**	**18.26**
F Sig.	**.000**	**.000**	**.000**

****significant at p <.01**
***Significant at p <.05**

Table 4.9 gives the results of Hierarchical regression**.** Three groups of variables were listed and served as predictors for livelihood diversification. The hierarchical regression revealed a three step analytical procedure, the predictors accounted for 34 % (adjusted R square = .339) variation in diversification.

Demographic variables such as sex of head of the household (.264) and female earning members (.212) positively influence on levels of diversification where as educational level of the head of the household (-.181) has a negative influence. Female headed households are diversified more than the male headed households and more female workers in the household leads to more diversification.

Livelihood diversification is determined by number of cattle (.156) in the households where as land holdings and involvement in social activities does not have significant influence.

Among income variables, except income from agricultural labour, all other variables have significantly determined the

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levels of diversification. Transfer income has a greater influence. Negative slope of the nonfarm income variable indicates that, more the income from nonfarm sources for the household, less is the livelihood diversification.

Conclusion

It is observed that levels of diversification are low among the sample households. Diversification as a livelihood strategy is more of a survival strategy than an accumulation strategy in the study area. It can be observed that over dependency of income sources that are less remunerative, risky and seasonal in nature by the female members of the household is the root cause of their poor economic status.

Demographic variables such as sex of head of the household and number of female earning members have an influence on levels of diversification. Female headed households are diversified more than the male headed households and more female workers in the household leads to more diversification whereas educational level of the head of the household has a negative influence on diversification. Livelihood diversification is determined by number of cattle in the households where as land holdings and involvement in social activities does not have significant influence.

References

1.Ellis Frank (1998), "Household Strategies and Rural Livelihood Diversification", Journal of Development Studies, Vol. 35, No.1.

2.Hart Gillian (1994), "The Dynamics of Diversification in an Asian Rice Region", Ch 2, In Bruce Koppel, John Hawkins, William James (eds) Development or Deterioration? Work in Rural Asia, Lynne Rienner Publishers Inc, USA.

3.Reardon Thomas, Delgado Christopher and Matlon Peter (1992), "Determinants and Effects of Income Diversification amongst Farm Households in Burkina Faso", The Journal of Development Studies, Vol. 28, No.2.

4.Sujithkumar P.S. (2007) "Livelihood Diversification: A Case Study in Rural Tamilnadu", The Indian Journal of Labour Economics, Volume 50, Number 4.

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