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Determinant factors of social network in the resettlement area: The case of Metema District Resettlement Scheme

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The study revealed that resettlement has found to create fragmentation on the social organization, kinship ties, and the informal networks. Yet, the social capital as one of the asset for rural households in the resettlement area has great impact on the improvement of their livelihood and resilience capacity. Cognizant to that, this study mainly aimed to indentify the determinant factors for the growth of social network in the resettlement area using the binary logistic regression analysis. The result finds that age of the household head, family size, total farm size, livestock possession and mobile phone possession found to influence the growth of social network positively and significantly on the other hand language difference found to influence social network negatively and significantly.

Key words: Social network, logistic regression, determinants

INTRODUCTION

Social Capital has great deal with the rural society as equally important as that of material capital. It is one of the prime determinant ingredients for the success of rural livelihood. Evidences have showed that many of the effort that aimed at material support fail short of to bring lasting remedy to the rural livelihood outcomes. As result, rigorous efforts in tackling rural poverty that merely targeted at improvement in production and productivity seen not to be the single solution to the rural households. (Robison, L., 2010). Rather households' ability to have strong network among the various stakeholders in the rural setting has great impact on the marketing and production information (ibid).

It is worth mentioning to associate social network with resettlement, since people at different location will begin new life in new area. Be it forced or voluntary, Studies revealed that resettlement has found to create fragmentation on the social organization, kinship ties, and the informal networks (Dowell, 2000; cited in Quetulio, N, et al, 2012). Only few studies have been found to link social network with the resettlement areas (Sseguya, 2009; Dessalegn, et al, 2010,). However, it is hardly possible to found studies that specifically aimed at examining the effect of social network on the household resilience of the resettlement schemes in Ethiopia.

Yet, the social capital as one of the asset for rural households in the resettlement area has great impact on the improvement of their livelihood and resilience capacity (Putnam, 2001). As well studies have showed that strong social connectivity as an avenue for

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rural household income improvements (Jenny, 2005). Moreover, social connectivity has been recognized as one of the utmost determinate for the resilience capacity of the rural households.

The more the households' develop strong social network, the better capacity to remain stable and restore back at the time of crop failure, death of livestock and human illness (Cassidy and Barnes, 2012). Weighting that social network as the fundamentals of re-settlers in the study area, this study basically focused on the factors that determine the growth of social network in Metema District resettlement Scheme.

METHODOLOGY

The current study area Metema District located 900 Km to the North West of Addis Ababa and around 180 km West of Gondar town. The district is part of North Gondar Administrative zone in the Amhara regional state which has boundaries of Tigray region in North, Agwea zone and West Gojjam in South, Wagihimra zone and South Gondar in East and the Sudan in the West. The district is one of the 18 districts of North Gondar Administrative zone. It comprises 18 rural kebeles and 2 town associations (IPMS, 2005).

Multistage sampling technique was the instrument to select the main kebeles for this study. Metema Woreda purposively selected, since it is the main resettlement area in North Gondar. Then after stratifying the kebeles based on the year of existence in the new resident, kebeles were selected considering the representation and relevance of kebeles for the study. Finally, the sample size determined respecting the quantitative requirement for the regression model (Gorard, 2004; Long and Freese, 2006). Since in this study about 11 explanatory variables were be used to identify the factors that affect social network; 130 household samples were used throughout the survey. However, the sample sizes for qualitative data was determined as to the saturation of the relevant information are gathered. To this effect one key informant and two focused group discussions have been carried out.

Table 1: Sample Size Determination on the basis of Stratification

Kebeles	Stratification	Households		
Kumar-Aftit	Previous settlers	1,729	69	55
	Recent settlers			14
Kokit	Previous settlers	1,547	61	48
	Previous settlers			13
Total		3, 276	130	130

Source: Own survey, 2015

In this study both the descriptive and econometrics analysis techniques are preferable. Among the descriptive analysis, percentage, mean, percentage, maximum and minimum computations. At the same time, the relevant factors that supposed to have effect on social network were analyzed using binary logistic regression model. Analysis of social network is a complex activity that requires systematic ways to quantitatively analyze social capital. Therefore, the number of networks that households have developed normalized in to percentages and then grouped in to some orders from the very high social network to the lowest one. Thus the response variable were grouped as very low for social networks 1-25 % , low social network from 26-50%, medium social network from 51-75% and very high from 76-100% (Hosmer, D. and S. Lemeshow,2000). Finally to fit for the binary model the four level likert scale converted to tow categories as poor connection for those below 50% and strong connection for those more than 50% connection.

RESULTS AND DISCUSSION

In this section the objectives of the study are presented maintain the smooth flow of contents. The study distributed 130 interview questionnaires, however, due to four of the interview questionnaires are incomplete they are not incorporated throughout the analysis and discussion of this study. The presentation of the study flows from the description of the respondents profile to the main objectives of the study that is identifying the determinant factors of social network growth in the study area.

Demographic and Socio-economic Profiles of the Respondents

In this section brief overview of the respondents that are assumed to be representatives of the study area is presented. As shown in Table 2, 80% of the respondents are male headed households whereas; the remaining 20% of the respondents are female headed households. Looking in to the education status of the respondents about 86.5 % of them are illiterate, whereas, 13.5% of them are literate. Among the literate categories the majorities of them are who only read and write. Religious beliefs of the respondents also analyzed in this study. To this effect the table indicated that the majorities of the respondents which accounts 92% of the respondents are orthodox followers where as the remaining are Muslim followers.

At the same time attempt has been done to know the main livelihood option of the respondents. As indicated in the pie chart the majorities of the respondents in the resettlement area they are engaged in the agricultural activities. However, about 14 % of them also involved in trade activities beyond agriculture. In the other word about 86 % of the respondents are involved in single livelihood option that is agriculture.

In the Table 3 continuous variables are presented to show the age, family size, farm size, livestock ownership

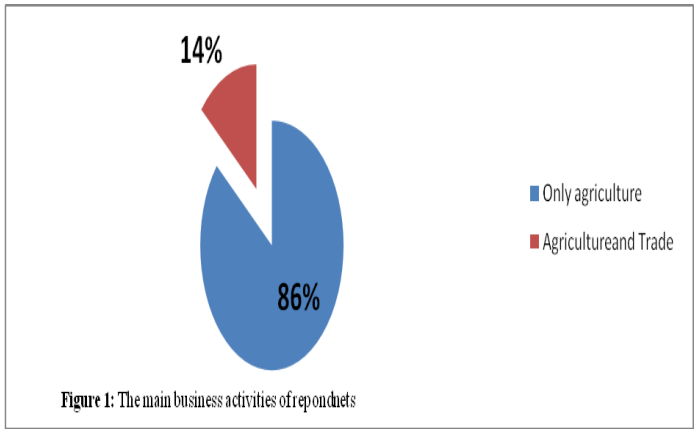

Figure 1: The main business activities of reponcnets

Table 2: Respondents Characteristics in Discrete Variables

Variables		Frequency	Percentage (%)
Sex of the Household head	Male	101	80
	Female	25	20
Educational status	Literate	17	86.5
	Illiterate	109	13.5
Marital Status	Married	103	82
	Unmarried	2	2
	Divorced	5	1
	Widowed	16	13
Religion	Orthodox	116	92
	Muslim	10	8

Source: Own Survey, 2015.

Table 3: Respondents Characteristic in Continuous Variables

Variables	Maximum	Minimum	Mean
Age	78	25	51.13
Family Size	7	2	3.64
Market Distance	15.00	1.00	6.22
TLU	45.65	.00	8.35
Farm Size	25.00	2.00	8.61

Source: Own Survey, 2015.

and the market distance. The age of the respondent ranged from a minimum of 25 up to the maximum age of 78. However, the average age in the study area is 51.13 years old. On the other hand the average family size in the study area is 3.64 with a maximum and minimum family size of seven and two respectively.

Tropical livestock unit (TLU) as an indicator of wealth has been utilized in this study. The mean TLU of the respondents is 8.35 and the maximum and the minimum TLU is 45.65 and 0 respectively. Similarly the farm size also analyzed using the descriptive statistics that indicates a maximum size of 25 hectare of land with minimum of 2 hectares of land.

Since most of the people in the study area, were settlers at different points in time and form different parts of the country, their ethnic composition differs as well. In the resettlement areas it has been understood that various ethnicities were resettled in the area. As shown in the table below Amharic (73%), Gumize (10.5) and Agewugna (9.5%) are the major mother tongue languages for the respondents in the resettlement area.

Table 4: Language Difference of Respondents' in the Study Area

Mother tongue Language	Frequency	Percentage
Amharic	92	73 %
Tigirigna	9	7 %
Agewugna	12	9.5 %
Others (gumez)	13	10.5%
Total	126	**100**

Source: Own Survey, 2015.

Determinants of Social Network in the Resettlement Area

In this section, the objective of the study will be discussed using econometric analysis. The binary logistic regression was the prime tool to identify the factors that are responsible for the growth of social network in the resettlement area.

However, before undertaking the logistic regression, the variables must be screened from the problems of multi-co linearity that could affect the result of the model. Since there are two types of variables as continuous and discrete both the variance inflation factor (VIF) and correlation are employed respectively for both types of the variables to detect the multi-co linearity problem.

Table 5 indicated that the pair wise correlation for all discrete variables is below 0.8 that means there is no as such problematic colinearity among discrete variables.

Whereas the continuous variables were tested using variance inflation factor. VIF shows how the variance of an estimator is inflated by the presence of multicollinearity. As R^2 approaches 1, the VIF increased tremendously. That is, as the extent of collinearity between the variables increases, the variance of an estimator increases, and in the limit it can become infinite (Gujarati, 2004). Obeying this rule each continuous variable regressed against the remaining continuous variables and as shown in Table 6, the values of VIF for all variables were found to be below 2.00, which imply the absence of serious multicollinearity problem for all continuous variables.

$$VIF = = \frac{1}{1-R2}$$

Table 5: Colinearity Diagnosis for Discrete Explanatory Variables.

Variables	SEXHH	LANGUAGE	POSHH	CREDIT	MOBILE
SEXHH	1	-0.105	-0.052	-0.130	0.004
LANGUAGE		1	-0.054	-0.076	0.167
POSHH			1	0.435	0.243
CREDIT				1	0.039
MOBILE					1

Source: Own Survey, 2015.

Table 6: Variance Inflation Factor for Continuous Variables

Variables	R^2	1 - R^2	VIF
AGEHH	0.064	0.936	1.06
DURAT	0.266	0.734	1.36
TOTFAMSIZ	0.211	0.789	1.26
TOTFARMSIZ	0.382	0.618	1.61
DISTAMARK	0.132	0.68	1.47
TLU	0.133	0.867	1.15

Source: Own Survey, 2015.

Table 7: Determinant Factors of Social Network

Variables	Coefficient	Odds Ratio	Wald Statistics	Sign. Level
SEXHH	-1.058	0.34	0.689	0.406
AGEHH	0.086	1.089	4.128**	0.042
LANGUAGE	- 4.370	0.013	4.844**	0.028
DURAT	0.014	1.014	0.017	0.897
POSHH	0.027	1.028	0.00	0.984
TOTFAMSIZ	2.519	12.415	7.890***	0.005
TLU	0.173	1.189	3.456*	0.063
TOTFARMSIZ	0.260	1.296	3.709*	0.054
DISTAMARK	-0.873	0.418	1.684	0.194
CREDIT	-0.765	0.465	0.416	0.519
MOBILE	2.015	7.501	2.925*	0.087
Nagelkerke pseudo R-square (%) = 84.2				
Correct Prediction of all samples (%) = 93.7				
Correct Prediction of Highly networked (sensitivity) (%) = 86.2				
Correct Prediction of Poorly networked (specificity) (%) = 95.9				

Source: Own Survey, 2015. Note that: - ***, ** and * represent level of significant at 1%, 5% and 10% respectively.

Once the variables are confirmed to be free of multi-collinearity problem all the variables are entered in to the logit model. The logistic regression model output is presented in Table 7. Firstly how the model is good is interpreted using the classification table out put that is presented in the same table. The classification revealed that the correct predication of all the samples used were 93.7%, whereas the sensitivity (highly networked respondents) is 86.2 % and Specificity (correct prediction of Poorly networked respondents) is 95.9 %. In this study the model chi-square also used as one of the indicator how the model is good. To this effect, the model chi- square

specifically the omnibus tests of models coefficients value is 102.26 on 11 degree of freedom which is highly significant beyond 0.001 level signifying that the explanatory variables used in the binary logistic regression have joint significant important in predicting the households' migration decision.

Finally, the Nagelkerke pseudo R-square was used to know how well the variables used in the model explains in the variation of data. In this regard, the variables employed in this study were in a position to explain 84.2 % of the variations. In the other word there are also other variables that could influence households' internal migration decision.

After observing how good the model is, interpretation of all the explanatory variables that supposed to affect the growth of social network in the resettlement area are presented in this section. Out of all the eleven variables entered in to the logit model six of them found to be significant that affected the growth of social network at different significance and different direction. These variables are age of the household head, language difference, total family size, tropical livestock unit farm size and utilization of personal mobile.

Age of the household head (AGEHH) found to influence the growth of social network positively and significantly at less than 5% probability level ($P<0.05$). The odds ratio favoring social network growth increased by the factor of 1.089 for an increment of one year. This is true because of the fact that age is associated wise thought of the household that let them develop great social cohesion and intimacy to develop social capital.

Family size of the household too showed the same influence like that of age in which family size found to influence the growth of social network positively at less than 1% probability level ($P<0.01$). The odds ration indicated that an increment of the family size by one member grows social network by the factor of 12.415 maintaining other factors constant. The result showed strong agreement with the prior expectation of the study in which the larger the family size the more the contact opportunities can be created this in turn can develop social network of the household to be very high.

The two variables that supposed to be the proxy for wealth of the household such as farm size and livestock possession(TLU) also influence the growth of social network positively and significantly al less than10% probability level ($P<0.1$). The odds ratio for TLU indicated that one unit increment of the TLU increase the growth of social network by the factor of 1.189. Whereas, the odds ratio for total farm size indicated that one hectare increment for the households increased the social network by the factor of 1.296. The two variables that means farm size and possession of livestock are considered as economic lubricants that further trigger the interaction of household since household are expected to be associated with the market. Obviously market is the hub that brings different actors together. In confirmation to this study Godquin and Agnes (2005) indicated that wealth and education found to increase the participation of households in social organizations that in turn brought social capital to the households.

Utilization of personal mobile too considered as one of the factor the created opportunities for the growth of social network in the resettlement area. The model output indicated that mobile phone utilization alone positively and significantly influenced the growth of social network at less than 10% probability level ($P<0.1$). However, in this study language difference found to be negatively and significantly influence the growth of social network at less than 5% probability level ($P<0.05$)

CONCLUSION AND WAYS FORWARD

The result of the study revealed that social network and connectivity in the resettlement area is strongly determined by demographic, economic and communication infrastructure. One of the demographic factors that strongly influence the growth social network is age of the household head. The older the family head have created opportunity to establish strong connectivity. Similarly, family sizes have been another factor that helps grow social network in the resettlement area as it expands the network of the household.

On the other hand livestock possession and farm size were factors that trigger connectivity mainly due to market transaction and connections. Mobile utilization also as one of the technological factor found to strongly influence the growth of social connectivity in the resettlement area.

On the bases of the conclusion this study needs to forward ways for all stokeholds at different level to recognize that the growth of social network found to be influenced by various factors of demographic, economic and technological actors. Thus, for the betterment of the existing social network and connectivity better infrastructure supplemented with good market condition in the resettlement area expected to improve the existing social network that could have implication on the livelihood of the re-settlers since it creates good market opportunities.

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