SOCIAL CAPITAL AND RURAL FARMING HOUSEHOLDS' WELFARE IN SOUTHWEST NIGERIA

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ABSTRACT: This study examined the effects of social capital on household welfare in southwest, Nigeria. The data for the study were collected fro m 300 households in six local government areas (LGAs) using probability proportionate to size of the residence in the LGAs. Data analysis was done using descriptive statistics, social capital indices and regression technique. Sixty-eight percent of the first tercile are within the age range of 40-59 years, the respondents with above 18 years of education have the least value (about 1 and 5%) among the first and second tercile welfare category. The factors influencing benefit received from social groups include education ($P < 0.1$) and negatively related to benefit received from social interaction, farming status ($P< 0.05$) and positively related to the benefit derived in order of category. Executive membership and labour contribution in a social group are positively and significant ($P< 0.1$). Decision making index is also positively related to social capital benefit and statistically significant ($P<0.01$). Age, age squared, sex, education, marital status, household size and farming status make significant contribution to percentage changes in household welfare. Social capital was confirmed to be truly exogenous to household's welfare with no reverse causality. The study concluded that social capital positively affected household welfare; it was therefore recommended that government should create an enabling environment for the emergence of local organizations in terms of their registration and the constitution governing formation of such.

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Introduction / Problem statement

In spite of Nigeria's physical and human resources endowment, there had been progressively worsening welfare conditions of its nationals (Okunmadawa, 2001). The Human Development Report by UNDP (2005) reveals that Nigeria is one of the poorest among the poor countries of the world. With Human Poverty Index HPI-1 value of 38.8%, Nigeria is ranked 75th among 103 developing countries, (Etim *et al.,* 2009; Etim and Edet, 2009, Etim and Ukoha, 2010). Poverty exists in both urban and rural areas, but in Nigeria, poverty is essentially a rural phenomenon like in many developing countries, this is because most of the impoverished people live in the rural areas, where they derive their livelihood from farming activities. Though, urban poverty exists and is also becoming an increasing concern, as reflected in the worsening trend in urban welfare indicators (World Bank, 1997), rural poverty is a much wider issue than the former. It is known that about 68% of the extreme poor are dependent on agriculture and live in the rural background (Cleaver and Schreiber, 1994; UNICEF, 1996; World Bank, 1997).

Like in most developing economies across the globe, rural households in Nigeria, face one kind of risk situation or another which leads to fluctuations in their income. They are impoverished and vulnerable to negative changes in environmental, socio-cultural, political and economic conditions because of their entanglement in the vicious cycle of poverty and they are often the worst hit by the scourge of food insecurity (FOS 1999). Irrespective of the fact that these rural households constitute the greater share of agricultural labour force, they earn low incomes because of poor marketing facilities, poor storage and preservation techniques, bad road network, poor health facilities, low educational level, unfavourable government policies and lack of technological know-how. Consequent upon this, is further impoverishment, and / or at least increased inequality, (FOS, 1999; ECA, 2001).

One the other hand, social capital can be viewed as a variety of different entities which have two elements in common, that is, it consists of some aspects of social structure and as well as facilitates with certain actions either personal or corporate within the structure (Putnam, 1993). Another view also involves social environment which enables norms to develop and shape social structure. This includes the more formalized institutional relationships and the structures, for example, government and rule of law which affects the rate and pattern of economic development (North, 1990) and human well-being (Bastelaer, 2000).

The value of connectedness and trust that exist between people is one of the keys that can sustain development because it lowers the cost of working

together and facilitates cooperation, (Pretty 2003). Individuals therefore invest in collective activities knowing that others will also do so. According to Oyen (2000) and Woolcock (2001) an individual acquires social capital through participation in informal networks, registered organizations, associations of different kinds and social movement, it can also represents the sum of these experiences. There is a growing evidence that social capital is an element for sustainable development due to the role it plays in managing risks, shocks, and opportunities. It therefore holds strong position to confront poverty and vulnerability (Narayan, 1997), resolve disputes (Schafft and Brown, 2000), and share beneficial information (Isham and Kabkonen, 1999). Hence, the need to promote the role played by social capital in enhancing productivity and welfare of farming households, the level or development of communities and the nation as a whole.

In a poor rural setting, a prime consideration for households is to develop coping strategies to deal with the risk of income fluctuations and this may involve the use of social network in time of need and/or arranging access to credit. Putnam, (2001) and Grootaert (1999) believed that social capital has quantifiable effects on different aspects of human endeavour. The duo argued that the effects on different aspects of life include; lower crime rates, better health (Wilkinson, 1996), improved longevity, better educational achievement (Coleman, 1988), greater levels of income equality (Kawachi, et al., 1997), improved child welfare and low rate of child abuse (Cote and Healy, 2001). Others include lower corruption and more effective government (Putnam, 1993; Knack, 1999), dispute resolution and enhanced economic achievement through increased trust and lower transaction cost (Fukuyama, 1995). All of these mechanisms can potentially affect household welfare and enhance community groups to overcome poverty.

According to Grootaert and Bastelaer (2002), social capital helps to reduce poverty by making available useful information to the poor, improving growth and income redistribution at the national level. The existence of social ties can both be a blessing and a blight, however, its non-existence can lead to denial of key resources. This is because it has important implications for economic development and poverty reduction as well as on the welfare of the poor by improving the outcome of activities which affects them. It helps to improve the efficiency of rural development programmes by increasing agricultural productivity, management of common resources, and people or households, water, sanitation, credit and education in rural and urban areas.

Whether or not a household is poor is widely recognized as an important albeit crude, indicator of a household wellbeing and this is reflected in the central role played by the concept of poverty in analyzing social protection policy. Poverty is said to exist when individuals/group of individuals fail to attain a level of well-being usually material that is deemed to constitute a reasonable minimum by the standard of that society. This means that poverty is an ex-post measure of a household's well being, a state of a long term deprivation of well-being, that is, a situation considered inadequate for a decent life. The differences in welfare whether at individual or household level or at the state level cannot be explicitly explained using the differences in the use of traditional inputs such as labour, land and physical capital. Traditional composition of capital in form of natural, physical and human capital also needs to be discussed along with social capital for sustainable development. This is because it yields a flow of mutually beneficial collective action which helps to contribute to the cohesiveness of people in their societies (Grootaert et *al* 2002). Social assets comprising social capital include norms, values and attitudes that predispose people to cooperate with others based on trust, reciprocity and obligations. These are connected and structured in networks and groups and these enhance and strengthen other forms of capital.

The qualitative assessment of poverty tagged voices of the poor in Nigeria produced the World Bank Development Report of 2001 identified local level institutions as key to sustaining welfare of the poor. Studies have revealed that local institutional strengthening through the active participation of the poor in project design and implementation is a necessary factor in poverty reduction in Nigeria. This recognition probably explains the promotion of group formation (social connectedness) as an important requirement for the poor to benefit from some of the public instituted poverty reduction programme, (Okunmadewa, *et al* 2005).

However, the absence of the appropriate local level institutions and the weakness of existing ones largely deprive the poor from participating in the decision making process of interventions and issues that affect their welfare. Notwithstanding, recent studies do indicate that local institutional strengthening through the active participation of the poor in project design and implementation is *a* necessary factor in poverty reduction. Thus, group formation (social network) is now seen as an important requirement for the poor to benefit from some of the public instituted poverty reduction programmes (Yusuf, 2008). This recognition probably explains the basis for group formation as an important requirement for the poor to benefit from some of the public instituted poverty reduction programme.

The essence of coming together to form a group lies in the expectation of some benefits; the extent to which these benefits are realized could be established through the feedback from the farmers themselves. However, most studies on social capital have only measured social capital in relation to household welfare without necessarily assessing the useful indicator to which the study tries to explore. In addition to that, researches have suggested credit programmes, fertilizer supply and other input supply as a way that farmers' welfare can be improved through improved agricultural productivity; however most of these studies are incapable of establishing the contribution of social capital towards farmers' welfare especially in the study area. The study therefore seeks to fill the knowledge gap in welfare analysis by examining the effects of social connection on economic outcome that is, welfare of farming households. Arising from the foregoing, this study measure the level of benefit received from social capital, determine the factors influencing the level of benefit received, ascertain the degree of exogeneity effect of social capital on household welfare and categorise households according to their welfare status. The hypotheses tested include:

H_{01}: Socio-economic characteristics do not influence benefit received from being member of a social group.

H_{02}: Households with higher level of social capital do not have improved welfare.

Methodology

This study was conducted in southwest, Nigeria using Ekiti and Oyo states. The selection of these states is justified by their high and low incidence of poverty within the Southwestern states respectively, (NBS 2004). Ekiti state was created from the old Ondo in 1996 while a state was caved out from the old Oyo state in 1991. Both states are located on the South-western Region of Nigeria. The region is where the Yorubas, one of the major ethnic groups in Nigeria reside. The primary data for this study were obtained through the use of a well structured questionnaire using multistage random sampling technique from farming households in the study area. The primary data collected from each household included the following: Socio-economic and demographic, Participation in local level institutions, Household Expenditure and Benefit derived from social group and asset ownership: benefit from social group, household farming assets. The analytical tools used to analysed data collected are descriptive and inferential statistics, such as Ordered Probit, ordinary least square (OLS) and two stage least square (2SLS).

The descriptive statistics used include tables, percentages, composite score and all forms of indices to categorise respondents into level of benefits derived from social groups.

Table 1: The level of benefit that is received was derived from the following statements

	STATEMENTS	Yes	No
	I easily access information from members of my social group on:		
1	Markets Outlets		
2	Credit Source		
3	Source of Subsidised fertilizer		
4	Improved seeds and chemicals		
5	New opportunities/technology/enterprise		
6	I enjoy services/labour supply from the members during harvesting, planting,weeding etc		
7	I benefit from financial assistance in terms of need		
8	I am able to share my risk,shocks, ill-health and adverse condition with the members of my group		
9	I benefit from lowered economic and social transaction cost from the group		
10	Easy access to land		

Composite Score

This was used to measure the level of benefit that farmers received from their various social group (objective 2). Repondents were made to respond to questions relating to expected benefits from being member of social group as discussed in the literature. These benefit includes information on credit source, market, subsidized ferterlizer, and the other inputs, access to financial assistance, labour supply and land provision amongst others. Binary scale, that is scoring 1 point for Yes and 0 for No responses in table 1 below regarding the benefits received was used to rate the respondents. With 10 statements; a respondent can score a maximum of 10 points and a

minimum of 0 points. The categorisation into high, intermediate and low benefit was then achieved using a composite score as given below and as used by Yekinni (2007) and Salimonu (2007):

High category = Between 10 points to (Mean + S.D) points
Medium (intermediate) = between upper and lower categories
Low Category = Between (Mean – S.D) points to 0 point.

Ordered Probit Model

This is a regression model which generalises probit regression by allowing more than two discrete outcomes that are ordered. Ordered probit model is used to model relationships between a polytomous response variable which has an ordered structure and a set of regressor variables. Using the composite score from the set of questions above, the level of benefit received from social interactions was categorized into high benefit, intermediate benefit and low benefit which correspond to censoring values 2, 1, and 0 respectively. The standard ordered probit model is widely used to analyze discrete data of this variety and is built around a latent regression of the following form:

$$y^* = x'\beta + \varepsilon \qquad \text{……..1}$$

where x and β are standard variable and parameter matrices, and ε is a vector matrix of normally distributed error terms. Obviously predicted grades (y^*) are unobserved. We do, however, observe the following:

$$y = 0 \text{ if } y^* \le 0 \qquad \text{……..2}$$

$$y = 1 \text{ if } 0 < y^* \le \mu 1 \qquad \text{……..3}$$

$$y = 2 \text{ if } \mu 1 < y^* \le \mu 2 \qquad \text{. ……..…4}$$

where $\mu_1$and μ_2, are the cut points i.e. the threshold variables in the probit model. The threshold variables are unknown and they indicate the discrete category that the latent variable falls into. They are determined in the maximum likelihood estimation procedure for the ordered probit.

The likelihood for benefit received by an individual is

$$L = \left[\Phi(0 - X_i\beta)\right]^{z_{i1}} \left[\Phi(\mu_1 - X_i\beta) - \Phi(0 - X_i\beta)\right]^{z_{i2}} \left[1 - \Phi(X_i\beta - \mu_1)\right]^{z_{i3}} \qquad \text{……...5}$$

$$z_{ij} = \begin{Bmatrix} 1 if y_i = j \\ 0 otherwise for j = 0,1 and 2 \end{Bmatrix} \qquad \text{…….6}$$

where for the ith individual, y_i is the observed outcome and X_i is a vector of explanatory variables. The unknown parameters β_j are typically estimated by maximum likelihood.

y = level of benefit received, (2 = high benefit, 1 = intermediate benefit, 0 = low benefit).
X_1 = age (years)
X_2 = sex (male=0, female=1)
X_3 = level of education (years)
X_4 = Household size (number)
X_5 = farming status (full-time=0, part-time=1)
X_6 = Crop enterprise (crop=1 , otherwise=0)
X7 = Livestock production (livestock= 1, otherwise = 0)
X8 = Fisheries production (fisheries= 1, otherwise = 0)
X9 = Mixed farming (mixed farm =1, otherwise = 0)
X_{10} = Status in the group (executive=0, member=1)
X_{11} = Meeting attendance index
X_{12} = Heterogeneity index
X_{13} = Labour contribution index
X_{14} = Decision making index
X_{15} = Cash contribution (N).
X_{16} = Membership density
X_{17} = Aggregate social capital index

This statistical tool was employed to compare the probability of an household falling into high, intermediate and low benefit categories as a result of being a member of a social group. The model becomes useful given the distribution of the dependent variable as concerned in the analysis. This model has been extensively used in studies like Jerry et al (1991), Abdel-aty (2001) and Kawakatsuy and Largeyz (2008)

Social Capital and Household Welfare

This study applied the analytical framework earlier used by Narayan and Pritchett (1997) and Grootaert, (1999), Grootaert and Bastelaer (2002), Okunmadewa *et al* (2005), (2007), Aker. (2005), Yusuf, (2008). The conventional model of household economic behaviour under constrained utility maximization was used to relate the level of household expenditure (as money - metric indicator of welfare) directly to household endowments (assets) and variables describing social and economic environment in which decisions are made. The household welfare is hypothesized to be influenced by the independent variables included in the model below:

$$In\ E_{ij} = \alpha + \beta SC_{ij} + \gamma HC_{ij} + \delta OC_{ij} + \varepsilon X_{ij} + Z_j + \mu_{ij} \quad \ldots\ldots\ldots 7$$

Where E_{ij} is per capita expenditure of household i

SC_{ij} is a measure of the household endowments of social capital, the variables include: density of membership, heterogeneity index, meeting attendance index, cash contribution index, labour contribution index and decision making index, aggregate social capital index)

HC_{ij} is the household human capital; (education in years)

OC_{ij} is other household assets; (land owned, farming equipment, farm size, number of livestock)

X_{ij} is a vector of household characteristics: (age in years, sex (dummy), household size (actual number), marital status (dummy), farming enterprise (dummy)

Z_j, is a vector of distance of the village to the nearest urban area (km) and

μ_{ij} is unobserved disturbances and potential measurement errors.

In the model above all explanatory variables were assumed to be exogenous- Household assets are assumed to consist of human capital (measured using years of educational attainment of adult household members), other capitals represent, natural capital (acres of land owned and harvest failure), physical capital (access to farm equipment and livestock) and financial capital (access to credit).

The key feature of the model is the assumption that social capital is truly "capital" i.e. a stock, which generates a measurable return (flow of income) to the household. Social capital has many "capital features: it requires resources (especially time) to be produced and it is subject to accumulation and destruction. Social capital is believed to be built during interactions which occur purposely for social, religious, or cultural reasons. The key assumption is that the networks built through these interactions will have measurable benefits to the participating individuals, and lead, directly or indirectly, to a higher level of well being. There is an impact assumption that social capital is embodied in the members of the household. This conforms to the position of Portes (1998), who advocated that social capital itself is an individual asset, although it is sourced from the relationships which exist among a group of individuals. Contrary to this is the position of Putman (1993), who sees social capital as a collective asset. For the purpose of this study, the position by Portes (1998) is adopted. Hence, social capital is viewed as individual household asset.

Two Stage Least Square (2SLS)

In order to test whether social capital is truly capital, instrumental variable (IV) was used. Since social capital can be assessed at a cost (time and resources), therefore the causality between expenditure and social capital runs in both direction and this will cause the OLS estimates to be biased. In order to address the joint endogeneity problem, it will be necessary to isolate the exogenous impact of social capital on household expenditure; Instrumental Variables (IV) was used for the potential exogenous variable in the model i.e. social capital. The IV used was highly correlated with social capital and uncorrelated with household expenditures. Membership in ethnic group(s) was used as potential instruments for social capital variable. The 2SLS reduces the correlation of the explanatory endogeneous variable with the error term. (Olayemi, 1998). Hence, the regression parameters are better enhanced.

Results and Discussion

1. **Welfare Profile Distribution by Household Characteristics**

The categorization of households into welfare profile was done to relate differences in welfare status with socio-economic characteristics. Table 4.11 presents the socio-economic characteristics in relation to welfare status of the respondents. The result reveals that 68 percent of the first tercile are within the age range of 40-59 years, 4 percent of the second tercile are less than 30 years and only one percent of the third tercile is above 69 years of age. It is observed that the least representation for the three categories of welfare are the respondents that are either less than 30 years or above 69 years. As expected, respondents with above 18 years of education have the least value (about 1% and 5%) among the first and second tercile respectively while those without formal education and primary education accounts for 36 and 33 percents respectively for the first tercile. This support the idea that educational level of the household head has effect on household welfare status. About 5 and 4 percents of households with 13 members and over fall under the

first and second tercile categories. It is worthy to note that respondents with members above 8 household members have no representation among the third tercile category and this can be attributed to large household size which consequently affects welfare status. While 5 percent of the singles fall under first category, 4 percent are in the second category and 12 percent are in the third category.

Also, 85 percent of the first category are male, 17 percent of the second category are female and 81 percent of the male headed household fall under the third category. None of the livestock farmers in the study area fall under the first category, while only 1 percent of the second category is a fish farmer; about 28 percent of the third category do not engage in any agricultural activity. This result reveals that occupations such as farming and civil service in the study area enhance welfare status.

2. Categories of Benefit Received from Social Groups

The distribution of respondents into levels of benefit received based on the various social groups they belong to in their locality is shown in table 3. The mean score is 6.71 and the standard deviation 2.85. Based on these values, the responses are categorized into three as given below

Upper Category = 10 to (Mean + SD) = 10 to 9.56

Medium Category = Between Upper and Lower Category Limit = 9.56 to 3.86

Lower Category = (Mean – SD) to 0 = 3.86 to 0

The result reveals the categories of benefits that the respondents derived from belonging to their social groups. The intermediate benefit category is 56.67 percent, followed by high benefit (30.0 percent) and then low benefit (13.33 percent). This implies that majority of the respondents in the study area are in the intermediate benefit category. The mean value of 6.71 (approximately 7.0) implies that an average household derived up to about seven benefits from the various social groups that they belong to in the study area.

3. Factors Determining the Benefit Received from Social Capital

Table 3 present the result of the ordered probit model used to investigate the determinant of the benefit received from social group. The three categories of benefit received – low, intermediate and high formed the dependent variables as ordered 0, 1 and 2 respectively while 18 explanatory variables were considered in the model. However, only 17 were allowed in the model from which only eight were statistically significant at various levels. They are education, farming status, crop enterprise, livestock production, mixed farming, executive membership, decision making index and labour. The likelihood ratio chi-square of 116.72 with a p-value of 0.0000 reveals that the model as a whole is statistically significant. Pseudo R squared is 0.2044.

Education is significant ($P < 0.1$) and negatively related to benefit received from social interaction. This shows that the higher the level of education, the lower the benefits i.e. it will lead to a 0.03 decrease in the log odds of being in a higher level of benefit received from belonging to a social group, given all of the other variables in the model are held constant. This can be due to the fact that exposure to formal education may minimize the active participation in social group. Farming status is also statistically significant ($P< 0.05$) and positively related to the benefit derived in order of category. This implies that being a full time farmer influences earning benefits from social group. The following enterprises were also statistically significant; crop enterprise ($P<0.01$), livestock ($P< 0.05$), mixed farming ($P< 0.01$).

Being an executive member in a social group is positively related to benefit derived from social group and significant ($P< 0.1$) in that order. The more members of social group are involved in decision making, the more they derive benefit from being members of social group. Decision making index emphasizes the issue in executive membership as it is also positively related to social capital benefit and statistically significant ($P<0.01$). This implies that it is not enough to be a member of a social group; active participation is a sufficient condition to derive the benefits of belonging to one. The more labour contribution, the more benefit derived. It is also not surprising that labour contribution directly affects social capital benefit and statistically significant ($P< 0.1$). Majority of farmers in the rural area operate on small scale farming and depend mostly on manual labour therefore they need contributory efforts on their farming; most especially during land preparation, planting, harvesting etc. Hence, the need to form social groups so that they can collectively assist one another on their farmlands. The marginal effect of the categories of benefit received is presented in table 4.15.

The fore going therefore permits to reject earlier stated null hypothesis that socio-economic characteristics do not influence benefit received. Since some of the hypothesized variables were statistically significant, hence the alternative hypothesis is hereby accepted.

Table 2: Distribution of Respondents based on Welfare Status in relation to Socioeconomic Variables

Variable	First	Second	Third	Total
Age group (yrs)				
<30	2	4	10	16 (5.33)
30-39	8	21	19	48 (16.00)
40-49	37	25	35	97 (32.33)
50-59	31	29	24	84 (28.00)
60-69	18	16	11	45 (15.00)
>69	4	5	1	10 (3.33)
Education (yrs)				
0	36	27	10	73 (24.33)
1-6	33	25	14	72 (24.00)
7-12	26	28	25	79 (26.33)
13-17	4	16	32	52 (17.33)
>=18	1	4	19	24 (8.00)
Household size				
1-4	11	23	46	80 (26.67)
5-8	61	63	54	178 (59.33)
9-12	23	10	0	33 (11.00)
>=13	5	4	0	9 (3.00)
Marital status				
Single	5	4	12	21 (7.00)
Married	95	96	88	279 (93.00)
Farming Status				
Non Farming	19	41	68	128 (42.67)
Farming	81	59	32	172 (57.33)
Sex				
Female	15	17	19	51(17.00)
Male	85	83	81	249 (83.00)
Farm enterprise				
None	10	14	28	52 (17.33)
Crop production	74	54	43	173 (57.67)
Livestock prodtion	0	11	13	24 (8.00)
Fisheries	2	1	3	6 (2.00)
Mixed farming	11	13	9	33 (11.00)
Others	3	5	4	12 (4.00)
Pry occupation				
Civil service	6	18	37	61(20.33)
Private enterprise	0	7	12	19 (6.33)
Farming	81	59	32	172 (57.33)
Transport service	2	4	2	8 (2.67)
Artisan	5	4	7	16 (5.33)
Trading	5	6	19	19 (6.33)
Others	1	2	5	5 (1.67)
Total	**100**	**100**	**100**	**300 (100)**

Figures in parenthesis represents percentages
Source: Field survey 2009

Table 3: Distribution of the Categories of social capital benefit

Categories of social capital benefit	Frequency	Percentage
Low benefit	40	13.33
Intermediate benefit	170	56.67
High benefit	90	30.00
Total	**300**	**100.00**

Source: Field survey 2009

Table 4: Result of the Ordered Probit for Categories of Benefit Received

Social Capital Benefit	Coefficient	Std. Error	Z	P>|z
Age	0.0138	0.0084	1.63	0.102
Sex	-0.1143	0.2046	-0.56	0.576
Education	-0.0272*	0.0143	-1.90	0.058
Household size	-0.0334	0.0347	-0.96	0.335
Farming Status	0.4048**	0.1793	2.26	0.021
Crop	0.5610***	0.2146	2.61	0.009
Livestock	0.6557**	0.3128	2.10	0.036
Fisheries	-0.1603	0.5228	-0.31	0.759
Mixed Farming	1.2124***	0.2987	4.06	0.000
Others	0.6405	0.4036	1.59	0.112
Status in social group	0.3499*	0.1834	1.91	0.056
Meeting attendance	-0.0043	0.0041	-1.05	0.292
Heterogeneity index	-0.0004	0.0057	-0.08	0.937
Labour contribution	0.0169***	0.0050	3.39	0.001
Decision making index	0.0129**	0.0042	3.10	0.002
Cash contribution	-8.3400	8.1300	-0.85	0.393
Cut 1	0.8325	0.5568		-0.2588
Cut2	2.9505	0.5784		1.8167
LR chi2(16) = 116.49	Prob > chi2 = 0.0000	Observation = 300		
Log likelihood = -227.26	Pseudo R2 = 0.2040			

*** 1% significant level, **5% significant level, * 10% significant level

Source: Field survey 2009

Table 5:Marginal effect of Categories of Benefit Received

Variables	Marginal effect for Y= low benefit	Marginal effect for Y= intermediate benefit	Marginal effect for Y= high benefit
Age	- 0.0148	- 0.0058	0.0107
Sex	0.1686	- 0.0968	- 0.0132
Education	0.0254	0.0119	- 0.0286
Household size	0.0531	0.0261	- 0.0407
Farming Status	- 0.6924	0.0868	0.2807
Crop	- 0.8183	0.4340	0.2139
Livestock	- 0.5982	0.0578	0.5590
Fisheries	0.2158	0.6395	- 0.2579
Mixed Farming	- 0.8730	- 0.2102	0.1027
Others	- 0.1338	0.8809	0.0719
Status in social group	0.4721	- 0.6149	0.7252
Meeting attendance	0.0004	0.0027	- 0.0050
Heterogeneity index	- 0.0303	0.0229	- 0.0149
Labour contribution	- 0.0243	- 0.0033	0.0148
Decision making index	- 0.0139	0.0038	0.0099
Cash contribution	- 0.000013	0.000036	- 0.000029

Table 6: Result of the OLS estimate of social capital and household welfare

Variable	Model 1		Model 2		Model 1 with additive social capital		Model 2 with additive social capital	
	Coeff	t	Coeff	t	Coeff	t	Coeff	t
Constant	16.0572***	(8.29)	16.3204***	(8.58)	14.9366***	(7.34)	15.3699***	(7.69)
Age	-0.2575***	(-3.45)	-0.2338***	(-3.18)	-0.2566***	(-3.41)	-0.2373***	(-3.20)
Age squared	0.0027***	(3.61)	0.0024***	(3.32)	0.0025***	(3.39)	0.0024**	(3.14)
Sex	0.8831*	(1.78)	0.9944*	(2.03)	0.7496	(1.49)	0.8542	(1.74)
Education	0.1134***	(3.56)	0.0911***	(2.84)	0.1306***	(4.00)	0.1083***	(3.30)
Marital status	-3.1667***	(4.34)	-3.4514***	(-4.80)	-2.6662***	(-3.54)	-2.9655***	(-4.00)
Household size	-0.4790***	(5.67)	-0.4743***	(-5.72)	-0.4022***	(-4.66)	-0.3986***	(-4.72)
Farming status	-2.0218***	(-5.01)	-1.8130***	(-4.52)	-1.8122***	(-4.37)	-1.6768***	(-4.09)
Disturb	0.0042	(0.60)	0.0060	(0.88)	0.0020	(0.28)	0.0041	(0.58)
Farm Size	0.0421	(1.41)	0.02165	(0.68)	0.0318	(1.05)	-0.0092	(-0.28)
Farm equipment			0.0391	(1.42)			0.0475	(1.63)
Livestock			-0.1149	(-0.17)			-0.1890	(0.28)
Crop			-1.3388***	(-3.58)			-1.3436***	(-3.55)
Cash contribution					0.012	(0.60)	0.0053	(0.27)
Labour Contribution					-0.0111	(-1.01)	-0.00075**	(0.69)
Decision making					0.0280**	(3.12)	0.0283***	(3.21)
Heterogeneity index					-0.0129	(-0.99)	-0.0198	(-1.53)
Membership Density					-0.0211	(-1.16)	-0.0143	(-0.80)
Meeting attendance					-0.0149	(-1.49)	-0.0165	(-1.65)
Observation		300		300		300		300
R^2		0.4267		0.4552		0.4534		0.4817
Adj R^2		0.4089		0.4324		0.4245		0.4485

*** significant at 1 % level, ** significant at 5% level and * significant at 10% level

Source: Field survey 2009

Table 7: Estimation of Endogeneity Effects of Social Capital

Variables	OLS		2SLS (Use of Instrumental Variable)	
	Coefficients	t-value	Coefficient	t-value
Age	-0.2333***	-3.05	-0.2381***	-3.18
age_sqr	0.0024***	3.26	0.0024***	3.29
Sex	0.9819*	1.95	0.8890*	1.78
Education	0.1159***	3.52	0.1026***	3.19
Marstatu	-3.1244***	-4.26	-3.2805***	-4.53
Hhdsize	-0.4985***	-5.78	-0.4733***	-5.52
Famgstatus	-2.0106***	-4.92	-2.0226***	-5.02
Dsturbn	0.0053	0.72	0.0040	0.56
Famsize	0.0177	0.55	0.0312	0.26
Famequip	-0.0035	-0.25	0.0037	0.26
Livestock	0.0013	1.19	0.0011	1.01
Crop	0.0022	1.25	0.0009	0.51
socapaggr1	0.0190*	1.77	0.0280**	2.52
_cons	15..5976***	7.91	15.4430***	7.94
R^2	0.4351		0.4467	
Adjusted R^2	0.4049		0.4215	
Sample sizes	300		300	

Source: Field survey 2009

4. Effect of Social Capital Household Welfare

The result of the ordinary least square method is presented in table 6. Two models were used for the OLS estimation for comparison. Model 1 presents the OLS estimation of the effect of household socio-economic variables on household welfare while model 2 includes the potential endogenous variables of farm equipment, livestock and crop owned. The OLS result for model 1 indicate that age, age squared which captures the life cycle of the household head, sex, education, marital status, household size and farming status make significant contribution to changes in household welfare. The adjusted R^2 slightly increased in model 2 as household assets (farm equipment, livestock and crop) are included to model 1, and the model suggests that household demographic characteristics play a significant role in explaining variations in household welfare. For example, a decrease in household size by one person is associated with an increase in household expenditures by 47.9%, whereas an increase in the level of education by one unit is associated with an increase in household expenditures by 11.3%.

An inclusion of social capital variables to model 1 increases the model's explanatory power in model 2. The primary exogenous variables, such as age, education, household size, farming and marital status are statistically significant. Participation in decision making in a social group is statistically significant and positively related to household expenditures. This suggests that household welfare will improve as household get involved in the affairs of their social group. Labour contribution is significant but negatively related to household welfare. This is an indication that labour contribution is in excess such that it consequently affect household welfare negatively. Though, a positive relationship with household welfare is reported by Aker (2007). The negative effect as discovered in the study is in line with the study conducted by Yusuf (2008). The result further reveals that an improvement in the adjusted R^2 from a value of 0.4049 (OLS) to 0.4215 in the 2SLS and the increase in the coefficient of social capital index in the 2SLS relative to the OLS estimates from 0.019 to 0.028. The increase in these two values implies the absence of significant reverse causality. This therefore confirms the exogeneity of social capital, hence, null hypothesis is therefore rejected.

Summary of major findings

The categorisation of households according to their welfare status reveals that 68 percent of the first category are within the age range of 40-59 years, respondents with above 18 years of education have the least value (about 1 and 5%) among the first and second categories. None of the respondents with household members above 8 have representation among the third category. Eighty five percent of the first category are male and none of the livestock farmers in the study area fall under the first category.

The mean value of 6.71 reveals that an average household derived up to about seven benefits from their various social groups. Majority of the respondents are in the intermediate benefit category (57.7%). The factors influencing the benefit received from social groups are: Education, significant ($P < 0.1$) and negatively related to benefit received from social interaction. Farming status is also statistically significant ($P< 0.05$) and positively related to the benefit derived in order of category. In addition to this are these farming enterprises; crop enterprise ($P<0.01$), livestock ($P< 0.05$), and mixed farming ($P< 0.01$). Being an executive member in a social group is positively related to benefit derived from social group and significant ($P< 0.1$). Decision making index emphasize the issue in executive membership as it is also positively related to social capital benefit and statistically significant ($P<0.01$). Lastly, labour contribution also directly affects social capital benefit and statistically significant ($P< 0.1$).

The socio economic characteristics such as age, age squared, sex, education, marital status, household size and farming status make significant contribution to percentage changes in household welfare. Also, decision making index and meeting attendance are statistically significant and both are positively and negatively related to household welfare respectively. The result further reveals that an improvement in the adjusted R^2 from a value of 0.4049 (OLS) to 0.4215 in the 2SLS and the increase in the coefficient of social capital index in the 2SLS relative to the OLS estimates from 0.019 to 0.028. The increase in these two values implies the absence of significant reverse causality. This therefore confirms the exogeneity of social capital.

Conclusions and Recommendations

It is evidenced from the study that education can compliment social capital in improving household welfare. The new instrumental variable, membership in ethnic group was also used instead of social trust to test for the reverse causality between social capital and household expenditure. Based on the outcome of the study, there is need to improve the efficiency of rural develop4ment programmes through agricultural production which is the main occupation of the rural dwellers, and this calls for investment in social capital by donors, NGOs, and government putting to mind the social benefits. The government should also create an enabling environment (friendly) for the emergence of local organizations in terms of their registration and the constitution governing formation of such. In order to

break the rural dwellers from the shackles of poverty which has found its domain in their sector, policy that will encourage and attract them to formal education should be put in place. Movement of information useful to the poor can have a ripple effect on the economy at large by improving growth and income redistribution, it should therefore be encouraged because helps to reduce poverty in the rural sector.

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