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The Influence of Social Capital and Farmers' Specific Factors on the Poverty of Rural Farm Households in Akwa Ibom, State, Nigeria

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ABSTRACT: *This study analyzed the effect of social capital and other relevant factors on poverty of farm households and identified constraints militating against effective social capital formation among poor rural farm households belonging to associations in Akwa Ibom State, Nigeria. A multi-stage sampling technique was utilized to choose 180 rural farm households within the research location. The FGT methodology was used to generate indices of poverty. Descriptive statistics, Tobit model and factor analytical procedures were employed to analyze the objectives of the study. The estimated model showed high degree of fitness, thus justifying the estimation method used. The results revealed that, the following social capitals: farm size acquired from the association, income derived from membership of association, number of visits of extension agents, interest amount paid on loan acquired from association, fertilizer, seeds, pesticides and farm land acquired from the association have a significant negative relationship with the poverty of rural farm households in the study area. By implication, increase in the stock of these social capitals by poor farm households would significantly enhance the reduction of poverty depth among them. Moreover, other factors which affected farm household poverty status were sex of household heads, age, household size, years of formal education, farm income and ownership of assets. The results also found 8 categories of constraints militating against effective social capital formation among poor rural farm households. The constraints categories are: leadership, management style and low income; financial constraint and unconcerned attitude of members towards group activities; executive characters; ineffective coordination and unfair distribution of benefits to members; lack of seriousness of members; poverty; illiteracy and incompetence as well as defaults and partiality. From the result, it is concluded that social capital accumulations reduce the probability of being poor. Based on the high percentage of poverty prevalence in the State, it is concluded that poverty is endemic in the rural areas of Akwa Ibom State and specifically among farm households. This study lends support to recent emphasis on investing in social capital as a major means of poverty reduction in the rural areas.*

KEYWORDS: Social capital, poverty profile, farm household, social capital dimensions, Nigeria

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INTRODUCTION

Social capital refers to the intricate networks of relationships that exist among individuals within a specific society, enabling the smooth functioning of that society (Dzanja et al., 2015; Bhandari and Yasunobu, 2009; Shibli et al., 2021; Tengapoe et al., 2024). It encompasses a collection of shared values and resources that empower individuals to collaborate within a group and successfully achieve a common objective (Bhandari and Yasunobu, 2009). Additionally, social capital can be seen as the capacity to acquire resources, favours, or information through personal connections (Kenton, 2022). It is often regarded as a positive outcome of human interaction, resulting in tangible or intangible benefits such as favours, valuable information, innovative ideas, seeds, fertilizer, parcels of land, and future prospects (Kenton, 2022; Derose and Varda, 2009). The value of social capital stems from the positive relationships between individuals (Bisung and Elliott 2014; Mishi, et al., 2023; Tsounis and Xanthopoulou, 2024). It can manifest in various forms, including bonding, bridging, and linking (Hawkins and Maurer 2010; Vannebo and Ljunggren 2021; Craig et al., 2023). Social capital is acknowledged for its role in enhancing the exchange of information across social ties, facilitating the dissemination of ideas and opportunities.

Social capital has emerged as a crucial concept in development, particularly in initiatives aimed at grassroots participation and empowerment, as well as in addressing the needs of the impoverished (Dikito-Wachtmeister, 2001). Various international organizations have eagerly adopted this concept as an alternative to government or market-driven strategies, with the World Bank recognizing it as "the missing link" in development (IFAD, 2006). According to Dikito-Wachtmeister (2001), the utilization of group structures also leads to a reduction in the costs associated with providing services to numerous individuals, thereby enhancing the cost-effectiveness of program outreach. Social capital plays a significant role in poverty alleviation through both micro and macro mechanisms, influencing the flow of valuable information to those in need and contributing to overall economic growth and income distribution at the national level (Grootaert and Bastelaer, 2002, Shiaki et al., 2024). Qyen (2002) highlights social capital as a key strategy for poverty reduction. The absence of suitable local institutions, coupled with the inadequacies of existing ones, often marginalizes the impoverished population from participating in decision-making processes related to interventions and matters affecting their well-being (Yusuf, 2008). As the primary source of economic and social support for its members, the family serves as the foundational element in the creation of social capital for the broader community (Yusuf, 2008). Grootaert (2001) has demonstrated that membership in local associations decreases the likelihood of experiencing poverty. In this context, social capital denotes the advantages enjoyed by association members that lead to a reduction in their poverty levels. The dimensions of social capital serve as indicators of its effectiveness, determining the benefits received by members and reflecting the level of engagement within the association. These dimensions encompass factors such as membership density, heterogeneity, meeting attendance, financial contributions, labor contributions, and decision-making processes, among others. Social capital is widely recognized for its ability to enhance well-being and influence poverty levels (Shiaki et al., 2024).

Poverty is widely recognized as a significant indicator of underdevelopment, with its reduction often equated with progress in development or economic advancement (Edet 2012, Etim and Edet 2007, Etim et al., 2008, Etim an Edet 2009, Henry et al., 2023). It is a pervasive challenge that impacts all societies globally and remains a major obstacle on a global scale (Dia, et al., 2023, World Bank, 2024).

According to World Bank (2024), as of 2022, a staggering 712 million people worldwide were living in extreme poverty (defined as less than $2.15 per day). The extreme poverty continues to be concentrated in regions of Sub-Saharan Africa, areas affected by conflict and fragility, and rural settings (World Bank, 2024). The report emphasizes that addressing poverty comprehensively necessitates addressing its multifaceted dimensions. Furthermore, it highlights that countries cannot effectively combat poverty without simultaneously enhancing the overall well-being of their populations, including through equitable access to healthcare, education, basic infrastructure, and services, as well as digital technologies. Both the World Bank (2024) and the United Nations (2024) have jointly acknowledged that the current global initiatives aimed at eradicating extreme poverty by 2030, as outlined in the Sustainable Development Goals (SDGs), are unlikely to be met, with projections indicating that nearly 600 million individuals will still be grappling with extreme poverty by that time.

Rural poverty is a pressing global concern, with approximately 63 percent of poverty concentrated in rural areas (UN, 2024). According to the World Bank (2024) and UN (2024), poverty is more prevalent in rural regions, characterized by inadequate basic facilities, food insecurity, outdated farming methods, poor nutritional standards, limited access to financial services, challenges in educating children due to high costs, insufficient diet, unreliable electricity supply, and scarcity of clothing materials. Etim and Edet (2014c) and Akpan et al., (2016a)identified various factors that contribute to rural poverty, including cultural norms, climatic conditions, gender disparities, market dynamics, and poor and biased public policies. To effectively address poverty, particularly in rural areas, it is crucial to enhance the management capacities of community-based initiatives such as community-based organizations and development associations through training programs and workshops. This will enable them to actively participate in poverty alleviation efforts at the grassroots level (Ndiyo, 2008; World Bank, 2018). The prevalence of poverty among a significant portion of the population can impede economic growth prospects (Khan, 2001). The impacts of poverty, as outlined by Edet and Etim (2009) and Akpan et al. (2016a), manifest in inadequate nutrition, poor health outcomes, heightened vulnerability to health issues, substandard housing conditions, or even homelessness. Despite Nigeria's abundant resources and oil wealth, poverty remains a growing issue in the country. Despite its rich crude oil deposits, Nigerian citizens are among the poorest in the world. The poverty situation in Nigeria is a cause for concern, as indicated by both quantitative and qualitative measurements that demonstrate a rising incidence and depth of poverty in the country (Okunmadewa et al., 2005; Etim et al., 2009).

The government of Akwa Ibom State, a constituent state in Nigeria, recognizes the significant impact of rural poverty and has taken deliberate steps to implement programs and initiatives aimed at reducing poverty among vulnerable groups, particularly rural farming households. (Edet 2012, Akpan et al., 2016b, Akpan et al., 2016c;Akpan et al., 2016d; Akpan et al., 2017), These efforts include the provision of fertilizers to farmers to improve crop yields and income, the Akwa Ibom State Integrated Farmers Scheme (IFS) which offered financial loans to farmers, and the rice rehabilitation project/counterpart funding, among other initiatives. The State, used group formation as an important requirement for the rural poor farmers to benefit from some of the public instituted poverty reduction programmes (Edet, 2012). Members of associations in the state benefit greatly from this requirement, gaining access to loans at reduced interest rates, free or subsidized inputs, land for crop cultivation,

and opportunities for savings mobilization. Despite the commendable efforts of the State government to improve the livelihoods of farmers, there remains a prevailing perception that the agricultural economy of the state has not seen significant progress, with numerous challenges in various key areas still needing to be addressed (AK-SEEDS, 2004). There is substantial evidence of poverty in the State (Etim and Edet, 2013, Etim and Edet 2014a, Etim and Edet 2014b, Akpan et al., 2019, Akpan and et al., 2020). Due to the high levels of poverty, a pertinent question is the extent to which social capital contributes to poverty reduction among farmers in the State, as well as the constraints that hinder effective social capital formation.

Various scholars have made efforts to address these questions. For instance, Wang et al., (2022) uncovered an adverse relationship between social capital and the incidence of multidimensional poverty in rural households. The study also demonstrated that the age of the household head, household size, and income from external employment were significantly linked to multidimensional poverty in rural households. Olaleye et al., (2020) suggested that a higher probability of poverty was associated with larger household sizes, older age, and nativity, while monthly income, per capita expenditure, participation in meetings, and heterogeneity index were found to have a detrimental impact on poverty. Ma et al., (2019), Yunus et al., (2020), Chen et al., (2023), and Dzanja et al., (2015) identified a positive and substantial correlation between social capital and poverty levels. These results suggest that a greater stock of social capital tends to reduce the poverty rate.

Considering the current initiatives and approaches employed by the Akwa Ibom State government to address rural poverty, it is imperative to have up-to-date literature on the relationship between social capital and poverty dimensions among farming households. This information would be crucial in developing institutional support to complement infrastructure development and enhance human capital growth to empower the impoverished. To unravel this puzzle, the research specifically examined the impact of social capital and other pertinent factors on poverty, as well as identified obstacles hindering effective social capital formation among impoverished rural farming households in Akwa Ibom State, Nigeria.

RESEARCH METHODOLOGY

Study Area

The research was carried out in Akwa Ibom State, located in the southern region of Nigeria. In terms of governance, the State is divided into 31 Local Government Areas and encompasses 6 Agricultural Development Project (ADP) Zones, namely: Oron, Abak, Ikot Ekpene, Etinan, Eket, and Uyo (AKADEP, 2024). The climate in this region is tropical, characterized by two distinct seasons: the rainy season, which spans from April to October, and the dry season, which lasts from November to March. The annual precipitation ranges from 2000mm to 3000mm, and the average daily temperature is around 30°C. Due to this climatic pattern and the presence of fertile soil, the vegetation in Akwa Ibom State is highly suitable for cultivating a diverse range of food crops, including yam, rice, cassava, fluted pumpkin, cocoyam, okra, oil palm, and water leaf. Additionally, micro livestock such as poultry, pigs, goats, and sheep are commonly raised as supplementary sources of income. Agriculture serves as the backbone of the economy in this region.

Sample Size and Sampling Procedure

The study employed a multistage sampling technique to gather data. Initially, three out of the six Agricultural Development Project (ADP) Zones in Akwa Ibom State, namely Uyo, Ikot Ekpene, and Eket zones, were randomly selected in the first stage. Moving on to the second stage, two agricultural blocks were randomly chosen from each of the selected zones, resulting in a total of six agricultural blocks. Subsequently, three circles were randomly chosen from each of the selected blocks, amounting to a total of 18 circles. Within each circle, the executive members of each association were contacted to obtain a list of households affiliated with their respective associations. The study area consisted of six major associations, each comprising approximately 29 to 32 members. The list of members within each association served as the sampling frame, from which one-third of the households were selected for the study. Finally, in the last stage, ten households were purposively selected from each circle, resulting in a total of 180 respondents for the study. It is important to note that the selected respondents were individuals who belonged to at least one association and had farming as their primary occupation.

Nature of Data Collected and Method of Data Collection

The study's data primarily originated from primary sources, gathered through field surveys utilizing a meticulously designed questionnaire aligned with the study's objectives. In cases where respondents were unable to read or write, individual interviews were arranged at their convenience. Questions were translated into the local language of each respondent. The data collection focused on households that had interactions with at least one social association. By implication, a respondent belongs to at least one social organization.

Analytical technique

Measurement of Poverty among farm households

The Foster-Greer-Thorbecke (FGT) (1984) model was used to analyze poverty status of the rural farm households in the study area. The FGT poverty index is generally expressed as thus:

$$P_\alpha = \frac{1}{n}\sum_{i=1}^{q}\left(\frac{Z - Y_i}{Z}\right)^\alpha \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ (1)$$

Where:

n = total number of households in the population
q = the number of poor households
Z = the poverty line for the households
Y_i = Per capita household expenditure for i^{th} farmer
α = poverty aversion parameter and takes on value 0, 1, 2
$\left(\frac{Z-Y_i}{Z}\right)$= proportion shortfall in expenditure below the poverty line.

Decomposition of poverty index

Following Foster-Greer-Thorbecke (FGT) (1984) model, household poverty can be decomposed into the following sub-units:

a) When α = 0, then FGT index is expressed as:

$$P_0 = \frac{1}{n}\sum_{i=1}^{q}\left(\frac{Z - Y_i}{Z}\right)^{\alpha} = \frac{1}{n}\sum_{i=1}^{q}\left(\frac{Z - Y_i}{Z}\right)^{0} = \frac{q}{n} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (2)$$

This is called the Incidence of poverty or headcount index, which measures the proportion of rural farm households that are poor or falls below the poverty line. This gives the head count ratio or the incidence of poverty which is the percentage of rural farm households that are poor or whose per capita household expenditure is below the poverty line.

b) When α = 1, then FGT index is expressed as:

$$P_1 = \frac{1}{n}\sum_{i=1}^{q}\left(\frac{Z - Y_i}{Z}\right)^{\alpha} = \frac{1}{n}\sum_{i=1}^{q}\left(\frac{Z - Y_i}{Z}\right)^{1} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (3)$$

This is called Poverty depth or Poverty gap index, which measures the extent to which rural farm households' fall below the poverty line as a proportion of the poverty line. It reflects both incidence and depth of poverty or the proportion of the poverty line that the average poor will require to attain to the poverty line.

c) When α = 2, then FGT index is expressed as:

$$P_2 = \frac{1}{n}\sum_{i=1}^{q}\left(\frac{Z - Y_i}{Z}\right)^{\alpha} = \frac{1}{n}\sum_{i=1}^{q}\left(\frac{Z - Y_i}{Z}\right)^{2} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (4)$$

This is called Poverty severity index which measures the squares of the poverty gaps relative to the poverty line. The index measures the severity of poverty which is the mean of square proportion of the poverty gap. When multiplied by 100, it gives the percentage by which a poor farm household's per capita expenditure should be increase to push them out of poverty.

Measurement of Poverty Line: This was done to separate rural farm households into poor and non-poor groups. As a benchmark, two-third of the mean per-capita income was used as a threshold. Households or farmers whose mean per-capita expenditure fall below the poverty line are regarded as being poor while those with their per-capita expenditure is on or above the benchmark are non-poor.

Effects of Social Capital and Farmers specific factors on Poverty of Farm Households

Objective five was analyzed using Tobit regression. The Tobit regression, a hybrid of the discrete and continuous dependent variable was used to determine the impact of the explanatory variables on the probability of being poor. The model is expressed following Tobin (1958) as adopted by Yusuf (2008) and Edet (2012) as:

$$Q_i = P_i = X_i\delta_i + e_i \;\; if \; P_i > P_i^* \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (5)$$

$$Q_i = 0 = X_i\delta_i + e_i \;\; if \; P_i \leq P_i^* \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (6)$$

$Where\ i = 1, 2, 3, \ldots, 180$

Where, q_i is the dependent variable. It is discrete, when the households are not poor and continuous, when they are poor. Pi is the poverty depth/intensity defined as (Z-Yi)/Z and Pi* is the poverty depth, when poverty line (Z) equals the expenditure per adult equivalent. Xi is a vector of explanatory variable, δ is a vector of un-known coefficient and $\mathbf{e_i}$ is an independently distributed error term. The explanatory variables specified as determinants of poverty are:

X_1 = Sex of Household Head (X_1 = I if male, 0 if female)
X_2 = Age of Household Head (in years)-^'
X_3 = Marital status (X = 1 if married, 0 if otherwise)
X_4 = Household size (number of persons in the household)
X_5 = Education of Household Head (years of schooling)
X_6 = Major occupation (X = 1 if farming as major occupation, 0 if otherwise)
X_7 = Farm income (in naira)
X_8 = Farming experience (in years)
X_9 = Ownership of assets (value in naira)
X_{10} = Farm size (in hectares)
X_{11} = Income derived from membership of association (in naira)
X_{12} = Number of visits of Extension Agents
X_{13} = Interest amount paid on loan acquired from the association (in naira)
X_{14} = Fertilizer acquired from the association (in kg)
X_{15} = Seeds acquired from the association (in kg)
X_{16} = Pesticides acquired from the association (in litres)
X_{17} = Farm land acquired from the association (in hectares)
X_{19} = Access to credit (in naira)

Dimensions of social capital

Specifically, the study utilized six dimensions of social capital to assess the social capital of the participants. These dimensions include the density of membership, heterogeneity index, meeting attendance index, cash contribution, labour contribution, and decision-making index (Balogun et al., 2018).The social capital dimensions are described as follows:

(a) The Labour Contribution Index is calculated based on the total number of days that farmers dedicate to working for their respective groups within a year.
(b) The Decision Making Index is determined by aggregating the subjective evaluations provided by households regarding their involvement in decision-making processes within the three most significant institutions to them. The average response across these three groups is then multiplied by 100 for each household.
(c) The Heterogeneity Index is assessed using twelve distinct criteria, including factors such as neighbourhood, kin group, occupation, economic status, religion, political affiliation, gender, age group, education level, cultural practices, beliefs, and trust, as outlined by Balogun et al. (2018). Each criterion is coded as 1 for a 'yes' response and 0 for a 'no' response, with a maximum score of 12 assigned to indicate the highest level of heterogeneity within each group.
(d) The Membership Density Index is determined by calculating the number of active farmers who are members of existing groups. The proportion of group membership per individual is

calculated by dividing the total number of groups to which each farmer belongs by the total number of groups available in the study area.

(e) The Meeting Attendance Index is calculated by summing the attendance of household members at meetings and dividing this by the total number of scheduled meetings per year, expressed as a percentage.

(f) The Cash Contribution Index represents the total amount of membership dues paid annually by the farmer across all social groups to which they belong.

RESULTS AND DISCUSSION

The estimated parameters of poverty profile of poor farm households

Table 1 shows the incidence (P_0), depth (P_1) and severity (P_2) of poverty among poor rural farm household heads. From the results, not all the poor households were equally poor. This agrees with the finding of Kwaghe (2009) who documented that the poor households are not equally poor but vary in the degree of poverty.

Table 1: Poverty parameters of rural farm households

Poverty indices	**Estimates**
Mean household per capita expenditure (MHPCE)	41282.65
2/3 of MHPCE	27,521.77
1/3 of MHPCE	13,760.00
Poverty Incidence (P_0)	0.62
Poverty Depth (P_1)	0.22
Poverty Severity (P_2)	0.32
Poor Households (%)	60.56
Non-poor Households (%)	39.44
Total households	180.00

Source: Field Survey (2022).

The incidence of poverty among the poor farm households was 62.00%. The depth of poverty shows the percentage of expenditure required to bring each individual below the poverty line up to the poverty line. It shows how much below the poverty line was the average poor farm household. This index measures 22.00% for the poor farm households. The implication is that if the average rural farmer is to be made non-poor, the per capita expenditure must be increased by at least 22.00%. The severity of poverty was put at 32.00%. This shows the spread of the poor farm households around the average poor farm household.

The effects of Social Capital and Farmers specific factors on Poverty of Farm Households in Akwa Ibom State

Table 2 presents the maximum likelihood estimates of Tobit Regression of the effect of social capital and other related factors on poverty among farm households in the study area. In estimating the effect of social capital and other relevant factors on poverty, censored regression model made up of 18 regressors was specified. From the maximum likelihood estimates of the Tobit regression, the results showed that sigma was 0.9346 with a z-value of 8.33 which is significant at 1 percent. This indicates

that the model had a good fit to the data and as specified, explained significant non-zero variations of the effect of social capital and other relevant factors on poverty among the rural farm household heads. Also, 15 out of 18 parameters estimated in the model were statistically significant. The intercept is 0.5505 and this represents the autonomous poverty depth of farm household heads in the study area. The coefficient of sex of household heads is negative (-0.2013) and significant at 1 probability percent. This implies that relative to the female headed households, the poverty depth (0.5505) was likely to reduce by 0.2013 for male headed households unlike the female headed households that remained at 0.5505. In other words, poverty will be reduce by 0.2013 for every increase in male respondent.

Marital status has a coefficient of 0.1058 and significant at 1 percent. This implies that the poverty status of married respondents was likely to increase by 0.1058 while households headed by unmarried people remained at 0.5505. The reason for this is that married households tend to have larger household size which raised the dependency ratio. Similar findings were reported by Edet *et al.* (2009) in the study of determinants of poverty among farming households in Nigeria. Therefore, policies for poverty reduction should be targeted more at the households whose heads are, married.

Table 2: Maximum likelihood estimates of Tobit regression of the effect of social capital and other related factors on poverty among farm households

Variables	**Coefficient**	**Standard Error**	**Z-Value**
Sex of Household heads (X_1)	-0.2013	0.0544	-3.700**
Age of Household heads (X_2)	0.1194	0.2595	0.460
Marital Status (X_3)	0.1058	0.0378	2.799**
Household size (X_4)	0.4401	0.2066	2.130**
Years of Formal Education of Household Heads (X_5)	-0.4221	0.1581	-2.670***
Major Occupation (X_6)	0.0004	0.0005	0.648
Farm income (X_7)	-0.2532	0.1498	-1.690*
Farming Experience (X_8)	0.0364	1.2159	0.030
Ownership of Asset (X_9)	-0.1286	0.0569	-2.260**
Farm size (X_{10})	-0.2669	0.1328	-2.010**
Income derived from Membership of association (X_{11})	-0.4304	0.1618	-2.660***
Number of visits of Extension Agents (X_{12})	-0.1223	0.0257	-4.759***
Interest amount paid on loans (X_{13})	-0.2071	0.1170	-1.770*
Fertilizer acquired from the Association (X_{14})	-0.3891	0.1420	-2.740***
Seeds acquired from the Association (X_{15})	-0.3063	0.1221	-2.509**
Pesticides acquired from the Association (X_{16})	-0.1391	0.0621	-2.240**
Farm land acquired from the Association (X_{17})	-0.1079	0.0562	-1.920*
Access to credit (X_{18})	-0.4403	0.2066	-2.131**
Constant	0.5505	0.2211	2.490**
Sigma σ	0.9346	0.1122	8.330***

Source: Field Survey (2022). Note: *, ** and ***denote significant at l%, 5% and 10%respectively.

Household size has a coefficient of 0.4401 which is significant at 5 percent. This implies that a unit increase in the household size was likely to raise the poverty depth by 0.4401. This was due to the fact that in most cases, the family spent more money on educating the children and providing more household items which led to a reduction in income and an increase in poverty. This conforms to Etim

and Edet (2007), who asserted that most dependents particularly children contribute less to family income and family spends more in educating them. Omonona (2001) documented that since more resources are needed to keep a relatively large household than a small one, a unit increase in household size will raise the poverty depth. This result is also consistent with Edet (2012) and Anyanwu (2013) have reported that the probability of being poor increases with household size. Therefore, a relatively small household size goes a long way in poverty reduction.

The coefficient of years of formal education of household heads is -0.4221 and significant at 1 percent. This means that the poverty depth was likely to decrease by 0.4221 for individuals in families whose heads had formal education. This may be attributed to the fact that education helps in innovation adoption which leads to increase the productivity and income levels of households, hence poverty reduction. The result is in line with IFPRI (2005) who reported that increased level of education is essential to household poverty reduction. Hall and Patrinos (2005) support this fact, that education is one of the main factors that propel people out of poverty. Anyanwu (2013) documented that education works directly to enhance the ability of farmers to adopt more advanced technology in agricultural areas, thereby achieving higher rates of return on land. Also, the significance of education was reported by Amaza (2000), who stressed that the level of education (years of schooling) helps farmers to use production information efficiently, as a more educated person acquires more information and to that extent, is a better producer which will tend to have relatively better output and income. According to Anyanwu (2013), educated farmers are more productive than uneducated farmers, other factors affecting agriculture being held constant. Education is therefore an input to agriculture which leads to a greater output.

Farm income has a coefficient of-0.2532 and is significant at 10 percent. This implies that for each naira increased in farm income, the level of poverty was likely to reduce by 0.2532. This implies that the higher the income, the lower the incidence of poverty.

Ownership of assets such as houses, motorcycles, basins, buildings etc. by farm households also significantly affected the poverty status. The coefficient of asset ownership is -0.1286 and significant at 5 percent, implying that the depth of autonomous poverty for asset owning households was likely to reduce by 0.1286 whereas it was 0.5505 for non-asset owning households. The implication is that with the possession of one or more of these assets, poverty status was reduced.

Farm size has a coefficient of -0.2669 and significant at 5 percent implying that a hectare increase in farm size was likely to decrease the poverty depth by 0.2669 since the level of output is directly related to the area of land under cultivation. According to Edet *et al.* (2009), an increase in farm size increases farm income with corresponding improvements in household welfare.

Income derived from membership of association which is one of the benefits of social capital has a coefficient of -0.4304 and is significant at 1 percent. This means that apart from the farm income of households, income derived from association was likely to further reduce their poverty depth by 0.4304.

Number of visits of Extension Agents has a coefficient of-0.1223 which is significant at 1 percent. Extension Agents visited households who were members of associations more often because it was

easier to teach in a group. Respondents therefore learnt modern techniques of farming which increased their output and income hence, likely to reduce their poverty depth by 0.1223. This result is in line with Omonona (2001) who documented that poverty is higher when there is no access to extension services for farming than when there is access.

Interest amount paid on loan acquired from association has a coefficient of-0.2071 and significant at 10 percent. This implies that members of the associations obtained loan at a lower interest amount compared to banks and other sources of loan as already revealed. The reduction in interest amount on loans was likely to reduce their poverty depth by 0.2071. This is in line with the report of Novkovic (2023) that capital mobilized from cooperatives is very fundamental for a country's development, not only because it has a low cost but also because it is durable, permanent and has low interest rate. The result however is not in line with Nwaru (2004) who asserted that, the average rate of interest charged on informal credits was 125 percent per annum as compared with 14.6 percent per annum of formal credits.

Fertilizer, seeds and pesticides acquired from the association has coefficients of-0.3891, -0.3063 and -0.1391 respectively and significant at 10 percent, 5 percent and 5 percent respectively. As benefits from the association, households had access to fertilizer, seeds and pesticides and this was likely to decrease their poverty depth by 0.3891, 0.3063 and0.1391 respectively. Edet (2012) stated that farmers with access to improved seeds and access to credit through cooperatives and traditional groups are more prosperous with lower poverty incidence than others.

Farm land obtained from the association has a coefficient of -0.1079 and was significant at 10 percent. This result implies that as households obtained more land from the association to cultivate in addition to their owned land, their poverty depth was likely to further reduce by 0.1079. This conforms to the findings of Crowley (2007) that poverty is inversely correlated with household land ownership. The landless farmers are more vulnerable to poverty especially during famines. Implication is that those with land are less vulnerable.

The coefficient of access to credit is -0.4403 and significant at 5 percent. This implies that the poverty level of respondents with access to credit was likely to reduce by 0.4403. This result is in support of Akpan et al., (2016a); Akpan et al., (2016b) and Akpan et al., (2024) who asserted that, financial assistance is a major policy strategy for poverty reduction and increased agricultural productivity. Local associations, regardless of whether the provision of financial services was the prime objective played a key role in ensuring access credit Edet (2012). A major determinant of poverty in Akwa Ibom State is access to credit facilities (Asa, 2007, Etim and Edet, 2007, Etim and Edet 2013). This is true because credits help farmers to access improved farming inputs and techniques which result in increased productivity. Generally, all the results on the effect of social capital and other related factors on poverty agree with the a-prior expectations.

Constraints to Social Capital Formation

This study utilized factor analytical procedure with the aid of the principal component analysis to determine significant constraints to social capital. The respondents were requested to indicate the constraints they faced in their associations. This was done with the aid of 22 questions on various constraints from the literature. Communalities extraction index, which portrays the extent of inter

relationship between each of the identified constraints to social capital in the study area was used as indication of the importance of the variables in the analysis. An index was set in the selection, hence variables whose factor loadings were 0.50 and above were selected following Parasuraman *et al.* (1998) and Akpabio *et al.* (2007).

Table 3 shows the distribution of rural farm households heads based on the grouping of significant constraints to social capital. Social capital by rural farmers in the area is of immense benefits in poverty reduction but not devoid of some constraints. This distribution was based on the result of factor rotation using the principal components. From the results, 20 variables out of 22 were factors affecting social capital formation in the area. The 20 factors were crystallized into 8 major constraints (factors) based on similarities as shown on the table. The results imply that 8 components were responsible for explaining up to 63.27% of the total variations. It is a good score and the model was suitable.

Factor 1 was named leadership, management style and low income. This factor revealed to significantly explain the largest proportion of the constraints variability. It comprises of constraints that affected both executives and members. They are lack of good leadership and management, occupational status of members, unfair elections and high fares to attend meetings. Good leadership and management would always lead to free and fair elections but with lack of it, the reverse is the case. Good jobs lead to high income which would encourage members to attend meetings regularly. With regards to leadership style, Akpabio et al., 2007), documented that strong leadership with adequate managerial and administrative skills would ensure effective coordination, cooperative teamwork and ultimate continuity of activities. In the same vein, Sikwela et al., (2016) emphasized the necessity for a successful NGO to have strong leadership with adequate managerial and administrative skills. Adegeye and Dittoh (1985) stated that lack of good leadership and management, lack of capital as well as low level of education are major problems of cooperative society, union or movement which are all forms of social capital.

Table 3: Distribution based on grouping of significant constraints of social capital in the study area

S/N Factor	Factor Loading	Eigen Value	Cumulative Percentage
1.***Leadership, Management Style and Low Income***			
Lack of good leadership and Management	0.753	10.178	10.178
Occupational status of members	0.888		
Unfair election	0.570		
High fares to attend meetings at the meeting venue	0.801		
2.***Financial Constraints and Unconcerned Attitude of Members towards Group Activities***			
Insufficient funds to go round members	0.593	9.963	20.141
Poor response to the needs of members	0.604		
Inability of the group to fulfil members expectation	0.811		

3.**Executive Characters**			
Misappropriation of funds by the Executive	0.858		
Unserious attitude towards meetings and other group activities	0.798	9.401	29.542
Imposition of high dues /levies on members	0.655		
4.***1neffective Coordination and Unfair Distribution of Benefits to Members***			
Frequent rancour among members	0.754	8.749	38.291
Lack of transparency	0.776		
Inequality in loan distribution	0.670		
5. ***Lack of Seriousness of Members***			
Poor attendance / lateness at meetings	0.857	8.103	46.394
Poor organization of group activities	0.764		
6. ***Poverty***			
Low salaries/wages of members in salaried jobs which affect their contribution	0.892	6.818	53.212
7. **Illiteracy and Incompetence**			
Education problem of the leaders	0.928	6.700	59.912
Lack of good leadership and management	0.672		
8. ***Default and Partiality***			
Members inability to repay loans at stipulated periods	0.738	6.519	65.431
Benefits accrues only to the Executive members and their relations	0.599		

Source: Field Survey (2022).

According to Akpabio et al., (2007); Nigeria's difficulty in solving poverty issues in the past had been that of poor leadership at all levels of government. Strong leadership with adequate managerial and administrative skill is quite necessary for effective social capital formation.

Factor 2 was named financial constraint and unconcerned attitude of members to group activities. When there are enough funds, it would go round members thereby fulfilling their expectations. In most cases, the associations did not have enough funds which made the executives not to respond to all the needs of members. Akpabio et al., (2007) asserted that lower status individuals participate more in local organizational activities, ostensibly with the expectation to fulfil some social, psychological and / or economic desires. In a situation where these desires are not fulfilled, they were always disappointed and discouraged to continue in such organizational activities.

Factor 3 was named executive characters which had to do with the behaviour of the executive members. Misappropriation of funds by the executive and imposition of high dues/levies on members prompted members to stay away from meetings.

Factor 4 was named ineffective coordination and unfair distribution of benefits to members. This resulted in frequent rancour among members, lack of transparency and inequality in loan distribution. The inability of the leaders to coordinate group activities well led to ranc6ur among members.

Factor 5 was named lack of seriousness of members. This constraint manifested through poor attendance in meetings and persistence lateness at meetings as well as poor organization of group activities. his constraint in association will continue to exist among members until disciplinary procedures are well articulated and implemented for defaulting members as a deterrent. This constraint

affected both members and executives. During group work, most members were not serious including the executives.

Factor 6 was named poverty which was as a result of low salaries and wages of both executives and members who had salary paid jobs. This agrees with the assertion of Ndiyo (2008), that poverty is a state of involuntary deprivation to which a person, household, community or nation can be subjected. These are deprivations linked to a host of factors such as limited productive resources, lack of skills for gainful employment, social-political and cultural factors.

Factor 7 was named illiteracy and incompetence. It is made up of education problem of the leaders and lack of good leadership and management. Acquired skill has a positive impact with household's wellbeing (Ellis, 2001). Education enhances economic growth. Worthwhile development and progress can only take place in a society when its citizens are well educated and fully equipped to use their education as means of solving the diverse and complex problems facing that society bringing about meaningful change and thus contributing positively to its total progress (Ndiyo *et al*, 2008). The authors added that long tradition of formal and non-formal education have succeeded in a large measure in overcoming many of their national/state problems such as poverty, ignorance, social and political issues. The implication is that without education, one cannot solve or overcome problems such as poverty, ignorance, social and political issues. This really affected the leader of the associations. According to Akpan et al., (2024), credit institutions are being managed by people with little or no training in agriculture. These institutions also characterized by lack of timeliness in the release of funds, inadequate loans and absence of technical assistance.

Factor 8 was named defaults and partiality and is made up of members' inability to repay loans at stipulated periods and benefits accruing only to the executive members and their close relations. At times, after obtaining of loan, members defaulted since there was no collateral before the loan. Akpan et al., (2012), Akpan et al., (2020) and Akpan et al., (2024) reported that a number of common problems limit credit availability to farmers. These include very serious loan repayment problems in all too many cases. Partiality occurred in situations whereby leaders only approved loans to their closed relations. This agrees with the findings of Edet (2012) who asserted that constraints to improve the poverty level of rural farmers were due to corruption. This is not unconnected by the assertion that when funds meant for the execution of poverty alleviation programmes are misdirected, the people cannot obviously move forward and when leaders are selfish and insensitive to the plight of those they rule, then poverty cannot be helped

CONCLUSION AND RECOMMENDATIONS

This study analyzed the effect of social capital and other relevant factors on poverty and the constraints militating against effective social capital formation among poor rural farm households in Akwa Ibom State, Nigeria. The FGT methodology was used to generate indices of poverty. Tobit model and factor analytical procedures were employed to analyze the objective of the study. Several dimensions of social capital formation were incorporated in the regression model to determine their influences on rural household poverty. The empirical findings revealed that, the following social capitals: farm size acquired from the association, income derived from membership of association, number of visits of extension agents, interest amount paid on loan acquired from association, fertilizer, seeds, pesticides and farm land acquired from the association have significant negative relationship with the rural farm household poverty in the study area. By implication, increase in the acquisition of these social capitals by association members would significantly enhance the reduction of their poverty their depth.

Moreover, other related or non-social capital factors which affected farm household poverty status were sex of household heads, age, household size, years of formal education, farm income and ownership of assets.

In addition, the constraints militating against effective social capital operation in the study area were extracted from 22 variables using factor analysis. The results of factor rotation using the principal component revealed that 20 variables out of 22 were the constraints. The grouping of the significant variables further reveal 8 major category of constraints namely; leadership, management style and low income; financial constraint and unconcerned attitude of members towards group activities; executive characters; ineffective coordination and unfair distribution of benefits to members; lack of seriousness of members; poverty; illiteracy and incompetence as well as defaults and partiality. Understanding the factors responsible for the persistent deprivation among the poor is crucial for the effective designing of interventions to improve their well-being. It could be concluded from this study that social capital and the benefits derive from being membership of associations reduce the probability of being poor. Based on the high percentage of poverty prevalence in the State, it is concluded that poverty is endemic in the rural areas of Akwa Ibom State and specifically among farm households. This study lends support to recent emphasis on investing in social capital as a major means of poverty reduction.

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