Effect of Social Capital Endowment
on the Welfare of Farming Households in Kwara State, Nigeria

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Abstract: This study examines the effect of social on welfare of farming households in Kwara state, Nigeria. It focused on household food security status and nutritional status of under-five children as measure of household welfare. A three stage random sampling was employed to collect primary data from 160 farming households in Kwara State. The data was analysed using descriptive statistics, ordinary least square regression (OLS) and probit regression analyses. The regression analysis result shows that educational level, household size, household monthly income, dependency ratio and social capital index were significant in explaining variation in household food security status and in addition, number of friends of household head and status of household members in social groups are also significant in explaining nutrition status of under-five children in the households. The study showed that household's per capital calories intake increases with increase decision making index and heterogeneity index. Children nutrition status increase as density of membership and heterogeneity indices increase. The study concludes that social capital has a positive effect on household food security and children nutrition status thereby improving household welfare. The study therefore recommended that farmer should be encouraged to join social group so as to increase their social capital endowment. Also, social groups need to be strengthened and supported to improve household social network so as to improve household welfare.

Keywords: Food security; Social Capital; Welfare; Farming Households; Nigeria

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1. Introduction

The linkage between social capital and welfare is particularly relevant in many rural communities throughout sub-Sahara Africa, where households suffer from pervasive to extreme poverty with Nigeria inclusive. In Nigeria poverty is said to be acute and

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has been on the increase since 1980 as reported by United Nations Development in its annual report published in 2015. The National Bureau of Statistics (NBS, 2010) also shows that the incidence of poverty was raised from 54. 7% in 2004 to 60. 9% in 2010. The level of poverty in a household is widely recognized as an important indicator of the well-being of the household and this is reflected in the central role that the concept of poverty plays in the analysis of social protection policy. According to Oluwatayo (2004), poverty exists when an individual or group of individuals fail to attain a level of well-being, usually material. Poverty reduction has been receiving increasing global attention more importantly in the developing countries where majority of the people are considered poor. The need to reduce poverty to the minimum has been the aim of Nigeria government, international developing agencies and the civil society which devotes considerable resources towards achieving poverty reduction by funding programmes such as "Community Action Programme for Poverty Alleviation" (CAPPA), Family Economic Advancement Programme (FEAP), Community-based Poverty Reduction Project (CPRP), National Fadama Development Project and Local Empowerment and Environmental Management Project (LEEMP). The Nigeria government, has always spear-headed this campaigns with a view of achieving poverty reduction.

Arising from the foregoing, this study seeks to provide answers to the following research questions: What is the effect of social capital endowment on food consumption expenditure of farming households in Kwara state? What is the effect of social capital on food security status of farming households in Kwara state? What is the effect of social capital on nutritional status of under-five children among farming households in Kwara state? Specifically the objective of the Study are to: examine the effect of social capital endowment on welfare of farming households in kwara state; examine the relationship between social capital and food security of farming households in kwara state; and examine the effect of social capital on nutritional status of under-five children among farming households in kwara state.

2. Theoretical Framework

Social capitals consists of aspects of social structure, obligations and expectations, information channels, and a set of norms and effective sanctions that constrains and/or encourage certain kind of behaviour (Coleman, 1988). The concept of social capital is relatively new in economic analysis. According to Fukuyama (2002), the concept re-entered the social science lexicon in the 1980s. The concept of social capital believed that people could invest in themselves to enhance their level physically and financially. Social capital shares several attributes with other forms of capital. Thus, the concept of social capital rests heavily on trust, social norms, networks and trustworthiness required within groups and communities which helps to "facilitate exchanges, lower transaction costs, reduce the cost of information,

permit trade in the absence of contracts and the collective management of resources"
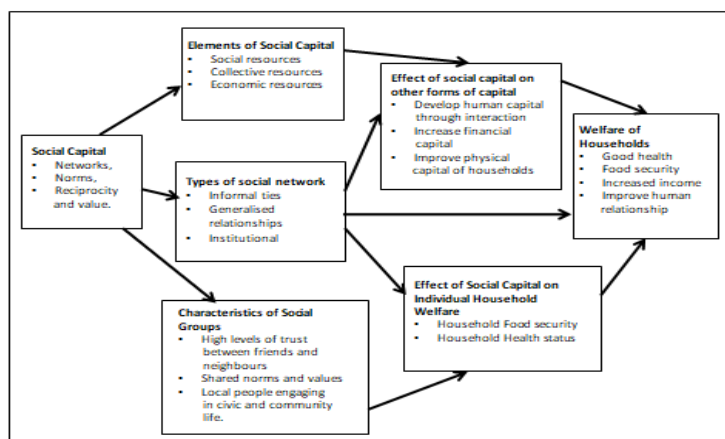(Fukuyama, 2002).

Figure 1. Conceptual Framework of Effect Social Capital on Welfare of Farming Households

Source: Adapted from Coleman (1988)

3. Research Methodology

The study was conducted in Kwara State whose capital is Ilorin. Kwara State of Nigeria was created on the 27th of May, 1967 along with 11 other states of the federation. The state was originally called west central state, having been carved out of the defunct northern Nigeria. At the time of creation, the state had a landmass of about $60,380km^2$ but this has reduced to $34,804.72km^2$ following the boundary adjustments that accompanied excision of a segment of its eastern part to Benue State in 1976 and 6 local government areas to the present Kogi State and Niger State in 1991. However, recent survey shows that the state has a total land area of about $32,500km^2$, which is about 3.5% of the total land area of the country, which is put at $923,768km^2$ (KWSG, 2006). Considering the geographical location, Kwara State occupies a vantage position on the map of Nigeria. Situated between latitudes $7^045'N$ and $9^030'N$ of the equator and longitudes $2^030'E$ and $6^025'E$ of the equator, it lies midway between the Northern and Southern parts of Nigeria. Kwara State shares boundaries with Osun, Oyo, Ondo, Kogi, Niger and Ekiti States as well as an international boundary with the Republic of Benin in the West.

The estimated population of the state is about 2. 37million people (NPC, 2008) out of which farmers account for about 70%. The average population density of the state as at 2006 was about 73 people per square kilometre. An analysis of the gender

distribution reveals that about 49. 6% of the total population of the state is male while the female is about 50. 4% and age distribution reveals that Kwarans below the age of 18years make up about 48% of the total population while the Adult population is about 52%. Approximately 25% of the land area of kwara state is use for farming. The farming system in the state is characterized by low quality but surplus land, low population density and cereal–based cropping pattern. The cultural, religious and ethnic mix of the state is very unique. The religious mix of the state is a combination of Islam and Christianity and to some extent traditional worshippers. The state is made up of 16 local government areas (LGA) namely, Asa, Baruten, Edu, Ekiti, Ifelodun, Ilorin–East, Ilorin–West, Ilorin–South, Irepodun, Isin, Kaima, Moro, Offa, Oke–Ero, Oyun and Pategi. The dominant ethnic groups in the state are "Yoruba", "Hausa," "Fulani" and "Nupe". There are a total of 1,258 rural communities in Kwara State (NPC, 2008). Based on agro–ecological and cultural characteristics, the state is divided in to four agricultural zones – zones A, B, C and D, by the Kwara State Agricultural Development Project (KWADP).

3.1. Sources of Data and Sampling Techniques

The data for this study was obtained mainly from two sources primary and secondary data. Data on household level was collected for the study. The primary data was collected with the aid of questionnaire administered to households. Supporting literatures was also collected from books, journals, articles, term papers, internet browsing and other documented reports. The state is divided into sixteen LGAs, out of which 4 LGAs which are Asa, Moro, Ekiti, and Oyun was randomly selected from which, 5 communities were also randomly selected to give 20 communities. Finally, 8 respondents were selected per community to make a total of 160 respondents.

Figure 2. Map of Nigeria Showing Kwara State

3.2. Analytical techniques

The study used different analytical tools based on the objectives of the study and this includes descriptive and inferential statistics, such as ordinary least square (OLS). The descriptive statistics used include tables, percentages, and all forms of indices to categorise the welfare status of the respondents.

Model Specification

The regression model of household per capita calories intake is specified as follows:

$Z_i = b X_i + U$ …………………. 1

$Z = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, \ldots U)$

Where Z= per capita calories intake of household in (Kcal/AE/day)

The explanatory variables included in the model of per capital calories intake of farming households are:

$X_1 =$ Age of household Head (Years)

$X_2 =$ years of schooling (years)

$X_3 =$ Farm size (Hectares)

$X_4 =$ Household size (Adult male Equivalent)

$X_5 =$ Gender of Household (Male=1, 0 otherwise)

$X_6 =$ Monthly income (Naira)

$X_7 =$ Dependency ratio

$X_8 =$ Status in group

$X_9 =$ No of friends

$X_{10} =$ Social capital index

$X_9 =$ Density of membership index

$X_{11} =$ Decision making index

$X_{12} =$ Heterogeneity index

U= Error term

The Probit estimation of the determinants of under-five children nutritional status is given as:

$Y_i = b X_i + U$

Y= f (1 if not nutrient deficient and 0 if nutrient deficient)

$$y_i = \begin{cases} 0, & \text{if } \lambda_i > \xi_i \\ 1, & \text{if } \lambda_i \leq \xi \end{cases}$$ Y= f (X$_1$, X$_2$, X$_3$, X$_4$, X$_5$, X$_6$, X$_7$, X$_8$,……U)

The explanatory variables included in the model of nutritional status of children age under five years among farming households are:

X_1 = Age of Household Head (years)

X_2 = years of schooling (years)

X_3 = Farm size (Hectares)

X_4 = Household size (Adult male Equivalent)

X_5 = Gender of Household (Male=1, 0 otherwise)

X_6 = Monthly per capita income (Naira)

X_7 = Dependency ratio

X_8 = Status in group

X_9 = No of friends

X_{10} =Social capital index

X_9 = Density of membership index

X_{11} = Decision making index

X_{12} = Heterogeneity index

U= Error term

4. Results and Discussion

4.1. Socio-Economic Characteristics of Sample Farming Households

The Table 1 shows the distribution of respondents according to social economic characteristics and its gives the report of descriptive statistics by respondents' showing social capital endowments of the farming households. The gender distribution of the respondents shows that 96. 7% of the respondents were male while 3. 3% were Female, this implies that majority of household heads in the study area were Male. This may be as a result of the facts that they engage in farming activities than woman because sex of household head affects the type farming activities done on the farm and it also affects type associations' household belongs to as well as their social capital endowments. Also, the distribution of the age of respondents

given was observed that only 21. 3% of the respondents were less than or equal to 40years of age, majority 46. 0% were between the ages of 41-50years, 21. 3% were 51-60years while 10% were above60 year of age. This is an indication that most of the household heads were within the active age. It also indicates that fewer youth are participating in farming activities which may affect social capital of households.

The educational level of the respondents in table shows that 17. 3% of the respondents do not have any form of formal education, while majority 38. 8% had primary or secondary education 4. 0% had adult education and finally 27% had Tertiary education. Education gives room for self-development and exposes farmers to greater opportunity. Only a small proportion of the farming household heads had no formal education. Years of schooling acts as a proxy for the level of knowledge and understanding of household members confirmed by Ayanlere, (2016) where they found out that household members benefit from the abilities of a literate person in the household regardless of the year of schooling and level of education. The marital status in table 2 revealed that majority 88% of the respondents were married while only 12% in total belong to other groups, single; divorce/separated widow/widower. This implies that household heads in the study area were majorly married people. Years of farming experience from table 2 shows that majority of the respondents 34% had between 11-20years of farming experience. While 29% had less than or equals to 20 years of farming experience, majority 63. 3% had 21-40years of farming experience, 5. 3% had between 41-55 years of farming experience and 2% had above 55 years of farming experience. Farm size from table 2 shows that majority 66. 0% of the respondent have 1. 1- 6. 3 farm size per hectare while 6. 7% had between 6. 4-11. 5 farm sized per hectare and 0. 7% above 11 hectares. The table shows that 73% of the households had monthly income of between 30000-70000. Total value of asset from table 2 shows that 1. 3% of the respondents have an asset value <300000, 63. 3% value asset between 300000-930000, 24% have value asset between 940000-1800000, 9. 3% values asset between 1840000-2730000 and finally 2% have value asset above 2730000 Naira.

Table 1. Socioeconomic Characteristics of Farming Households

Characteristics	Frequency	Percentage
Gender		
Male	145	96. 7
Female	5	3. 3
Total	150	100
Age in years		
<40	32	21. 3
41-50	69	46. 0
51-60	34	22. 7
>60	15	10. 0
Total	150	100
Adjusted household size		
<3	4	2. 7

4-10	99	66. 0
11-20	25	16. 7
>20	22	17. 7
Total	150	100
Marital status		
Single	8	5. 3
Married	132	88. 0
Widow(er)	7	4. 7
Devoiced	3	2. 0
Total	150	100
Level of Education		
No formal education	26	17. 3
Adult education	6	4. 0
Primary	57	38. 8
Secondary	57	38. 8
Tertiary	4	2. 7
Total	150	100
Primary occupation		
Farming	120	80
Artisan	22	14
Others	8	5. 3
Total	150	100
Farm size in Ha		
<1. 0	40	26. 7
1. 1-6. 3	99	66. 0
6. 4-11. 5	10	6. 7
>11. 5	1	. 7
Total	150	100
Years of farming		
<5	9	6. 0
6-18	35	23. 3
19-30	45	30. 0
31-40	50	33. 3
41-55	8	5. 3
>55	3	2. 0
Total	150	100
Food expenditure(Naira/month)		
<10000	8	5. 3
10001-23000	77	51. 3
23001-37000	33	22. 0
37001-50000	31	20. 7
>50000	1	0. 7
Total	150	100
Total household expenditure(Naira/Month)		
<15000	4	2. 7
15000-35000	125	83. 3
>35000	21	14
Total	150	100
Value of household assets in (Naira)		
<300000	2	1. 3
300001-930000	95	63. 3

930001-1830000	36	24. 0
1830001-2730000	14	9. 3
>2730000	3	2. 0
Total	150	100
Household monthly income		
<30000	2	1. 3
30001-70000	110	73. 3
70001-120000	32	21. 3
120001-170000	5	3. 3
>170000	1	0. 7
Total	150	100

Source: Survey Data, 2017; Number of observation=150

4.2. Effect of Social Capital Endowment On Household Food Consumption Expenditure

The result of the OLS regression is presented in table 2. The table shows five (5) out of ten (10) variables and the constant are statistically significant. Education level of household is positively significant this shows that education has a direct relationship with household food consumption expenditure. Household size is also positively related to household food expenditure this implies that the higher the household size the higher the food consumption expenditure. Monthly income of household is also positively related to food consumption expenditure therefore the higher the household income the higher their food consumption expenditure. The dependency ration is also positively significant and this implies the higher the dependency ratio the higher the food consumption expenditure, while the aggregate social capital index is negatively significant, this implies that there is an inverse relationship between social capital and household food consumption expenditure that is, the higher the level of social capital the lower the household food consumption expenditure. Educational level and dependency ratio are positively significant at 10% degree of error. Household size and monthly income are also positively significant at 1% degree of error. Aggregate social capital index is negatively significant at 10%. The model posted an R^2 of 0. 535 this implies that 57. 1 % of the dependent variable is explained by the independent variable.

Table 2. Regression Estimate of Determinants of Farming Households' Food Consumption Expenditure

Variables	Coefficient	Standard error	p-value
Constant	15581. 320**	6620. 948	0. 021
Age (years)	-48. 511	87. 288	0. 580
Education (years)	1511. 308*	817. 277	0. 067
Farm size (Ha)	-306. 982	399. 579	0. 444
Household size (AE)	1535. 397***	186. 414	0. 000
Gender (Male=1)	-4243. 447	4897. 145	0. 388

Monthly income (₦)	0. 352***	0. 061	0. 000
Dependency ratio	11412. 435*	6198. 196	0. 069
Status in group	3190. 619	2267. 522	0. 163
Number of friends	153. 622	5666. 225	0. 787
Social capital index	-4624. 114*	2447. 809	0. 062
R^2	0. 535		
F-Value	0. 000***		

Source Survey Data, 2017; Number of observation =150

*Indicate significant at 10%, **Indicate significant at 5%, ***Indicate significant at 1%

4.3. Effect of Social Capital Indices On Household Food Consumption Expenditure

The social capital indices used in the study are density of membership index, decision making index and heterogeneity index. The result of the regression in table 3 shows that the constant and density of membership are positively significant this means that the number of groups household members belong to has a direct effect on their food consumption expenditure. Decision making index and heterogeneity are negatively significant this implies that whether household members participate in decision making in their groups has an indirect effect on the amount the pay for food in their households. Households' group diversity is also important to household food consumption expenditure because it also has an indirect relationship with household food consumption expenditure that is, it can increase or reduce household food consumption expenditure. The result hereby shows that show capital has both direct and indirect effect on food consumption expenditure of farming households in the study area

Table 3. Regression estimates of Effect of Social Capital Indices on Food Consumption Expenditure

Variables	Coefficient	Standard error	p-value
Constant	24124. 957***	5119. 277	0. 000
Density of membership index	139. 369***	38. 996	0. 001
Decision making index	-387. 912***	125. 299	0. 003
Heterogeneity index	-113. 128*	64. 356	0. 082
R	0. 436		
R^2	0. 190		
F- Value	0. 000***		

Source Survey Data, 2017; Number of observation=150
*Indicate significant at 10%, **Indicate significant at 5%, ***Indicate significant at 1%

4.4. Household Food Security Status

Table 4 shows the statistics of household food security in the study area measured by the households' per capita calorie intake. The table shows that 61. 8 % of the sampled household are food secured at 2200 kcal per day calorie requirement while 38. 2 are not food secure.

Table 4. Household Food Security Status Measure by Per Capita Calorie Intake

Characteristics	Frequency	Percentage
Food secure	95	63. 7
Non-food secure	55	36. 3
Total	150	100

Source Survey Data, 2017; Number of observation=150

4.5. Anthropometry Analysis

The anthropometry characteristics of children under the age of five such as height, weight and age where used to generate indices such as height- for- age which was used to measure stunting, weight –for-age which was used to measure underweight and weight – for- height which was used to measure wasting all Z-scores obtained where compared with the standard value of the National centre for Health Statistics (NCHS) Z-score to infer the nutritional status of the children.

Table 5. Summary of Anthropometry Statistics of Children Under-Five Years

Characteristics	Minimum	Maximum	Mean	Standard deviation
Stunting prevalence*	0	1	0. 23	0. 420
Wasting prevalence*	0	1	0. 19	0. 391
Underweight prevalence*	0	1	0. 23	0. 420
Height for age Z- score	0. 1270	0. 3810	0. 2070	0. 044
Weight for height Z-score	15. 740	39. 370	26. 2305	4. 246
Weight for age Z- score	3. 000	13. 000	5. 4053	1. 4131

Source Survey Data, 2017; Number of observation=150

The (*) indicates characteristics with binary response which are assigned 0 and 1.

The total number of households was 102 for all the characteristics. The average value for Height for age Z- score, Weight for height Z-score and Weight for age Z- score were estimated at 0. 2070, 26. 27 and 5. 4053 respectively. The malnutrition indices; stunting, wasting and underweight were measured such that a stunted child is scored 1 while a child otherwise is scored 0. The mean stunted value of the respondent was estimated at 0. 23 thereby justifying the fact that only 23% of the respondents are stunted. The mean value for wasting was estimated at 0. 19 showing that only 19% of the respondents are wasted and the mean value for underweight was estimated at

0. 23 showing that 23% of the respondents were underweight. The result shows that most of the respondents were found not to be wasted, stunted or underweight.

4.6. Effect of Social Capital Endowment on Nutritional Status of Under-Five Children

The result of the probit regression in table 6 shows that eight (8) out of nine (9) variables and the constant are significant. Farm size, household size, monthly income, dependency ratio, status in group, number of friends and aggregate social capital are negatively significant this means they are inversely related to nutritional status of children under five. This means the higher the level of social capital the lower the level of stunting, underweight and wasting.

Table 6. Regression Estimates of Determinants of Nutritional Status of Under-Five Children

Variables	Stunting	Underweight	Wasting
Constant	11. 0826**	11. 0826**	12. 4709**
	(5. 1948)	(5. 1948)	(5. 4914)
Age (years)	0. 0077	0. 0077	0. 0195
	(0. 3479)	(0. 3479)	(0. 2835)
Education (years)	0. 9184 **	0. 9184**	0. 3902*
	(0. 4523)	(0. 4523)	(0. 2789)
Farm size(Ha)	-0. 2748*	-0. 2748*	-0. 0221*
	(0. 1469)	(0. 1469)	(0. 1183)
Household size (AE)	-0. 3232***	-0. 3232***	-0. 2418***
	(0. 0923)	(0. 0923)	(0. 0732)
Monthly income (₦)	-0. 0422-E*	-0. 0422-E*	0. 0212-E*
	(0. 0266-E)	(0. 0266-E)	(0. 0173-E)
Dependency ratio	-2. 2903*	-2. 2903*	-0. 0946*
	(2. 9783)	(2. 9783)	(2. 4292)
Status in group	-0. 0312 **	-0. 0312 **	-1. 5079 **
	(1. 0602)	(1. 0602)	(0. 7488)
Number of friends	-0. 1162*	-0. 1162*	-0. 1450*
	(0. 0860)	(0. 0860)	(0. 0846)
Social capital index	-0. 0374**	-0. 0374**	-0. 1038*
	(0. 0165)	(0. 0165)	(0. 0533)
Log likelihood	-14. 837	-14. 837	-19. 600
LR chi^2 (9)	76. 69	76. 69	61. 38
Pseudo R^2	0. 7210	0. 7210	0. 6456

Source Survey Data, 2017; Number of observation=150

* Indicate significant at 10%, ** Indicate significant at 5%, *** Indicate significant at 1%

Figures in parenthesis are standard errors

5. Conclusion

Social group have impact on different aspect of human living and it can also be infer from this study that social capital has an important role to play in improving the welfare of farming household in Kwara state. The study analysed the effect of social capital on welfare of households measured by their food security and result shows that household level of social network has a positive effect on welfare of farming households in the study area. This implies that the higher the level of social capital of farming households the better the household welfare.

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