

DETERMINANTS OF EFFECTIVENESS OF SOCIAL CAPITAL FORMATION ON THE LIVELIHOOD OF FISHER-FOLKS IN KAINJI LAKE BASIN, NIGERIA

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ABSTRACTS

This study examined the determinants of effectiveness of social capital formation on livelihood of the fisher-folks in Kainji Lake Basin, Niger State, Nigeria. Multistage sampling technique was employed to select 290 respondents used for the study. Primary data were collected using structured questionnaire complimented with an interview schedule. Data collected were analyzed using descriptive statistics and inferential statistics such as logit regression. Result obtained showed that the mean age of respondents was 42 years; mean household size was 12, the majority were males (95.2%) and married (93.7%). More so, the majority (97.6%) of the fisher-folks were primarily engaged in fishing activities, while less than half (43.1%) of the respondents belong to cooperative society with mean years of 8.5 years. In terms of benefits from social capital formation, the mean credit accessed by the fisher-folks was ₦82,411.79 monthly, while the mean value of asset owned by the fisher-folks in terms of fishing assets, household asset and livestock assets were ₦627,157.50, ₦753,824.70 and ₦179,072.40, respectively. Regression analysis revealed that there was significant relationship between effectiveness of social capital formation and age, household size, access to credit, access to market, cooperative membership and information sources of the respondents based on the z-value of -4.10, 2.71, 2.37, 3.99 and 3.43, respectively. Effectiveness of social capital formation was influenced by factors such as Age, household size, access to credit, access to market, cooperative membership and information sources. It was recommended that social capital formation should be encouraged among fisher-folks and other agricultural stakeholders, so that individuals can tap into the diverse resources and enhance their skill.

Key words: social capital, determinants, formation, fisher-folks

Introduction

Social capital is an important characteristic of a community, which can influence and be influenced by the flow and stock of other capitals (Emery and Flora, 2006). Social capital is one of the five different types of capital (natural, physical, human, financial and social capital (Okumadewa *et al.*, 2005). Social capital needed for the fisher-folks to develop sustainable livelihood strategies, consists of the networks and norms that govern the interactions among individual's household and communities. Social capital can be categorized into three dimensions: bonding, bridging and linking, but the boundaries between these dimensions vary across surrounding communities (Pretty, 2003).

Bonding social capital refers to the relations between homogenous groups or communities that build social conclusion needed for everyday living, bridging social capital refers to the structural relations and networks between groups and

communities involving collaboration with other groups, external association mechanisms of social support or information sharing across communities and groups and linking social capital refers to the capacity of groups to gain access to resources, idea and information from formal institutions beyond the community (Narayan and Pritchett, 1999; Pretty, 2003).

Generally, social capital represents the social resources (network, membership of groups and relationship of trust, access to wider institutions of society) upon which people draw knowledge, idea, information and skills in pursuit of livelihoods. Social capital formation is usually defined as an aggregate variable: the norms and networks of a particular community. However, decisions to invest in social capital are made by individuals, not communities. Most obviously, factors that induce individuals to internalize the welfare of the community will increase investment

in community-enhancing social capital (Dipasquale and Glaeser, 1999).

According to World Fish Center (2002), people in the fishing sectors comprises of the poorest and most neglected. They are found in isolated places, along the margins of lakes, valley and shore line far from social educational, information and health facilities. In fact, five thousand fisher-folks are found around the Lake Kainji with about 300 fishing communities engage in small-scale fishing, dugout canoes and family labour for fishing activities (Du Feu, 2001). However, there have been decreases in the performance of these fishing groups. The decline in the group activities leads to poor outcomes of their fishing activities which reduces their income. The member due to low catch are unable to function in term of membership contributions to the group, inability to pay dues, thus could not reap benefit accrued to member that pay dues regularly.

Social capital describes circumstances in which individuals can use membership in groups and networks to secure benefits. One can acquire social capital through purposeful actions transformed into conventional economic gain. The extent to which an individual has access to resources through social capital depends on the person's contact or association. Poor fishermen have little opportunity of getting adequate credits to improve their fishing practices, even to borrow loan is difficult because they lack collateral security. They depend on family members and money-lenders that take undue advantage of their lack of resources.

There is gap in knowledge concerning information sharing within the group that could have helped in improving the welfare of the fisher-folk which need to be filled. Individual's social capital depends on the person's social characteristics, which include social skills, charisma, and the size of his trademark that enable him to reap market and non-market returns from interactions with others. However, lack of power to enjoy these resources is due to their networking power. It was against this backdrop that this study was conceived, hence the specific objectives were to:

- i. describe the socio-economic characteristic of the fisher-folks in the study area;

- ii. evaluate the benefits of social capital formation to the fisher-folks, and
- iii. examine the determinants of social capital formation on the livelihood of fisher-folk.

Methodology

Study area

Kainji Lake lies in the savannah region between latitude 9° 30' and 10° 35' N and between longitudes 40° 20' and 4° 40' E, and it was formed after the closure of the river Niger in the Kainji lake has about 5000 fishers, the whole Lake has about 286 fishing localities (villages and camps) spread along the shoreline and Island of Kainji Lake. The Lake is divided into three main strata by Nigerian/German Kainji Lake Fisheries Promotion Project into stratum I, II and III (Binyotubo and Obhahie, 2006). About 61 percent of the fishing communities are located in Niger State and 39 percent in Kebbi State. The fisher-folk in the area are mainly Bussawa, Kambiri, Gugawa and Ijaws.

Sampling procedure and sample size

Multistage sampling technique was employed in the selection of respondents for this study. In stage one, three Local Government Areas (Magama, Agwara and Borgu) and two Local Government Areas (Ngaski and Yauri) was purposively selected from Niger and Kebbi States, respectively, because they made up of the Kainji Lake Basin. Stage two was proportionate sampling of 50%, the fishing communities in the two States to get 26 fishing communities in total. In the third stage, the total registered fisher-folk households engaged in fishing activities were obtained from Niger and Kebbi States Bureau of Statistics, respectively, as the sampling frame. Stage four was proportionate sampling of 290 fisher-folks from the sample frame obtained using Yamanne (1967) formula as adopted by Shehu (2016). The Yamanne equation is mathematically expressed as:

$$n = \frac{N}{1+N(e)^2} \quad (1)$$

Where;

n = Sample Size

N = Finite population

e = limit of tolerable error (i.e. level of precision (0.05))

Table 1: Distribution of the Respondents in the study area

Selected States	LGAs	Fishing Communities (50%)	Sample Frame	Sample size
Niger	Magama	8 (4)		
	Agwara	10 (5)	171	48
	Borgu	11 (6)	170	48
	Ngaski	12 (6)	277	78
Kebbi	Yauri	10 (5)	262	74
	5	51 (26)	150	42
TOTAL			1030	290

Source: Niger and Kebbi States Bureau of Statistics (2013)

Data collection and analysis

Primary data used for this study was collected through the aid of structured questionnaire complimented with an interview scheduled. Data collected were subjected to both descriptive statistics (frequency count, percentages, and mean) and inferential statistics such as Logit regression.

Model specification

Effectiveness of social capital formation on the livelihood of fisher-folks was analyzed using Logit regression model. The general purpose of Logit regression was to know the relationship between several independent or predictor variables and a dependent variable. The implicit form of the model is specified as:

$$Y \text{ as a function of } (X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, \dots, X_{15}) \quad (2)$$

The explicit form of the model is specified as:

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + \dots + b_{15}X_{15} + u \quad (3)$$

Where;
 Y = Effectiveness of social capital formation on the livelihood of the fisher-folks (measured using 5 – point Likert scale, mean score > 3.0 was regarded effective and assign 1, while < 3.0 was regarded as not effective and assign 0)

- X₁ = Age (years)
- X₂ = Sex (1=male, 0=female)
- X₃ = Educational level (years)
- X₄ = Labour usage (mandays)
- X₅ = Household size (numbers)
- X₆ = Fishing experience (years)
- X₇ = Extension contact (numbers)
- X₈ = Credit (yes=1, no=0)
- X₉ = Access to market (yes=1, no=0)
- X₁₀ = Cooperative membership (yes=1, no=0)
- X₁₁ = Annual income (naira)
- X₁₂ = Information sources (numbers)
- X₁₃ = Awareness on social capital formation (awareness score)

- X₁₄ = Perception about social capital formation (perception score)
- X₁₅ = Livelihood assets (numbers)
- u = error term.

Results and Discussion

Socio-economic characteristics of the respondents

The socio-economic characteristics of the respondents under consideration include age, sex, household size, primary occupation and cooperative society. Tables 2 revealed that majority (95.2%) of the respondents were within the age ranges of 31 – 60 years with mean age of 42.0 years. This implies that the respondents are still active and in their productive years where they could participate in social capital formation. This finding is line with the assertion of Million and Belay (2004) who posited that most active age farmers can easily key-in to new innovation and technology. Similarly, Abiona (2010) stressed that the innovators are mostly in their active years. More so, majority (95.2%) of the respondents in the study area were males implying that more males were engaged in fishing than female. The male dominance in fishing activities as source of livelihood indicates the laborious nature of fishing operations. This finding is in line with the work of Adeleke (2013) who posited that fishing activities involve more males than females because of the strength, times required and various risks of the fishing job. Majority (80.0%) of the respondents in the study area had household size of between 6 – 20 persons with mean household size of 12 persons. This implies that the respondents in the study area have relatively large household size which is in corroboration with the work of Johnson (2009) who posited that farmers with large household are more likely to participate in social capital formation where they could benefit. Furthermore, majority (97.6%) of the respondents in the study area were primarily engaged in fishing activities which could

be due to the fact that they live along the riverine area where fishing is the main source of livelihood. This is in agreement with the work of Nwabueze (2010) who reported that fishing practices takes place in remote localities which contributed

significantly to food security, income generation and improved standards of living of the rural populace. Less than half (43.1%) of the respondents were members of cooperative societies with mean of 9 years of being member.

Table 2: Distribution of respondents according to their socio-economic characteristics

Variable	Frequency	Percentage	Mean
Age (years)			42.0
< 30	34	11.7	
31 – 40	94	32.4	
41 – 50	109	37.6	
51 – 60	44	15.2	
> 60	9	3.1	
Total	290	100.0	
Sex			
Male	276	95.2	
Female	14	4.8	
Total	290	100.0	
Household (number)			12.0
> 5	41	14.1	
6 – 10	58	20.0	
11 – 15	144	49.7	
16 – 20	30	10.3	
> 20	17	5.9	
Total	290	100.0	
Primary occupations			
Fishing	283	97.6	
Trading	7	2.4	
Total	290	100.0	
Cooperative membership			
Yes	125	43.1	
No	165	56.9	
Total	290	100.0	

Source: Field Survey, 2016

Benefits of social capital formation to the fisher-folks

Benefits of social capital formation can be expressed in both qualitative and quantitative term. However, Table 3 revealed the quantitative result of the social capital formation benefits with respect to amount of credit obtained, value of assets owned and income realized by the fisher-folks annually. The mean credit accessed by the fisher-folks as a result of participating in social capital formation was ₦82,411.79 monthly, implying that the fisher-folks were operating on a small-scale. Access to credit is the most often cited social capital formation benefit among fisher-folks as few formal financial institutions exist in the rural communities with low capacity to disburse credit and inability of fisher-folks to provide collateral. Social networks therefore become critical for facilitating access to credit which could be through employment generation in fishing activities, provision of fishing

gears, fish catch and supply of fish for marketing. Ferrol-Schulte *et al.* (2014) posited that credit and fishing inputs could be provided through social capital formation for guaranteed supplies of fish.

Furthermore, the mean value of asset owned by the fisher-folks in terms of fishing assets, household asset and livestock assets were ₦627,157.50, ₦753,824.70 and ₦179,072.40 respectively. This implies that the fisher-folks were at disposal of various assets covering fishing, livestock and household as revealed by their mean value. The net worth of individual fisher-folk depends on the types of asset own and the value for it. This finding is in agreement with the work of Winter *et al.* (2009) who posited that the value and use of asset depend not only on the quantity owned but also on the ownership status of the asset. More so, the mean income of the fisher-folks was ₦417,451.50. This implies that, higher income from fishing activities will encourage social capital

formation as fisher-folks could easily interact and benefit one another in terms of resources sharing. According to Ajayi et al. (2017), long term concern

about the ability of smallholder farmers is to generate sufficient income for their increasing households' daily needs.

Table 3: Indicators of social capital formation benefits based on credit access, asset and income

Variables	Mean	Standard Deviation	Minimum	Maximum
Access to credit (₦) Credit obtained	82411.79	68176.30	0.00	250000.00
Value of asset owned (₦)				
Fishing asset value	627157.50	281639.40	130300.00	1948800.00
Household asset value	753824.70	326174.20	157800.00	1975800.00
Value of livestock owned	179072.40	144608.90	0.00	960500.00
Income (₦)				
Annual income	417451.40	562628.30	60000.00	800000.00

Source: Field Survey, 2016

Determinants of social capital formation

The result of logit regression analysis in Table 4 revealed the determinants of the effectiveness of social capital formation on livelihood of the fisher-folks in the study area. The result showed Pseudo R² of 0.2925 implying that about 29% of variations that occur in social capital formation were explained by the independent variables included in the model. The chi-squared statistic of 109.67 was significant at 1% level of probability indicating the goodness of fit of the overall model. From the t values, six variables (age, household size, access to credit, market access, and cooperative membership and information sources) out of the fifteen variables included in the model were statistically significant at 1% and 5% level of probability, respectively.

Age had negative coefficient and statistically significant at 1% probability level, implying that age of the respondents had inverse relationship with social capital formation. Increase in age of the respondents will decrease the effectiveness of social capital formation in the study area which could be to the fact that older people may not be actively involved in social capital formation. This finding is in agreement with Kirori (2015) who reported negative relationship between age of the respondents and social capital formation suggesting that social capital declines with age.

Household size had positive coefficient and statistically significant at 1% probability level, implying that household size had direct relationships with social capital formation. Increase in household size of the respondents will increase

the effectiveness of social capital formation as larger household size are likely to have more family members participating in social capital formation that will boost income from fishing activities. This is in line with the work of Alexander et al. (2013) who reported that household demographic characteristics play significant role in social capital formation as it affects their welfare.

Access to credit had positive coefficient and statistically significant at 1% probability level, implying that access to credit had direct relationships with social capital formation. The more the fisher-folks have access to credit, the higher the probability of increase effectiveness of social capital formation. In most cases, rural poor often find it difficult to access formal credit and therefore rely more on informal arrangements such as social capital formation. This is in agreement with Karlan et al. (2009) who reported that households with poor access to a formal credit may constantly invest in social capital to secure access to informal credit sources.

Access to market had positive coefficient and statistically significant at 10% probability level, implying that access to market had direct relationships with effectiveness of social capital formation. Increasing access to market will probably increase the effectiveness of social capital formation to facilitate information sharing. This finding is in collaboration with the work of Katungi et al. (2012) who posited that access to market is an incentive for effective social capital formation.

Cooperative membership had positive coefficient and statistically significant at 1%

probability level, implying that cooperative had direct relationships with effectiveness of social capital formation. Cooperative membership increases the probability of the respondents participating in social capital formation. An individual acquires social capital through participation in informal networks, registered organizations, associations of different kinds and social movement. This is in line with Shoji *et al.* (2012) who reported that village with more social capital are more likely to enjoy better public services, adopt advanced agricultural practices and participate in communal activities which in turn increase individual income.

Information sources had positive coefficient and statistically significant at 1% probability level, implying a direct relationship with effectiveness of social capital formation. This shows that access to good sources of information coupled with timely and adequate information dissemination will have a positive effect on social capital formation. This finding is also in line with Katungi *et al.* (2012) who posited that access to communication facilities could enhance information sharing and increase the chance of participating in organizations or social networks.

Table 4: Logit regression estimates of the determinant of social capital formation

Variable	Coefficient	z - value
Age	-.0639741	-4.10***
Sex	-.0104408	-0.01
Education	0.262512	0.54
Labour	-.0059785	-0.54
Household size	.1017235	2.71***
Fishing experience	-.014381	-0.89
Extension visit	-.0770822	-0.80
Access to credit	.9321782	2.37***
Access to market	.7337982	1.93**
Cooperative membership	1.485913	3.99***
Income	1.63e-07	0.18
Information sources	.3586031	3.43***
Awareness	.2681365	0.88
Perception	.0113415	0.69
Asset	7.55e-07	0.60
Constant	-1.041693	-0.40
Pseudo R ²	0.2925	
Chi - squared	109.67***	
Log likelihood	-132.61266	

Source: Field Survey, 2016

*** implies significant at 1%, ** significant at 5% and * significant at 10% level of probability

Marginal effect of effectiveness of social capital formation

The result of marginal effect estimates of the significant variable is presented in Table 5. It revealed that the probability of age influencing effectiveness of social capital formation decreases by the coefficient value of -0.0095. This implies that 100% increase in age of the respondents will lead to about 1% decrease in effectiveness of social capital formation. However, the coefficients of household size (0.0151), access to credit (0.1381), access to market (0.1087) and cooperative membership (0.2201) increases the effectiveness of

social capital formation by 1%, 14%, 11% and 22%, respectively with every 100% increase in each of the variable. This shows that all the identified variables play significant roles in the effectiveness of social capital formation. Furthermore, information sources coefficient is 0.0531, implying that 100% increase in sources of information will increase the effectiveness of social capital formation by about 5.3%. This shows that information is very vital to social capital formation as lack of it could hinder success of social networks.

Table 5: Marginal effect of the logit regression estimate

Variable	Coefficient	Std error	z - value
Age	-0.0094744	.001964	
Household size	0.0150649	.0056214	-4.82***
Access to credit	0.1380527	.0541273	2.68***
Access to market	0.1086732	.0555294	2.55***
Cooperative	0.2200592	.0489417	1.96*
Information sources	0.053108	.0135654	4.50***
			3.91***

Source: Field survey, 2016
 *** implies significant at 1% and * significant at 10% level of probability

Conclusion and Recommendations

The fisher-folks in the study area were in their active age and mostly males who are married with primary source of livelihood been fishing activities. The respondents benefit from social capital through access to credits and improved social status in terms of fishing assets, household asset and livestock assets. Age, household size, access to credit, access to market, cooperative membership and information sources of the respondents are the main determinants of effectiveness of social capital formation. However, based on the findings of the study, it was recommended that social capital formation should be encouraged among fisher-folks and other agricultural stakeholders, so that individuals can tap into the diverse resources and enhance their skill. There is need to enhanced the determinants of social capital formation effectiveness on the livelihood of fisher-folks by taking advantage of respondent's uniqueness to promote their well-being.

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