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## **Social capital and efficiency in resource utilization among cassava-based farmers in southwestern Nigeria**

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### **Abstract**

Despite Nigeria's leading position in world cassava production, the quantity of cassava produced has not reached a level to meet both the demands of local and international markets neither has it attained the much desired potential productive capacity which was attributed to inefficiency in resource use. A number of economic approaches has been put together in various research outputs, unfortunately, few or none examined the potential impact of social capital on optimisation of resource use which necessitated this study.

This study examined the effects of social capital on resource use efficiency in southwestern Nigeria. The data for the study were collected from 390 households in 8 local government areas (LGAs) using probability proportionate to size of the residence in the LGAs. Data analysis was done using descriptive statistics, social capital indices, marginal value product-marginal factor cost approach and ordered probit regression technique. The average cassava farming household size was  $5.0 \pm 3.7$  persons belonging to at least 4 associations, while the average age of the cocoa farming household head was  $44 \pm 9.8$  years. Cassava farming households have meeting attendance index of 65.42% and decision making index of 7.30% in the associations. Index of heterogeneity as 58.40% in association, while, cash and labour contributions were 13.45% and 10.12%, respectively. The aggregate Social Capital Index was 23.76% in association indicating low level of social capital among the cassava farming households.

Furthermore, the study reveals that there is under-utilisation of all the production inputs under consideration. Specifically, a unit increase in social capital would increase optimum utilisation of resources of cassava farmers by 0.36%. Social capital was truly exogenous to resource utilisation with no reverse causality. Although, cassava farming households have good meeting attendance, poor decision making and cash contribution in associations however, affected their resource use optimisation. The study concludes that social capital positively affect resource use optimisation; it was therefore recommended that government should create an enabling environment for the emergence of local organisations in terms of their registration and the constitution governing formation of such.

## Introduction

Nigeria is the world leader in cassava production (FAO 2010), yet the quantity of cassava produced in Nigeria has not reached a level to meet both the demands of local and international markets (Abass et al, 2011), as about 50million tons of cassava are still required to satisfy both its domestic and export demands (Adeniji, 2006). Cassava production in Nigeria is attributed to increase in land area cultivated rather than increase in yield (Ezedinma et al, 2006). Also, limited market access, poor infrastructure, insufficient processing options for the storage roots and exorbitant transportation costs translating into low farm gate price serve as disincentives to the framers. Similarly, in Imo state, cassava farmers suffer from low yield and low income due to, primitive production technology, lack of improved varieties, lack of trained man power, high cost of agro-machinery, poor access to credit facilities, poor distribution system of fertilizer, poor access to market, and lack of storage facilities (FAO, 2004).

Despite Nigeria's leading position in world cassava production, the quantity of cassava produced has not reached a level to meet both the demands of local and international markets neither has it attained the much-desired potential productive capacity which was attributed to inefficiency in resource use. Several economic approaches have been put together in various research outputs, unfortunately, few or none examined the potential impact of social capital on optimisation of resource use which necessitated this study. Past findings concluded that the major determinants of resource use efficiency are socioeconomics, neglecting the potential of social capital, despite the several emphases on the roles of social capital on productivity, access to capital among others (Iyanda et al, 2014). This study mainly examined the effects of social capital on resource utilization among cassava-based farmers in Southwestern Nigeria.

## Material and Methods

The study was conducted in 2016 in 8 Local Government Areas(LGAs) in Ogun State. The study was undertaken using a designed interview schedule and data were collected by and personal questionnaire/assessment of the farms. A total of 390 farmers were interviewed. Some of the issues addressed by the questionnaire include socio-economic parameters, irrigation methods, input prices and output prices (e.g. costs of planting, transplanting, land purchase and preparation, etc), and social capital indicators. We therefore analyzed the data using the descriptive statistics, marginal value of resource-use, binary probit model.

## Results and Discussion

Results revealed that the average cassava farming household size was  $5.0\pm 3.7$  persons belonging to at least 4 associations, while the average age of the cocoa farming household head was  $44\pm 9.8$  years. Table 1 shows that status of social capitals among the cassava-based farmers. Table 2 shows the status of social capital among CFHs. The mean density of membership index (DM) was far below average (7.3 %). Cash Contribution Index (CCI) was generally below low (13.45%). Afolami, Obayelu, Agbonlahor, & Lawal-Adebowale (2012) in their study noted that poor financial strength of groups was a major constraint to group activities and development and the extent of membership financial contributions has an overriding effect on group's sustenance.

Generally, Meeting Attendance Index (MAI) was above average (65.42%) as against 44% recorded in Balogun *et al.*, (2011). This result validates the findings in Balogun *et al.* (2011) that households that regularly attend group meetings are better positioned to harness their resources. The level of heterogeneity as shown in the table reflects moderate diversity in membership associations. This result is consistent with the findings in Balogun *et al.* (2011) that a low level of heterogeneity could be tolerated due to the fact that high degree of heterogeneity in an association usually have negative implication, because it makes trust among members more difficult, since it implies lesser degree of homogeneity. The aggregate Social Capital Index was 23.76% in association indicating low level of social capital among the cassava farming households.

Table 1. Status of Social Capital among Cassava-based Farmers

| <b>Social Capital</b>     | <b>Mean</b> | <b>Minimum</b> | <b>Maximum</b> |
|---------------------------|-------------|----------------|----------------|
| Decision Making Index     | 7.30        | 25.0           | 100.0          |
| Heterogeneity Index       | 58.40       | 20.0           | 70.5           |
| Meeting Attendance Index  | 65.42       | 20.0           | 80.0           |
| Cash Contribution Index   | 13.45       | 0              | 100.0          |
| Labour Contribution Index | 10.21       | 20.0           | 100.0          |
| Social Capital Score      | 23.76       | <b>2.9</b>     | <b>42.8</b>    |

Source: Field survey, 2016

The probit regression result showing the influence of social capital on resource utilization is presented in Table 2. Based on the result of the probit regression analysis, a unit increase in aggregate social capital score would increase optimum utilization of resources of cassava farmers by 0.36%. Decision making index, labour contribution index and meeting attendance index have positive marginal effect on optimum utilization of resources with marginal effect value of 0.006, 0.062 and 0.89 respectively, implying that a unit increase in decision making index, labour contribution index and meeting attendance index would increase optimum utilization of resources of cassava farmers by 0.6%, 6.2% and 89% respectively. Conversely, heterogeneity index and cash contribution index both have negative marginal effect on optimum utilization of resources with marginal effect value of -0.0055 and -0.056 respectively, implying that a unit increase in heterogeneity index and cash contribution index would reduce optimum utilization of resources of cassava farmers by 0.55% and 5.6% respectively.

Table 2: Influence of Social Capital on Resource utilization among Cassava-based farming households in Ogun State

| <b>Explanatory variables</b>   | <b>Marginal effect(dy/dx)<br/>(Social capital multiplicative)</b> | <b>Marginal effect(dy/dx)<br/>(Social capital additives)</b> |
|--------------------------------|---|--|
| Age(years)                     | 0.124   | 0.376  |
| Gender(1=male)                 | 0.201   | 0.111  |
| Household size(number)         | -0.393  | 0.472  |
| Aggregate social capital score | 0.360***  |  |
| Decision making Index (%)      |   | 0.006*   |
| Heterogeneity index (%)        |   | -0.0055**  |
| Meeting attendance index (%)   |   | 0.890*   |
| Cash contribution index (%)    |   | -0.056*  |
| Labour contribution index (%)  |   | 0.062**  |

Source: Field survey, 2016 \*\*\*significant at 1%; \*\* significant at 5%; \* significant at 10%.

## Conclusions

Based on empirical evidence that could be drawn from both descriptive and inferential statistics employed for this study, the following conclusions may be drawn on the findings.

Although the overall social capital of cassava farmers in study area was poor which greatly influenced their level of yield. It was clearly revealed that social capital had significant influence on resource utilization among cassava-based farming households in Ogun State, Nigeria. Therefore, policy options should be directed at improvement of agricultural resource utilization should be focused towards empowerment and support of social capital needs.

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