

THE SOCIOECONOMIC CHARACTERISTICS OF RURAL FARMERS AND THEIR NET INCOME IN OJO AND BADAGRY LOCAL GOVERNMENT AREAS OF LAGOS STATE, NIGERIA

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Abstract

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Agriculture remains the primary source of livelihood for the rural dwellers in Nigeria. This primary research assesses the effects of farmers' socioeconomic characteristics and some infrastructure costs on farmers' income in two local government areas of Lagos State. The descriptive statistics show that the majority of farmers in the areas are educated and married. Farmers in the areas generate more income from the farming than non-farming activities. The OLS regression results show that the age of farmers, educational attainment and the presence of agricultural agencies positively influence farmers' income in the countryside. On the other hand, the findings show an inverse relationship between the cost of basic rural infrastructure (i.e. water and electricity) and farmers' income in the areas. For the income of the farmers in the countryside to be improved, the local councils should educate rural farmers on extension services for sustainable farming and best practices. Additionally, critical rural infrastructure, such as water and electricity should be provided at affordable rates. Arguably, this could not only improve farmers' earnings, but also make the communities attractive to the rural farmers and young people, and stabilize rural populations.

Keywords: net income, Aiyedoto, infrastructure, rural areas, farmers

INTRODUCTION

Globally, the issue of infrastructure development and farmers income in the rural areas have been given serious attention by some scholars (Evans and Ngau, 1991; Corral and Reardon, 2001; Escobal, 2001; Ashley and Maxwell, 2001) in recent decades. Local infrastructure is identified not only as an engine for population stabilization (Zhao, 1999; Gorton, Hubbard and Hubbard, 2009) but it also reduces farmers cost of production and improve their income and livelihoods (Bryceson, 2002; Renkow, Hallstrom and Karanja, 2004; Babatunde and Qaim, 2010). In advanced economies such as North America and Europe, rural development and farmers' wellbeing have been given a holistic

and proactive attention (Gray, 2000; Flaten, 2002; Gorton, Hubbard and Hubbard, 2009), however the reverse has been the case in African countries (Bryceson, 2002; Jayne, Mather and Mghenyi, 2010), such as Nigeria (Ibrahim *et al.*, 2009; Babatunde and Qaim, 2010).

Lagos State is among the fastest growing states in Nigeria regarding income and population. The population of the State was estimated by the UN-Habitat to reach 25 million inhabitants in 2015. Even though countryside in Lagos State, in general, Ojo and Badagry councils, in particular, are rich with abundant land suitable for cultivation of many crops, the sector has remained underdeveloped. Arguably, farming methods are still largely traditional, partly because farmers

lack finance, modern agricultural technology and know-how to inject into their farming related activities. Rural farmers are further constrained by dwindling earnings from agricultural and non-agricultural activities. Poor infrastructure (i.e. inadequate power and water supply) and low-income owing to low outputs, and the high cost of production may have had adverse implications for the well-being of rural farmers across the states in Nigeria. Nevertheless, agriculture is still the bedrock of their income and food security (Soyemi, 2014; Verter and Bečvářová, 2015; World Bank, 2016).

The link between agriculture, rural infrastructure, and farmers' income are crucial given that agriculture is the mainstay of the economy, the largest source of employment and income generation for the majority of rural dwellers in Nigeria, general (World Bank, 2014; Verter and Bečvářová, 2015), Badagry and Ojo areas, in particular. However, in the past six decades, the rural areas in Nigeria (Ugwuanyi and Chuwuemeke, 2013; Verter and Bečvářová, 2014) and the Lagos State (Ogungbeni, Ogungbo and Adeleke, 2013), in particular, have not experienced dramatic changes in the critical infrastructure, such as electricity and water supply, and farmers' livelihoods in the countryside.

Notwithstanding, public water and power supply, primary health care centres and schools in Iragon Thogli and Aiyedoto farm settlements within Badagry and Ojo areas in which are paramount to agriculture and livelihood are visible. This is as a result of national and foreign bodies' initiatives to build roads, provide energy and improve market access in the areas (IFAD, 2005; Ogunleye and Amen, 2010). Agricultural development programme forms the basis of rural development in Nigeria.

To reduce the unemployment rate, food insecurity, and improve farmers' income in Aiyedoto farm settlement, the Lagos state government, financially supported young farmers with start-up to establish poultry farms on the platform of "Agric YES initiative." It was also set up to raise commercial farmers in the areas of poultry, fish and vegetable farming. The youths were trained and given 1–5 ha of land to start their agribusiness (FAO, 2013).

Ukagwu *et al.* (2014) find out that fish output and farmers' income are influenced by household size, educational attainment, farming experience and training in aquaculture. Similarly, Ibekwe *et al.* (2010) determine the drivers of both farm income and off-farm income among smallholder farmers in South East Nigeria. Their results show farm size, the age of farmers, educational attainment, and their occupation are important explanatory factors that influenced both farm and off-farm incomes in the region.

Even though there are studies about socio-economic characteristics of farmers and their incomes in areas across the globe (IFAD, 2005; Safa, 2005; Ogunleye and Amen, 2010; Ukagwu *et al.*, 2014), to the best of our knowledge, there are none of such research in both Ojo and Badagry councils

of Lagos State, Nigeria. Thus, this study bridges the gap. This contribution aimed at assessing the socioeconomic indicators of farmers in the two council areas of Lagos state. The study also attempts to determine the effects socioeconomic indicators as well as the cost of electricity and water supply on farmers' income in the areas. Even though the study is limited to only two local council in the Lagos State, the socioeconomic indicators of farmers in these could be taken as a reference point to the situation in some regions in Nigeria.

MATERIALS AND METHODS

The study was carried out in two (Badagry and Ojo) local government areas of Lagos State, South Western Nigeria. The mean daily maximum temperature is about 29 °C, hottest in February, and July is the coldest at about 25 °C (77 °F), and June is the wettest month with an average of 316 mm of rain. As of the 2006 census, Ojo and Badagry local governments' population was counted to be 598 thousand inhabitants and 241 thousand inhabitants, respectively.

Fishing, poultry and vegetable are the main agricultural activities and primary source of livelihood of the people in the areas. Both local governments have about 500 farmers (population). To achieve the aim of the study, a random sampling method was used in this study. The primary data were collected through a survey (questionnaire) for the period between September and October in 2015. Farmers were randomly selected from Badagry and Ojo Local Government Areas of Lagos State. A total of 75 household farmers were randomly selected and interviewed in three different rural communities from the two local government areas: Iragon, Aiyedoto farm settlement, and Iyana-Iba settlements.

For instance, 42 farm households who engaged in poultry farming were randomly selected from Aiyedoto community. Similarly, 17 farm households who engaged in vegetable farming were randomly selected from Iyana-Iba community; while the remaining 16 farmers that engaged in crops and animal husbandry were randomly selected from the Iragon Thogli community. Also, an official from the Lagos State Ministry of Agriculture was interviewed. The farmers were interviewed to find out about their socioeconomic indicators, the position of their incomes and expenditures in the areas. Data gathered from the survey is analysed using descriptive statistics (i.e. frequency and percentage) and OLS regression approaches. Similarly, the regression model is mathematically specified as follows:

$$Y = \beta_0 + \beta_1 AGE + \beta_2 GENDER + \beta_3 MS + \beta_4 EQ + \beta_5 WT + \beta_6 ELEC + \beta_7 ES + \beta_8 ADA + \varepsilon \quad (1)$$

Where:

Y denotes the net income (in Naira) of farmers generated from agricultural activities within the two local government areas in Lagos State.

In this study, net income referred to the farmers' earnings after payment of costs that are incurred during production and cost of living (i.e. energy, water) have been deducted; AGE denotes the age of the respondents (years); GENDER stands for sex of the respondents; MS stands for the marital status of the respondents in the areas; EQ stands for academic qualifications of the respondents; WT denotes the average monthly rate of water bills (in Naira) being paid by farmers in the areas; ELEC is the average monthly rate of electricity bills (in Naira) being paid by the farmers; ES is the number of respondents that benefitted from agricultural extension services in the areas; ADA stands for amount which Agricultural Development Agency in providing expert advises and fertilizers to farmers in order to enhance the farmers best practices in the areas (Tabo *et al.*, 2007; Olawepo, 2010); finally, ε stands for the error term. The variables are selected because the authors think they are very important

in explaining the variation of farmers' income in the study areas.

RESULTS AND DISCUSSION

The socio-economic characteristics of the respondents (farmers) show that 80 percent of the farmers are males while 20 percent are females. Also, the average age distribution of farmers is 30 years, implying that the majority of farmers in the areas are youths (Tab. I). This indicates that the respondents are in their economically active stage that could drive agricultural productivity in the field if supported and given the conducive environment; invariably improve their farming activities.

The literacy level among the farmers in the areas is high; 92 percent of the farmers have a basic education. For instance, the breakdown of the educational qualifications of the respondents in the areas shows that 28 percent of them have

I: Socio-economic characteristics of the surveyed farmers in the areas

Socio-economic characteristics	Frequency	Percentage (%)
Gender		
Male	60	80.0
Female	15	20.0
Age distribution (years)		
Below 30	32	43.0
30–39	14	19.0
40–49	11	15.0
50–59	13	17.0
Above 60	5	6.0
Marital status		
Single	28	37.3
Married	46	61.3
Divorced	-	-
Widow	1	1.3
Household size		
Less than 4	14	18.7
5–9	50	66.7
10–15	9	12.0
Above 15	2	2.7
Educational Qualification		
Never been to school	6	8.0
Primary school	19	25.3
Secondary	29	38.7
University	21	28.0
Farming experience (years)		
0–5	36	48.0
6–10	14	18.7
11–15	7	9.3
Above 15	18	24.0

Source: Authors' field work

II: *Income from agricultural and non agricultural activities of the respondents*

Indicator	Frequency	Percentage (%)
Monthly Income from farming (in Naira)		
1–10,000	29	38.6
10,001–20,000	18	24.0
20,001–30,000	7	9.3
Above 30,000	21	28.0
Monthly income from non-agric. (in Naira)		
1–10,000	55	73.3
10,001–20,000	6	8.0
20,001–30,000	4	5.3
Above 30,000	10	13.3
Source of Non–Agricultural Income		
Retirees	18	
Welding	4	
Okada Rider	5	
Carpentry	13	
Shareholder	7	
Furniture making	3	
Government worker	20	
Others	15	

Source: Authors' field work

University education, 39 percent have a secondary education, while 25 percent have a primary education (Tab. I). As earlier mentioned, the farmers from Iragon Thogli are mostly involved in crops and livestock farming, household farmers from the Aiyedoto farm settlement engage in poultry farming, whereas farmers from Iyana-Iba are predominantly into vegetable cultivation.

Socioeconomic indicators of the respondents further indicate that 61 percent of them are married, 37 percent are singles while 1 percent is a widow. This partly explains why they have large families. The majority of the farmers in the areas have less than 11 years of farming experience. Although results from the study show that agriculture forms the primary source of livelihood of these farmers, they also involved in non-agricultural activities (Tab. II). Moreover, respondents' average monthly income from both farming and non-farming activities is between €135 and €45. Arguably, farmers who earn higher income have access to better living standard and health care than those who have lower revenue in the study areas. It is important to note that non-agricultural activities provide additional income to the households in the study areas. Evans and Ngau (1991), Bryceson (2002); Babatunde and Qaim (2010) maintain that nonfarm income provides smallholder rural farmers in African countries with a form of guarantee against the risks of farming, and hence stimulate them to adopt new methods of production and improve output for their wellbeing. In the same assertion, Reardon (1997); FAO (1998); Verter and Bečvářová (2014) argue that owing to

the meagre income from agricultural activities; some smallholder farmers are “pushed” to diversify into non-farm activities to complement their low earnings from farming activities.

In addition, 61 percent of the respondents belong to the farmers' cooperative society while 39 percent of the farmers do not belong to any cooperative society. Findings also show that 41 percent of the respondents have access to extension services while 59 percent of them do not have access to extension services. Also, 58 percent of the respondents say there is an agricultural development agency in their area while 22 percent of the respondents said on the contrary.

Furthermore, the findings reveal that 68 percent of farmers have access to public water supply, while the remaining 32 percent reported that they do not have access to the public water supply. Even though the majority of the respondents have access to public water supply, they complain that the cost of water consumption is extremely high, taking a substantial share of their farm turnover (earnings). Sadly, 71 percent of the respondents state that they do not have access to the public power supply, while only 29 percent of the farmers in the areas have access to public energy supply. Also, all the respondents stress that although power supply has not been stable, they still pay a substantial amount of money, which, in turn, nullified their net earnings from already meagre agricultural sales.

It is important also to reiterate that, an official from the Lagos State Ministry of Agriculture was interviewed. The official states that the state

III: Some determinants of farmers' net income

Explanatory Variable	Coefficient	t.stat
Const.	2.226 (0.320)***	6.947
AGE	0.142 (0.076)*	1.877
GENDER	0.059 (0.115)	0.607
MS	0.180 (0.093)*	1.950
EQ	0.185 (0.082)**	2.257
WT	-0.519 (0.205)**	-2.528
ELEC	-0.632 (0.125)***	-5.047
ES	-0.180 (0.104)*	-1.732
ADA	-0.893 (0.128)***	-7.006

R-squared = 0.984; Adjusted R2 = 0.979; F. Statistics = 239.741; P-value (F) = 0.000

Note: *, ** and *** denote significance at 10%, 5%, and 1% respectively; standard errors in parentheses

government in collaboration with external agencies, such as the World Bank, have implemented some projects in the areas of study. Some of the projects include Commercial Agriculture Development Project (CADP), and National Fadama Development Project assisted farmers with value chain development in food production, rural infrastructure, capacity building and advisory services. In the course of our investigation, we also found out that, the government supports farmers for agricultural development in the areas by providing loans, fertilisers, tractors to assist farmers in clearing their farmlands, construction of boreholes to supply water for livestock and poultry farming. The government has also established a veterinary office to sell veterinary drugs, feed, and fertilisers to farmers at subsidised rates.

Similarly, some of the respondents argue that the Aiyedoto farm settlement, which has many poultry farmers has contributed to the improvement of the rural farmers' well-being regarding income, employment and food security. On the contrary, they stress that the wastes generated from those poultry farms are not adequately managed. Consequently, the environment has been widely polluted. Nonetheless, farmers in Iyana-Iba farm settlement have helped in the conservation of the environment and have attempted to make the countryside attractive to tourists and youths in the community.

The result of the OLS regression analysis is presented in Tab. III. The result of the regression indicates *F*-ratio is statistically significant at the 5 percent level of significance. This signifies that estimated farmers' net income function was adequate for use in prediction and analysis. The coefficients of multiple determination (R^2) imply that about 98 percent of the variation in the net income of farmers in the two local government areas was jointly accounted for by the explanatory variables in the regression model. The results further signify that the farmers' income is positively influenced by the educational qualifications (EQ) in the areas (statistically significant at the 0.05 level). Arguably, educated farmers are likely to be more knowledgeable on the need for modern farming,

cost cutting measures, expand farms and increase their turnover or earnings.

Contrary to the expectations, the results show an inverse relationship between the support given to farmers by Agricultural Development Agency (ADA) and farmers' income in the areas (Tab. III). This might be because the supports given to farmers in the areas have not been sufficient to improve their farming activities and earnings. There is a need for agricultural development organizations to give more support to farmers in the areas. Similarly, if farmers are educated about the need for best practices and cost saving strategies, they may well experience tremendous improvements in their monthly incomes. Even though agricultural agencies provide, among other services, inspection; treating of sick birds; prescribing of drugs; organising of seminars, and giving advice to farmers in the areas, more efforts still need to be made to address farmers' challenges adequately.

Age of the households (AGE) has shown a weak positive relationship (statistically significant at the 10 percent level) with the peasants' income in the areas (Tab. III). The result is in contrast with the works of Ibekwe *et al.* (2010) who find a negative relationship between age and farm income in the Southeast Nigeria. They argue that the older the farmers, the weaker they become. Consequently, they may not have enough energy to engage in farming activities given that agricultural activities in the areas are labour intensive and that most of the farmers do not have sufficient funds to hire workers.

Similarly, the respondents' academic qualifications (EQ) also show a weak positive relationship with farmers' net income (Tab. III). The result conforms to the works of Ibekwe *et al.* (2010) who also find a positive correlation between farmers' educational attainment and their net income. On the other hand, the results show that high costs of necessary infrastructures have adverse effects on net income of farmers in the areas. Specifically, the results indicate that the average yearly rate of water bills (WT) has a negative effect on net income of farmers in the areas. This implies

that if the rate of water goes up, monthly farmers' net income may decrease in the areas. In the same direction, the average monthly rate of electricity bills (ELEC) suggests to also hurt farmers' earnings in the two local government areas (Tab. III). The result tallies with the works by Ibrahim *et al.* (2009) who also confirm an inverse relationship between electricity and farmers' income in the northern Nigeria. These

negative results might be because farmers use a substantial amount of money to pay water and electricity bills, which, have negative implications for their earnings. Given that in most cases, both water and electricity provided do not commensurate with bills paid by the farmers in the areas, it appears to be rather a disincentive to earn more money.

CONCLUSION

There is no gainsaying that agriculture remains the bedrock of the countryside, particularly when basic rural infrastructure, such as roads, water, electricity are provided at affordable rates. Assessing farmers' socioeconomic indicators as well as some infrastructure in the two local council areas of Lagos State, the descriptive statistics show that the majority of farmers are educated, generate more income from the farm than non-farm activities. Finally, the OLS regression results show a positive relationship between educational status and farmers income. On the contrary, the findings reveal an inverse relationship between electricity bill and farmers income, as well as between water bill, extension services and farmers income in the areas under study.

For the income of the farmers in the countryside to be improved, the Agricultural Development Agency staff should educate rural farmers on extension services for sustainable farming and best practices. Additionally, critical rural infrastructure, such as water and electricity should be provided at affordable rates. Arguably, this could improve farmers' earnings, make the communities attractive to the rural farmers and young people, and stabilize rural populations.

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