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By Adenegan Kemisola O., Olorunsomo S. O.
& Nwauwa Linus Onyeka Ezealaji
University of Ibadan, Ibadan, Nigeria

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Determinants of Market Orientation among Smallholders Cassava Farmers in Nigeria

Adenegan Kemisola O. [α], Olorunsomo S. O. [σ] & Nwauwa Linus Onyeka Ezealaji [ρ]

Abstract- Households need surplus output to meet both consumption requirements and market demand. To achieve this, households intuitively produce enough quantities of crops to satisfy these. Only a small proportion of the total output is taken to the more lucrative (but distant) urban markets for sale. This study aimed at analyzing the factors determining smallholder cassava farmer's market orientation. Household survey was conducted with a total of one hundred respondents. Descriptive Statistics was used in describing the socio- economic status of farmer households in the study area and Tobit model to identify factors that influenced market orientation. Result revealed that majority of the respondents were male (74%) and had a mean farming experience of 22 years, the average age was 49 years with an average household size of 5. An average of 4.87 acres of land was owned by the farmers while 1.33 acres was allocated to cassava production in the last growing season. Results obtained from econometric analysis revealed that, age ($p<0.05$; $\beta=0.0027478$); education ($p<0.05$; $\beta=0.0365234$); gender ($p<0.10$; $\beta=0.0661173$) and distance ($p<0.10$; $\beta=0.0083176$) significantly influenced market orientation. Policy that would promote formation of rural information bureaus alongside the mobile-telephony systems that are already being piloted by some institutions should be pursued.

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I. Background to the Study

Agriculture continues to be a strategic sector in the development of most low-income nations. It employs about 40% of the active labor force globally (Nyanamba et al, 2009). In sub-Saharan Africa, Asia and the Pacific, the agriculture-dependent population is over 60%, while in Latin America and high income economies, the proportions are estimated at 18% and 4%, respectively (World Bank, 2006). Close to two thirds of the natural wealth in low-income countries is engaged in crop and pasture land (Otieno *et al,* 2009). Poverty within Nigeria remains staggeringly high with over 50 percent and 70 percent of its general and rural population respectively, living on less than US1$ a day (World Bank 2007). Similarly, though Nigeria is often cited as one of the largest oil exporting countries, agriculture still remains the main employer of over 70 percent of the country's labor force and accounts for about 31 percent of the nation's GDP (World Bank 2008). Consequently, the importance of this sector in national development and poverty alleviation cannot be overemphasized. Over time, agriculture has declined in importance.

Market orientation is the organization-wide generation of market intelligence pertaining to current and future customer needs, dissemination of the intelligence across departments, and organization-wide responsiveness to it. Market orientation in agriculture is basically a production decision issue as influenced both by production conditions and market signals (Berhanu *et al,* 2010). Moti *et al,* (2010) defined market orientation in agriculture as the degree of allocation of resources (land, labour and capital) to the production of agricultural produce that are meant for exchange or sale.

Numerous studies have examined strategies, structures and systems as potential barriers to developing market orientation (including Lear, 1963; Ruekert, 1992; Slater and Narver, 1993; Jaworski and Kohli, 1993; Pulendran and Speed, 1996). Arguably, the earliest study of behaviour as an obstacle to market orientation is that of Felton (1959). In a detailed investigation of potential impediments, Felton (1959) identifies and discusses four potential pitfalls to market orientation, namely: lack of inter-functional integration; political manoeuvring; weak management skills; and executive inexperience. Felton (1959) argues that such behavioural obstacles can severely restrict market orientation development and thus organizational performance. Harris (1998) uncovers seven main barriers to developing market orientation at the shopfloor level including: instrumentalism; short-termism; and weak management support. While Harris (1998) focuses on shopfloor workers, he also suggests that management attitudes and actions are important. Similar claims in the wider organizational literature identified leadership as a major determinant of company performance (Thorlindsson, 1987; Fiedler, 1996; Hennessey, 1998). Commercial orientation of small-holder agriculture leads to gradual decline in real food prices due to increased competition and lower costs in food marketing and processing (Jayne *et al.,* 1995). These changes improve the welfare of smallholder farmers in two ways: low food prices increase the purchasing power for food of consumers while, to producers, a decline in food prices enables reallocation of limited household incomes to high value non-food agribusiness sectors and off-farm enterprises.

Like most crop production in Nigeria, cassava production is concentrated in the hands of numerous

Authors α σ ρ: Department of Agricultural Economics, University of Ibadan, Ibadan, Nigeria. e-mail: bumkem@yahoo.com

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small holder farmers and located mostly in the central and southern regions of the country (Liverpool *et al,* 2009). The Nigerian cassava market is composed of a more traditional food- oriented section which is fairly well understood and a newly emerging industrial market (where cassava is used for the production of pharmaceutical products, feed, and confectionary) which needs to be further explored and developed.

The Obasanjo administration's presidential initiatives on cassava production as well as the immediate past government's seven point agenda have contributed to the recent growth in the country's cassava production. Between 2005 and 2006, there was a 73 percent increase in cassava production, partially due to the imitative (Reuter, 2007). The recent increase in cassava production has been said to have resulted in a surplus of cassava production which decreased prices and caused significant financial losses for cassava producers, this is most likely driven by the inefficient cassava commodity chain characterized by a poor distribution network, poor storage capacity, and a generally underdeveloped cassava downstream sector (Liverpool *et al,* 2009).

Examining the trend of market orientation is a method of accessing the smallholder farmers' participation in the output market so that the objective of small-holders agricultural commercialization can be justified. Cassava is widely grown in Nigeria; it is now a close substitute for cash crop in the international market. It is important to know the level of production of this crop by smallholder farmers and their level of participation in the exchange market with consideration to local and a foreign market. It is therefore imperative in this study to examine the determinant of market orientation among smallholder cassava farmers.

In order to meet the stated objectives of this study, the following research questions are pertinent.

- Does market orientation translate into market participation?
- What are factors that create barriers to market orientation?
- What are the factors that promote market orientation among cassava farmers?

II. Methodology

a) *Area of Study*

The study was carried out in Osun State, Nigeria. Nigeria is the largest country in Africa, with a total geographical area of 923 768 square kilometers and an estimated population of about 126 million (2003 estimate). It lies wholly within the tropics along the Gulf of Guinea on the western coast of Africa. Nigeria has a highly diversified agro-ecological condition, which makes possible the production of a wide range of agricultural products (Liverpool *et al,* 2009). Oṣun State is an inland state in south-western Nigeria. It is bounded in the north by Kwara State, in the east partly by Ekiti State and partly by Ondo State, in the south by Ogun State and in the west by Oyo State. The 1991 census puts the population of the State at 2.2 million (Total population: 2,203,016 in 1991 and 2005 Estimated at 4,137,627m respectively. Total land Area covered 9,251 km^2 (3,571.8 sq mi) with area density of 238.1/km^2 (616.8/sq mi). It is located on Latitude: 7°30′N 4°30′Eand Longitude 7.5°N 4.5°E. The state consists of thirty Local Government Areas; there are more than 200 towns, villages and other settlements in the State. The state has a considerable number of highly urbanized settlements. The State runs an agrarian economy with a vast majority of the populace into farming.

b) *Sources and Method of Data Collection*

This study focused on selected households that engaged in cassava production. Primary data was used for this study; structured and open ended questionnaire were used to collect information from households who were randomly selected. Oral interviews, as well as, personal observation were also used to augment the earlier instrument.

c) *Sampling Procedure and Sample Size*

Random sampling technique was adopted since the population under study was homogenous i.e. cassava crop is widely grown by almost all small scale farmers in the study area. This study covered 100 randomly selected households from the Ten (10) wards in the study area. The structured questionnaires were distributed to the selected farming households for administering under supervision so as to avoid mis-specification of information while oral interviews were also conducted for each respondent to complement information on questionnaires.

d) *Analytical Techniques*

The data generated was subjected to different forms of analysis: Descriptive analysis involved the use of statistical tools like frequency tables, percentages and ratios to describe socio- economic characteristics that affect market participation. Socio economic characteristics such as: gender, household size, education, household resource endowment such as land, labour, capital and transport facilities and institutional services such as credit, extension, etc. and access to market and non-farm activities were considered in the analysis to see how they affect market orientation. Probit Model Regression Analysis, Tobit Model Regression analysis, Truncated Regression model analysis were also used.

e) *Tobit Regression Model Analysis*

The aim of the study was to look at factors that increase the level of participation in the maize markets. Ideally, the ordinary least square (OLS) model is applicable when all households participate in the market but in reality not all households participate or at the

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same level in the markets. Some households may not prefer to participate in a particular market in favour of another, while others may be excluded by market conditions. If the OLS regression is estimated excluding the non-participants from the analysis, a sample selectivity bias is introduced into the model. Such a problem is overcome by following a two-stage procedure as suggested by Heckman (1979) or Tobit procedures. These procedures has been discussed broadly in Tobin (1958), Greene (1981, 1993), Maddala, (1988), and Gujarati (1995) and applied in several instances such as Adejobi et al (2006).

Data providing for market participation tend to be censored at the lower limit of zero. That is, the household may sell some of its produce, while another may not sell at all. If only probability of selling is to be analyzed, Probit or Logit models would be adequate techniques for addressing probability questions. Although it is interesting to know factors that influence the level of sales, at the same time, there is a need for a model that is a hybrid between the Logit or Probit and the OLS. The appropriate tool for such is the Tobit model that uses Maximum Likelihood Regression (MLE) estimation (Tobin, 1958, Gujarati, 1995). A Tobit model answers both of the following questions:

What factors influence the probability of selling?

What factors determine the level or magnitude of sales?

Using this type of econometric model (Tobit) to determine the factors affecting market participation while controlling for other factors is expressed as:

$$Y^* = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \mu_i$$

$Y = 0$ if $y \leq 0$,
$y = Y^*$ if $y > 0$

Y^* = House Commercialization Index
β = estimated parameter or coefficient
X_i = the explanatory variables
ε_i = error term and is normally distributed with zero mean and constant variance.

The dependent variable y equals 0 if the latent variable y^* is below a certain threshold, usually 0. If the values of the latent variable are positive, the dependent variable is equal to the latent variable.

$$y^* = \beta_0 + x\beta_1 + \mu, \mu / x \ \text{Normal}\ (0,\sigma^2) \quad (1)$$

$$y^* = \max(0, y^*) \quad (2)$$

The latent variable y^* satisfies the classical linear model assumptions; in particular, it has a normal, homoskedastic distribution with a linear conditional mean.

Equation (2) implies that the observed variable, y, equals y^* when $y^* \geq 0$, but $y = 0$ when $y^* < 0$. Because y^* is normally distributed, y has a continuous distribution over strictly positive values. In particular, the density of y^* given $\boldsymbol{x}$ is the same as the density of y^* given x for positive values. Further,

$$P(y = 0 / x) = P(y^* < 0 / x) = P(\mu < -x\beta) \quad (3)$$

$$= P(\mu / \sigma < -x\beta / \sigma) = \Phi(-x\beta / \sigma) = 1 - \Phi(x\beta / \sigma) \quad (4)$$

Because μ / σ has a standard normal distribution and is independent of $\boldsymbol{x}$; we have absorbed the intercept into $\boldsymbol{x}$ for notational simplicity. Therefore, if (x_i, y_i) is a random draw from the population, the density of y_i given x_i is

$$(2\pi\sigma^2)^{-1/2} \exp\left[-(y - x_i\beta)^2 / (2\sigma^2)\right] = (1/\sigma)\phi\left[(y - x_i\beta)/\sigma\right], y > 0 \quad (5)$$

$$P(y_i = 0 / x_i) = 1 - \Phi(x_i\beta / \sigma) \quad (6)$$

Where ϕ is the standard normal density function. From (5) and (6), the log-likelihood function for each observation i is then obtained

$$l_i(\beta, \sigma) = 1(y_i = 0)\log\left[1 - \Phi(x_i\beta / \sigma)\right] + 1(y_i > 0)\log\left\{(1/\sigma)\phi\left[(y_i - x_i\beta)/\sigma\right]\right\} \quad (7)$$

The log-likelihood for a random sample of size n is obtained by summing equation (7) across all i. The maximum likelihood estimates of β and are σ a obtained by maximizing the log-likelihood which is easily executed in STATA.

Tobit regression was employed to analyze the determinants of market participation of maize farmers using all the data information acquired. The second stage which is to analyze the factors determining the volume of sales by the farmers, the Ordinary Least Square (OLS) model was used.

Tobit regression model is adopted to examine the household orientation toward the market. The recursive simultaneous equations Tobit model is specified as follows:

$$Y_2^* = \delta X^k + \kappa y_i + u_2$$
$$Y_2 = \max(0, y^{2*})$$
$$Y_1 = \pi X^l + v$$

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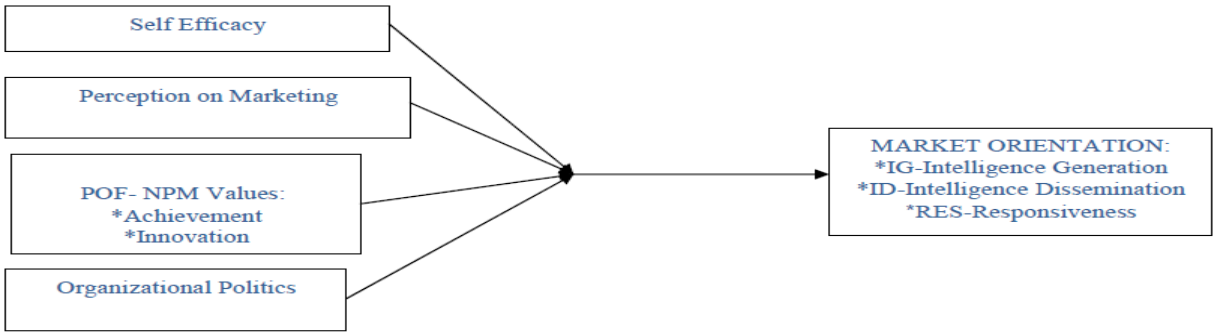
In which: X^1 = vector of variables (I =age, farming mode, education, gender, household size, farming experience, non-farm activities, price and market information, quantity produced; quantity sold; distance to market); acres of cassava grown; farming experience = years of crop experience; market association = dummy variable for involvement in Market association (1/0); Gender= dummy variable for male=0, female=1, Non farm activities= dummy variable for involvement=0, No= 1, farming mode= dummy variable full-time=0, part-time =1, δ k and π = the coefficients to be estimated; Y_2 = Market Orientation index (MOIi); u_2 and v = the errors terms, symmetrically distributed around zero.

III. Model

The meaning and importance of market orientation has been studied extensively in the business sector (Kohli & Jaworski; Narver & Slater, 1990), but it is relatively new concept for the nonprofit and public sector. The model suggested in this research intends to explain the relationship between the antecedents of market-orientation and the tendency to adopt market orientation in cassava farming. These factors are conceptualized from two levels: those that constitute barriers and those that promote market orientation.



Source : Adapted from Nourit Segev, 2012

Figure 1 : Model explaining the concept of antecedents of market orientation

IV. Results

a) Socio-Economic Characteristics of Respondents

Table 1 shows the result of the socio-economic analysis. Mean age of the sampled farmers was 49.17years. Age of the household head is used as a proxy for experience in farming Omiti et al (2009). This is expected to improve the intensity of market orientation. The modal age group lies between 41 – 50 years age group which constitutes 29% of the total respondents. This is followed by farmers who are more than 60 years old and this category constitutes 22% of the total respondents. This indicates that middle aged cassava farmers constitute significant percentage of the farmers in the study area. The older ones (>60 years) are weak as they can hardly contribute their self labour into production process in the absence of high cost of hired labor.

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Table 1 : Socio-economic Distribution of Respondents

Variable	Frequency	Percentage
Age (years)		
20-30	14	14
31-40	20	20
41-50	29	29
51-60	15	15
>60	22	22
Total	**100**	**100**
Gender		
Male	74	74
Female	26	26
Total	**100**	**100**
Class of farm size(Ha)		
0.1-1.9	74	74
2.0-2.9	20	20
3.0-3.9	4	4
>5	2	2
Total	**100**	**100**
Farming experience(years)		
2-10	29	29
11-15	11	11
16-20	14	14
21-25	6	6
26-30	17	17
>30	23	23
Total	100	100
Level of Education		
No Education(NFE)	23	23
Primary Education(PE)	20	20
Secondary Education(SE)	36	36
Tertiary Education(TE)	21	21
Total	100	100
Household Size(Members)		
1 – 3	27	27
4 – 6	58	58
7 – 9	10	10
10 – 12	5	5
Total	**100**	**100**
Mode of farming		
Full-time	14	14
Part-time	86	86
Total	**100**	**100**
Access to Extension		
Service		
Yes	32	32
No	68	68
Total	**100**	**100**

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Access to Credit		
Yes	4	4
No	96	96
Total	**100**	**100**
Land Ownership		
Inheritance	80	80
Rent	9	9
Lease	10	10
Purchased	1	1
Total	**100**	**100**
Marketing Association		
Yes	19	81
No	81	9
Total	**100**	**100**

The inability of the youth to complement family labour as a result of their involvement in non farm activities such as commercial motorcycle business ('okada' riding) makes labor more expensive. The result of the analysis showed that 74% of the respondents were male while only 26% are female. Gender represents differences in market orientation between male and female heads of households. Cunningham et al. (2008) found that men are likely to sell more in the season when prices are still high, while women prefer to store more output for household self-sufficiency. Women are more involved in micro processing of the crops into other product as well as involvement in other agro processing of other agricultural products such as oil palm. 98% of the farmers operated on small-scale.

The calculated mean farming experience is 22.50 years. 70% of the sampled farmers had minimum education requirement that is necessary to make farmers market oriented, thereby allowing them to participate in the market. The calculated mean household size is 4.73. Large households with more dependants are likely to have a lower level of commercialization as confirmed by Lapar *et al,* (2003) that propensity to commercialize declines with numbers of household members. This is because more of the produce is likely being consumed. The table also showed that 86% of the respondents are part-time farmers with about 14% full-time farmers. Cassava biologically has long gestation period usually at least a year before harvesting, hence, farmers seek for alternative source of income to meet households needs and provide basis for funds needed to carry out basic farm operations. 68% of the respondents had no access to extension service in the last growing season while only 32% of the sampled farmers accessed extension services in the same production season. Unavailability of extension services contributes one of the major threats to the realization of market orientation and participation objective among smallholder cassava farmers in the study area. Only 4% of the respondents had access to credit in the last growing season while 96% of the respondents had no access to credit in the same period. Farmers in the study area depended solely on their personal capital to finance farm production needs. As a result of this the production capacity of the farmers depend on their personal capital based and this determined to some extent the level of market orientation and participation of individual famers in the study area. 81% of the sampled respondents do not belong to any marketing association, while only 19% of the sampled farmers belong to one marketing association or the other. In a market oriented environment, involvement in marketing association is one of the major key determinant necessary for farmers to participate in the output market as it gives farmers opportunity to sell their produce with maximum profit and to get relevant information on price trend and market condition.

V. Tobit Model Regression Analysis

Tobit model regression analysis was used to examine the factors affecting farmers' market orientation in the study area. Farmers' market orientation was used to determine farmers preparedness for the participation in the output market through the efficient allocation of the factor of production into production process. Table 2 presents the result of Tobit estimation of factors affecting farmers' market orientation in Osun state, Nigeria.

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Table 2 : Result of Tobit Model Regression Analysis of Smallholder Cassava Farmers Market Orientation, Nigeria

Variable	Coefficient	Std.Error	t-statistics	p>/t/
Age(years)	-0.0027478	0.001352	-2.03	0.045**
Gender(0=male,1=female)	0.0661173	0.033341	1.98	0.051***
Farming mode(fulltime=0,partime=1)	-0.1128012	0.090718	-1.24	0.217
Education(years)	0.0365234	0.015385	2.37	0.020**
Price(N)	-1.05e-06	1.74e-06	-0.61	0.546
Farming experience(years)	0.0019443	0.001519	1.28	0.204
Household size(number)	-0.0011743	0.006416	-0.81	0.855
Marketing association(yes=0,no=1)	0.013755	0.031586	0.44	0.664
Land fragmentation(yes=0,no=1)	0.0121401	0.027845	0.44	0.664
Access to loan(yes=0,no=1)	0.0997914	0.065828	1.52	0.133
Access to extension(yes=0,no=1)	0.0056883	0.028514	0.20	0.842
Distance to market(km)	0.0083176	0.004724	1.76	0.082***
Road type(tarred=0,untarred=1,feeder=2)	-0.0113277	0.023515	-0.48	0.631
Non-farm activities(yes=0,no=1)	-0.1112119	0.087764	-1.27	0.209
Collect market information(yes=0,no=1)	-0.0136185	0.031760	-0.43	0.669
Landownership(inheritance=0,lease=1,rent=2)	-0.004282	0.018811	-0.23	0.820
Constant	0.6821561	0.141058	4.84	0.000
Number of observation	100			
Log likelihood	74.363515			
Pseudo R^2	0.5773			
Prob>chi^2	0.000			

***, **, and * are significant at 1%, 5%, and 10% significant levels, respectively

Source : Authors' Computation, 2011

About 58% (pseudo R^2= 0.5773) of the variation in the dependent variable were incorporate in the model; market orientation index is explained by variation in the explanatory variable., the overall significance and fitness of the model can be checked with the value of chi-square. Pro>chi^2 =0.000 shows that the result is significant. Market orientation index (MOI) was used as dependent variable. Four (4) variables are significantly different from zero. There is a strong significant and negative relationship between age of farmers and market orientation in the study area i.e. (p>0.05) (β = - 0.0027478; P= 0.045). This shows that, market orientation of farmers in the study area decrease as their age increases. The fact remains that the older farmers in the study area are less market oriented as a result of their inability to contribute self labour into production process as a means of complementing labour supply on the farm in the absence of un-willingness of the members of the households to contribute family labour. As the age of farmers increase their ability to work on their farm reduces. Inability of the farmers to access credit is also a major threat to aged farmers as most farmers in the study area depend on their own capital to carry out basic farm activities. There is also a positive significant relationship (p< 0.10), between gender and market orientation in the study area ;(β =0.0661173, P= 0.051).

Accordingly, market orientation increases by 0.0661173 if the household head is male consistent with the findings of Berhanu *et al,* (2010), although, male headed households involve in on-farm production while majority of the female headed households are involved in post harvesting processing. The results also showed that, there is a positive significant relationship (P> 0.05) between farmers orientation in the study area and their education as expected (β = 0.0365234, P=0.020), which is in line with Berhanu *et al,* (2010). This may be because majority of the farmers in the study area have minimum education requirements to make them market oriented; at least 80% of the respondents had a basic education in line with the findings of Heierli and Gass (2001). The result also showed that, there is a positive and significant relationship (P>0.10) between farmers orientation in the study area and the distance from farm to nearby market. This may be as result of moderate distance between the farmers' farms in the study area and the market. The average distance between farmers' farm in the area and the market is 6.67km. Farmers orientation increase by (β = 0.0083176, P= 0.082) given its distance to the market consistent with the findings of Shilpi *et al,* (2008) that improved market infrastructures increases the level of commercialization, especially in the developing countries. Key et al. (2000) and Makhura et al. (2001) found that distance to the market negatively influences both the decision to participate in markets and the proportion of output sold. Thus, the variable transport costs per unit of distance increases with the potential marketable load size. For farmers in very remote rural areas, geographic isolation through distance creates a wedge between farm gate and market prices. This leads to a shift from production of profitable but highly perishable commodities such as fruits and vegetables to relatively storable low-value cereals (Stifel & Minten, 2008). Input use is also affected in these rural areas by the substitution of commercial

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high-value varieties with easily available and affordable though poor-yielding varieties. Consequently, through negative multiplier effects, distance can have severe implications for technology uptake and poverty reduction efforts.

The following variables although insignificant to market orientation in the area, have a positive relationship: farming experience, marketing association, land fragmentation, access to loan and extension respectively. Extension services in the area correlate positively with the market orientation in the study area as result of longtime experience of farmers in production of the crop in which the mean year of farming experience of farmers in the area is estimated at 25 years. Couple with the farmers in the area having minimum education requirement and farming experience enhanced their market orientation ability in the area. The following variables are not significant but correlate negatively with market orientation in the study area: farming mode, price, household size, road type, non-farm activities and market information.

Household size is expected to have positive relationship with market orientation with positive sign but this is not so in the study area as larger household size in the study area consumed more of what they produced rather than participating in the output market consistent with the findings of Lapar *et al* (2003). Also, inability of the members in the area, especially the youth to contribute their family labour thereby reduced farmers orientation and the small proportion being produced by the household-head is consumed by the entire household. Road infrastructure in the area also associated negatively with market orientation, this is because majority of the roads in the area are un-tarred and feeder roads which is not too motorable thereby making transportation of produce from farm to nearby market difficult and this increased farmers transaction cost consistent with the findings of Randela *et al,* (2008). Market information is also not associated with market orientation in the study area as a result of inability of the cassava farmers in the study area to have access to up to date market information on prices, commodity trends and market condition before production decision are made. As a result of this, market information is not within the reach of the farmers and farmers tend to take negative market decision which result in loss of income by farmers in line with the findings of Randela *et al,* (2008).

VI. Conclusion

Most farmers in the study area produce low volumes of relatively low-value and less perishable marketed surpluses. They also sell mainly at the farm gate and in rural markets. Only a small proportion of the total output is taken to the more lucrative (but distant) urban markets. These farmers do not participate effectively in the urban markets, which offer excellent opportunities for increasing their farm incomes and extracting themselves from the poverty and squalor in which they currently live. This study demonstrated the relevance of survey methods in enhancing farmers' involvement in commercial agriculture. Results from the household surveys showed that as age of farmers increases, their orientation towards the market decreases as a result of their inability to contribute their labour to complement the scarce hire labour supply in the area in the absence of credit facilities. Education plays a major role in the orientation of the farmers. The study findings confirmed assertions in the literature that distance indeed confines rural farmers to the perpetual production of low-value and less perishable commodities, particularly tubers such cassava (Omiti et al, 2009; Randela et al 2008). It was also established that market information plays a significant role in farmers' decision on how much output to make available to the market depending on the prevailing price and nearness of the specific market outlet.

Two sets of policy interventions are suggested. First, it is necessary to upgrade farm-to-market roads and establish more and better equipped retail market centers in the villages in order to reduce transport costs and encourage rural farmers to produce and trade in high-value commodities (such as milk). A second strategy would be to promote the formation of rural information bureaus alongside the mobile-telephony systems that are already being piloted by some institutions. These could enhance farmers' supply response to market dynamics for households in various socioeconomic profiles and village categories. It is often claimed that once the requisite infrastructure (roads, market facilities, and so on) has been put in place that should be enough to encourage farmers and traders to engage in agribusiness. This study, however, suggests that improved infrastructure is a necessary but not sufficient condition for enhancing agricultural commercialization. The sufficient condition would be simultaneous efforts to improve integration, through institutional reforms, and access, by building sustainable and predictable linkages to urban markets. Efforts towards this end would include group marketing arrangements to bring down transaction costs, bargain for better prices, enforce farmer-trader contracts and explore other opportunities inherent in economies of scale and scope.

There is need for adequate extension services to bridge the information gap between the cassava farmers and research stations in terms of their contribution in providing the farmers on updated information on price, market trends and price history so that farmers can sell their produce at good price, time and markets.

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VII. Limitations

This study was designed to provide an initial insight into cassava farmers' market orientation and to supply a foundation for further research in this area. The limitations of this study provide a number of different avenues for future research. The sample used did not investigate other professional groups. It would be useful to expand the research to other organisations and populations. A major limitation is that the cross-sectional nature of the data collected precludes claims of causality. In this context, it is suggested that longitudinal research could provide a means of determining the directionality of associations. Consequently, a potentially fruitful avenue for future research could be the in-depth case study of the impact of farmers' actions and attitudes on the development of market orientation. The replication of this study in different contexts would also add insight and contribute to the generaliseability of the results. In particular, studies outside the Nigeria context appear, potentially, most worthy. Finally, further research is necessary to uncover additional factors to market orientation and to elucidate the process of developing market orientation. Priority issues for future research include harmonizing farm-level definitions or measurements of market integration and access, and developing a joint analytical framework for group responses and individual household data, particularly in the context of agricultural commercialization and the desired investment policy.

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