

ASSESSMENT OF MARKET ORIENTATION AMONG SMALLHOLDER ARABLE CROP FARMERS IN ABIA STATE, NIGERIA

O. R. Iheke¹, M. A. Idu² and O. S. Uzochukwu²

Department of Agricultural Economics

Michael Okpara University of agriculture, Umudike, Abia State, Nigeria
ralphiheke@gmail.com, Iheke.onwuchekwa@mouau.edu.ng

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Abstract

This study was on market orientation of smallholder arable crop farmers in Abia State, Nigeria. Specifically, the study examined the socio-economic characteristics of small holder arable crop farmers, determined the level of market orientation of the farmers, examined the factors influencing market orientation of smallholder arable crop farmers, ascertained the farmers' market orientation strategies, and the constraint facing smallholder's arable crop farmers in the study area. Multi stage sampling technique was used in selecting the sample used for the study. Primary data collected using structured questionnaire were analysed using descriptive statistical tools such as frequency tables, means and percentages, marketability index, and ordinary least squares (OLS) regression. Results showed that the average age of the arable crop farmers was 46 years, with 63.3% females. The average household size was 7 persons per household. Majority (50%) of the respondents had attained primary education and the mean years of farming experience was 21 years. The average farm size cultivated was 1.45ha and a relatively small proportion of the farmers use improved varieties as planting materials. The market orientation index of the smallholder arable crop farmers was 0.634 which is an indication that there is a shift from subsistent oriented production to market oriented production. The variables that significantly influenced market orientation were age of the farmer, household size, number of extension visits, household asset endowment, farm size, distance to the market, type of crop variety planted and fertilizer. The orientation strategies employed by the farmers were cooperative farming, use of improved seedlings (planting materials), use of improved storage facilities and farming technologies. The major constraints to market orientation were pests and diseases problems, high cost of inputs, bad roads and inadequate capital. Timely provision of improved varieties of crops, other farm inputs and credit were recommended as essential for a rapid shift from subsistence to market oriented production.

Keywords: Market Orientation, Smallholder, Arable, Crop, Farmers

Introduction

Sustainable food security and welfare cannot be achieved through subsistent agriculture (Pingali 1997). The majority of the Nigerian population in rural areas all depend on small scale agriculture for food and income. Faced with limited prospects for industrialization, smallholder agriculture has remained the engine for rural growth and livelihood improvement for some time. Meeting the challenge for improving rural income in Nigeria will require some form of transformation out of the semi-subsistence, low input, low productivity farming system that currently characterize much of rural Nigeria.

According to von Braun (1994), Pingali and Rosegrant (1995), Timmer (1997), and the World Bank (2008), commercial transformation of subsistence agriculture is an indispensable pathway towards economic growth and development for most agriculture dependent developing countries. Gebremedhin

and Jaleta (2010) stated that commercialization entails market orientation (agriculture production decision destined for markets based signals) and market participation (produce offered for sale and use of purchased inputs). Thus, commercialization enhances linkages between the input and output sides of agricultural markets.

Market orientation therefore is a production philosophy which focuses on consumer's taste preference and satisfaction as its basic production and marketing objectives. This is a situation whereby the production is aimed at satisfying dispersed population instead of just the household doing the production. This therefore may entail the adoption of efficient marketing strategies and methods such as marketing analysis, market research, sales forecasting, product planning and development, credit management and financing, sales promotion and advertising etc., all which are geared towards directing the farmer in the management of all the farm

activities in such a manner to satisfy the market demand and also increase the profit and income of the farmer (Arene, 2003).

Despite the contributions of the small holder agriculture to national economic growth market orientation of smallholders over the years have been faced with diverse setbacks: the subsistent farming methods, low level of literacy, land tenure problems, as well as financial and input constraints.

Market orientation philosophy is a dynamic and an efficient way of increasing an enhancing productivity in the entire sector. Market orientation practices can aid globalization (Idachaba, 2000). According to Pingali and Rosegrant (1995) and Pingali (2001), the critical underlying factor behind market orientation is the profit motive of the households; and the realization of profit which depends on market revenues. Market oriented production in practice can respond adequately to the needs of the domestic economy and fend off competition from import of agricultural products. This is possible because efficient market oriented production in practice could guide farmers towards new production opportunities such as crops with high productivity potential, incorporating varieties and initiation of programs that will reduce crop failure, encourage adoption of modern and better practices and improvement in response to demand and price changes, create and stimulate new demand by improving and transforming farm produce into different forms which are convenient and attractive to the consumers.

It is against this background that the study attempts to examine the market orientation of smallholders in selected arable crops in Abia State. Specifically, the study examined the socio-economic characteristics of small holder arable crop farmers, determined the level of market orientation of the farmers, examined the factors influencing market orientation of smallholder arable crop farmers, ascertained the farmers' market orientation strategies, and the constraint facing smallholder's arable crop farmers in the study area.

Methodology

This study was conducted in Abia state of Nigeria. The State lies within latitudes 4° 40' and 6° 14' North of the Equator and longitudes 7° 10' and 8° 00' East of the

Greenwich Meridian. It is situated in the South East geo-political zone of Nigeria and is bounded by Imo state on the west, Ebonyi and Enugu states on the north, Cross river and Akwa Ibom State on the east and Rivers State on the south. The state has a population density of 580,000 persons per square kilometre and a population of 2,833,999 persons (NPC, 2007). Abia State is comprised of seventeen (17) Local Governments. Agriculturally, the state is divided into three Agricultural Zones namely Umuahia, Ohafia and Aba Zones. The climate of the state is a tropical one and usually humid all year round, with two seasons - the rainy season which starts from March to October while the dry season starts from November and ends February/ March. The major occupation of the people, especially the rural inhabitants is farming.

Multi stage sampling technique was used in selecting the sample used for the study. In the first instance, 6 Local Government Areas (LGAs) (2 from each Agricultural Zone) were randomly selected. In the next stage, 2 communities were randomly selected from each LGA to give a total of 12 communities. The list of arable crop farmers in each chosen community was generated through the help of their traditional rulers. Finally, 6 (six) arable crop farmers were randomly selected farmers will be selected from each community giving a total sample size of 72 respondents for the study.

Primary data were collected using structured questionnaire. The questionnaire sought for information on the farmer's socio-economic characteristics, output of the Arable crops sold and consumed. Market orientation strategies and constraint to market orientation of arable crop production. However out of the 72 questionnaires administered to the respondents, 65 were retrieved and 60 were found useful and analyzed.

Data analysis involved the use of descriptive statistics such as frequencies, means and percentages, marketability index, and ordinary least squares (OLS) regression. Given that a smallholder is market oriented if its production plan follows market signals and produce commodities that are marketable, the market orientation index was computed using the marketability index (α_k), given as:

$$\alpha_k = \frac{\sum_{i=1}^N S_{ki}}{\sum_{i=1}^N Q_{ki}}; Q_{ki} \geq S_{ki} \text{ and } 0 \leq \alpha_k \leq 1$$

Where α_k = total

proportion of k sold (S_{ki}) to the total amount produced (Q_{ki}) aggregated over the total sample households in the study. α_k takes a value between 0 and 1, inclusive crops mainly produced for market usually have α_k value closer to 1.

For the determinants of market orientation, the implicit form of the model is given by:

$MO_i = f(AG, HH, EX, AS, ED, FS, DM, PV, FT) \dots \dots (2)$

Where: MO_i = Market orientation index = α_k (previously defined), AG = age (years), HH = household size (number of persons in each household), EX = number of contacts with extension agents, AS = value of assets (naira), ED = years of educational attainment, FS = farm Size (hectare), DM = distance to market (kilometre), PV = use of improved planting varieties, and FT = fertilizers (kg).

Results and Discussion

Socio-economic characteristics of the respondents

The distribution of respondents based on their socio-economic characteristics is presented in Table 1. The Table shows that 93.4 % of respondents were within the age bracket of 30 – 59 years and the mean age was 46 years. This implies that the farmers are still in their active age and holds great potentials for improved productivity and hence market orientation. This result agrees with the findings of (Onubuogu and Onyeneke 2012). Nwaru (2004) and Iheke (2010) noted that the risk bearing abilities and innovativeness of a farmer, his mental capacity to cope with the daily challenges and demands of farm production activities and his ability to do manual work decrease with advancing age.

On sex, Table 1 shows the preponderance of female farmers (63.3%) in the study area. This agrees with *a priori* expectation. It has been reported that more than 70% of rural women in Nigeria are farmers (Idowu, O. and Y. Ajani, 2008).

Majority of the households had between 7-9 persons and the mean household size was 7 persons per household. This is consistent, desirable and of great importance in farm production as rural households rely more on members of their households than hired workers for labour on their farms. According to Nwaru (2004), this is so if members are not made up of the aged and very young people, otherwise scarce capital resource that should have been employed for farm production

would be channelled for the upkeep of these dependent household members.

Table 1: Socio-economic characteristics of the respondents

Age	Frequency	Percentage (%)	Mean
30 – 39	15	25	
40 – 49	25	41.7	
50 – 59	16	26.7	
60 – 69	3	5	
70 – 79	1	1.6	46
Sex			
Female	38	63.3	
Male	22	36.7	
Household size			
1-3	4	6.7	
4-6	17	28.3	
7-9	29	48.3	
10-12	10	16.7	7
Level of Education			
No formal education	5	8.30	
Primary	30	50.00	
Secondary	23	38.30	
Tertiary	2	3.40	
Farming experience			
1-10	24	40	
11-20	28	46.7	
21-30	7	11.7	
31-40	1	1.6	20.8
Farm size			
0.5-2	54	90	
2.5-4	6	10	1.45
Variety			
Local	39	65	
Improved	8	13.3	
Local/improved	13	21.7	
Access to Extension			
Available	38	63.3	
Unavailable	22	36.7	

Source: Field Survey Data, 2013

The educational distribution showed that majority of the respondents had attained primary education. Education is key to understanding and adopting new and improved farm technologies and innovations which would enhance the productivity of the farmers and market orientation. The performance of Nigerian agriculture so far indicates that the farmers have neither used nor absorbed the technologies being introduced to them (Ononugbo and Onyeneke, 2012); a factor which could be attributed to low level of educational attainment.

On the respondents' years of farming experience, Table 1 showed that 46.7% and 40% of the respondents have been in farming for between 11-20 and 1-10 years respectively. The mean years of farming experience was 21

years. This implies that the farmers have reasonably experience in farming, a factor which should impart positively on their productivity. It has been noted that farmers would count a lot more on their farming experience for increased productivity rather than their education attainment (Obasi, 1991 and Nwaru, 1993; Iheke, 2010). Nwaru (2004) noted that the number of years a farmer has spent in the farming business may give an indication of the practical knowledge he has acquired on how he can overcome certain inherent farm production problems.

Table 1 also showed that 90% of the respondents cultivated less than 2 hectares, with the average hectareage cultivated being 1.45ha. Iheke (2010) observed that the farms are usually small-sized, fragmented and scattered and not contiguous land holdings. According to Nwaru (2004), this thus poses a great challenge to the much-desired agricultural modernization/mechanization and commercialization in Nigeria and therefore depicts the need for urgent land reform policies and programmes that would give farmers access to more contiguous land holdings for increased agricultural production.

The Table provides ample evidence that a relatively small proportion of the farmers use improved varieties as planting

materials, a measure which if revised would lead to increased productivity. Majority of the respondents (63.3%) had access to extension services. This implies that the farmers were substantially exposed to technical innovation; a measure if that have positive implications for increased productivity. Iheke (2006) noted that as change agents, extension workers serve as channels for diffusion of technical innovations.

Market Orientation Index (MOI)

The market orientation index of the smallholder arable crop farmers which was calculated using the marketability index was given as 0.634 which is an indication that there is a shift from subsistent oriented production to market oriented production. This shows increased commercialization of farm produce.

Factors Influencing Market Orientation

The regression result of the factors influencing market orientation is presented in Table 2. From the Table, the linear functional form was chosen as the best fit model. This was based on the magnitude of the co-efficient of multiple determinations (R^2), the number of significant variables, and the conformity of the signs borne by the coefficients of the variables to *a priori* expectation as well as the significance of the F-ratio.

Table 2: Factors influencing market orientation

Variable	Linear +	Exponential	Double log	Semi-log
Intercept	0.487 (3.91)***	-0.731 (-3.39)***	-1.411 (-1.87)*	0.085 (2.03)**
Age (X_1)	-0.017 (-2.31)**	0.031 (-2.42)**	0.215 (1.43)	0.118 (1.35)
Household size (X_2)	0.003 (1.66)*	0.029 (2.32)**	-0.141 (-1.98)**	-0.082 (-1.99)*
Extension visit (X_3)	0.084 (2.04)**	0.129 (1.74)*	0.054 (0.76)	0.133 (3.24)***
Assets (X_4)	0.529 (4.27)***	0.000 (1.26)	0.050 (0.70)	0.031 (0.74)
Education (X_5)	-0.000 (-0.06)	-0.000 (-0.04)	-0.002 (-0.06)	-0.000 (-0.04)
Sex (X_6)	0.000 (0.02)	-0.003 (-0.05)	0.003 (0.04)	0.005 (0.13)
Farm size (X_7)	0.018 (2.41)**	0.022 (0.56)	0.082 (1.52)	0.87 (2.08)**
Distance to market (X_8)	-0.008 (-2.82)***	-0.007 (-1.38)	-0.147 (-2.03)**	-0.020 (-0.60)
Varieties (X_9)	0.086 (2.12)**	0.137 (1.97)**	0.086 (2.35)**	0.005 (1.41)
Fertilizer (X_{10})	0.568 (4.48)**	0.000 (1.74)*	0.149 (2.07)**	0.006 (2.50)***
R^2	0.8603	0.5592	0.5237	0.6916
R^{-2}	0.8292	0.5008	0.5080	0.6367
F-ratio	15.38***	3.62***	3.38***	5.98***

Source: Computed from field survey data, 2013.

*** = Significant at 1%, ** = Significant at 5%, * = Significant at 10%, + = lead equation, (...) = t - ratio.

The coefficient of multiple determination was 0.8603 which implies that 86.03% of the variations in market orientation was explained by the independent variables included in the model. The F-ratio was significant at 1% level of significance which attests to the goodness-of-fit of the model. The

The coefficient of age was significant at 5% level of probability and negatively related to market orientation. This implies that as a farmer advances in age his farming capacity/capability declines and when this happens his level of market orientation also decreases. As noted by Nwaru (2004), the risk bearing abilities and innovativeness of a farmer, his mental capacity to cope with the daily challenges and demands of farm production activities and his ability to do manual work decrease with advancing age.

The coefficient of household size was significant at 10% and positively related to market orientation. This implies that farm household's market orientation increases with increase in household size. This could be as a result of household members' provision of labour and participating in other farm activities which increases output level.

The coefficient of extension visit was significant at 5% and positively related to market orientation. This implies that the higher the number of extension visits/contacts with the farmers, the higher their level of market orientation. This is because these extension agents get to educate the farmers on how they can effectively utilize resources in the most economical way to obtain maximum productivity this result agrees with the findings of Iheke (2010), and Iheke *et al.* (2013).

The coefficient for household asset was significant at 1% and positively related to market orientation, implying that the higher a farmer's asset the more money he has to invest and therefore the more productive and market oriented he becomes.

Market orientation strategies

The distribution of the respondents based on market orientation strategy employed is presented in Table 3. From the result above, 80% of the respondents identified cooperative farming as their major strategy for market orientation and ranked it first, 75% of the

significant variables influencing market orientation were age of the farmer, household size, number of extension visits, household asset endowment, farm size, distance to the market, type of crop variety planted and fertilizer.

The coefficient for farm size was significant at 5% and positively related to market orientation. This means that the greater the farm size, the greater his production capacity and therefore his market orientation. Sadulet and de Janvry (1995) noted that when agricultural factor markets are imperfect, ownership of the factors matters for efficiency and productivity. According to von Braun and Immink (1994), when land markets are imperfect, households with larger farm holdings may be more likely to be more market oriented and have higher market participation.

The coefficient of distance to market (proxy for market access) is significant at 1% and negatively related to market orientation, implying that greater the distance to the market, the less market oriented the farmer. Thus, distance limits farmers' access to market as it increases marketing cost thereby limiting the level of smallholder market participation. This result is consistent with the findings of de Janvry *et al.* (1991), Sadulet and de Janvry (1995), Key *et al.* (2000), Gabre-Madhin (2001), Barret (2007), Pender and Alemu (2007), and Alene *et al.* (2008).

The coefficients of type of crop varieties planted by the farmers and quantity of fertilizer were significant at 5% and 1% level of significance and positively related to market orientation. This means that a farmer's productivity and profitability depends highly on the variety he cultivates, the better the variety the better his productivity and also the better his level of market orientation. Also fertilizer use increases the yield of crops and hence promotes market orientation.

respondents identified use of improved seedlings (planting materials) and ranked second, while 46.7% and 25% of the respondents identified use of improved storage facilities and farming technologies respectively as their market orientation strategy.

Table 3: Market Distribution Strategies Employed By Farmers

Strategies Employed	Frequency*	Percentage (%)	Ranking
Cooperative farming	48	80	1
Use of improved planting materials and fertilizer	45	75	2
Improved storage methods	28	46.7	3
Improved farming technologies	15	25	4

Source: Field Survey, 2013

* Multiple Response

Constraints to market orientation

The distribution of the respondents based on constraints faced in arable crop production

which militates against their market orientation is presented in Table 4.

Table 4: Constraints militating against the production of arable crops in Abia State

Constraints	Frequency*	Percentage (%)	Ranking
Pest and diseases	54	90	1
High cost of inputs	42	70	2
Bad roads leading to market	40	66.7	3
Inadequate capital	31	51.7	4
Access to extension	19	31.7	5
Access to credit	11	18.3	6

Source: Field Survey, 2013

*Multiple Responses

The result above shows that about 90% of the respondents indicated that pest and diseases were their major constraints in the production of arable crops and ranked the first, followed by high cost of input (70%) which ranked second. About 67.7% indicated bad roads leading to market as their major constraints and ranked third and then 51.7% for inadequate capital which ranked fourth, access to extension (31.7%) which ranked fifth and then access to credit (18.3%) which ranked the lowest. If these myriad of constraints are resolved, the productivity of the farmers would increase significantly as well as their market orientation.

Conclusion and Recommendations

It could be concluded from this study that there was a shift from subsistent to market oriented production. The is desirable for the growth of the economy as it will enable the country achieve self-sufficiency in food production and reduce the dependence on food imports to meet her food needs, while conserving scarce foreign exchange. It order to improve the market orientation of the farmers, it was recommended the all the constraints faced by the farmers should be addressed. Most especially, timely provision of improved varieties of crops and other farm inputs and provision of credit to enhance rapid shift from subsistence to market oriented production.

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