

DETERMINANTS OF MARKET PARTICIPATION AMONG MAIZE FARMERS IN OGBOMOSO ZONE, OYO STATE, NIGERIA

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ABSTRACT. The key to increasing agricultural output in developing countries is improving the productivity of farmers, which cannot be achieved without markets that would effectively bind the increasingly specialized activities of thousands of widely dispersed producers into an integrated national economy. Although, there is a high potential for rural farmers to derive livelihood from market-oriented agriculture and improve their standard of living, but what are those factors determining farmers' market participation. Thus, this study investigates the determinants of market participation among maize farmers in Ogbomoso zone of Oyo state, Nigeria. A simple random sampling technique was used in the selection of respondents and a well-structured questionnaire was used to gather information on socio-economic attributes and market participation among

maize farmers in Ogbomoso, Oyo State. Eighty questionnaire were administered, but 79 retrieved were subjected to analysis. Data were analysed using descriptive statistics and probit regression. The results show that majority of the farmers were male (70.9%), married (67.1%) and had a minimum of secondary education (74.7%) and above. Also, 70% had direct access and planted improved maize seed and 58% sold maize produced in the urban market. Probit model result shows that gender, age, marital status, household size, farming experience, educational level and membership of association/group are the major determinants influencing market participation in the study area. The study recommends that government should encourage formation of associations/groups, where farmers can get information about market situations and formulate policies on

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adult literacy programme to encourage farmers to participate more in market.

Keywords: productivity; smallholders; probit; agriculture; crop.

INTRODUCTION

Agriculture continues to be a strategic sector in the development of most low-income nations. It employs about 40% of the active labour force globally. In Nigeria, Agriculture contributes more than 30% of the total annual GDP, employs about 70% of the labour force, accounts for over 70% of the non-oil exports and, perhaps most important, provided over 80% of the food needs of the country (Adegboye, 2004; Ebojei *et al.*, 2012). This makes agriculture as one of the most important sectors of the Nigerian economy.

The marketing of agricultural products begins at the farm when the farmer harvests his products. The product when it is harvested cannot usually go directly to the consumers. Firstly, it is likely to be located some distance from the place of consumption in regular and continuous manner throughout the year. Secondly, storage is required to adjust supply to meet demand. Thirdly, a product when it has been harvested is rarely in a form acceptable to consumers. Therefore, it must be sorted, cleared and processed in various ways and must be presented to the consumer in convenient quality and quantities for sale. Finally, the farmer expects payment when his produce leaves his possession, and

hence some financial arrangements must be made to cover all the various stages until the retailer sells the products to the final consumer (Asogwa and Okwoche, 2012).

Markets are prerequisites for enhancing agriculture-based economic growth and increasing rural income in the medium term, particularly for the rural poor households. Subsistence food crop production cannot improve rural income without market-oriented production systems. These require the intensification of agricultural production systems, increased commercialization and specialization in higher-value crops. And these must be built upon the establishment of efficient and well-functioning markets and trade systems-ones that keep transaction costs low, minimize risk, extend information to all players and that do not either exclude or work contrary to the interests of the poor, especially those living in areas of marginal productivity and weak infrastructure (Adeoti *et al.*, 2014).

Meanwhile, market participation has been defined differently by various authors. It is regarded as participation in any market related activity, which promotes the sale of produce as the individual household's economic transactions with others in cash or kind or commercialization (Adeoti *et al.*, 2004). Although there is a high potential for rural farmers to derive livelihood from market-oriented agriculture and improve their standard of living, they face difficulties in accessing markets, where they can obtain agricultural

DETERMINANTS OF MARKET PARTICIPATION AMONG MAIZE FARMERS

inputs, consumer goods and sell their produce (Heinemann, 2002). These difficulties include bad feeder roads, poor storage facilities, poor packaging of farm produce, high transaction costs, and lack of access to market information among others. The rural communities often rely on human transport, which is inadequate and inefficient. Akinyosoye (2005) stated that agricultural markets are not well-developed in Nigeria and this has remained so for many years.

The key to increasing agricultural output in most developing countries is improving the productivity of farmers, which cannot be achieved without markets that would effectively bind the increasingly specialized activities of thousands of widely dispersed producers into an integrated national economy (Egbetokun and Omonona, 2012). Thus, an efficient and responsive marketing system for agricultural products is an indispensable component of the development process (Southworth, 1981).

Commenting on the importance of marketing, Abbot (1993) opined that marketing fulfils the important role of stimulating and extending development. By this opinion, the producer is enabled to move from semi-subsistence to growing produce regularly for sales. Furthermore, the author noted that an efficient marketing sector does not merely link buyers to sellers and react to the current situation of supply and demand; it also has a dynamic role to

play in stimulating output, consumption and the essentials of economic developments.

Market participation among farmers has long been on agricultural economist research agenda in both developed and developing nations (Barret, 2007). In sub-Saharan Africa, the question has taken a renewed urgency as policy makers seek ways of reducing external payment imbalance, caused largely by secular declines in *per capita* food production and concomitant reduction in marketed food surpluses (Goetz, 1992; Holloway *et al.*, 2005).

Maize is the most important staple food in Nigeria. The importance of maize cannot be overemphasized, with Nigeria producing 43% of maize grown in West Africa (Oparinde and Daramola, 2014). It accounts for about 43% of calorie intake (Nweke and Akorha, 1983; NARP, 1994). Maize has consumption quantity of 53.20 g/capita/day (FAOSTAT, 2007). Onuke *et al.* (2010) consolidated the importance of maize by stating that maize is one of the most abundant food crops in Nigeria. About 80% is consumed by man and animals, while 20% is utilized in variety of industries processes for production of starch, oil high fructose, corn sweetener, ethanol, cereal and alkaline. Maize production in Nigeria has not been sufficient enough to meet the needs of people and livestock. Supply has not been able to meet demand despite the introduction of improved packages (Babatunde *et al.*, 2008).

Maize is one of the most important staple food crops in Nigeria. It is the second most common cereal food crop after rice. Maize is a very important food crop for human beings and for livestock. It provides energy, vitamins and negligible amount of protein. Output of maize has continued to increase in Nigeria. For example, in 1986, about 1336 metric tonnes of maize was produced in Nigeria, while in 2003 about 7019 metric tonnes was produced (CBN, 2003). The livestock industry consumes more than half of the total annual maize production.

During the era of Commodity Boards, the Nigerian Grain Board coordinated marketing of maize in Nigeria. With the scrapping of the Commodity Boards, no other institutional arrangement was put in place for maize marketing until 2003, when the Arable Crops Marketing and Development Company (ACMDC) was established (Idachaba, 2004). The establishment of Arable Crops Marketing and Development Company was an integral part of the food security programme, which brings about the reactivation of the strategic grain reserve scheme. This involves the building of thirty-three silo complexes to procure and release grains to stabilize price and maintain national food security stock.

The objectives of this study are to determine the level of output market participation of maize farmers and factors influencing maize farmers' output market participation in Ogbomoso area of Oyo State.

METHODOLOGY

Study area

The study was carried out in Ogbomoso agricultural zone of Oyo State. Ogbomoso is located approximately on the on the intersection latitude 8° , $10'$ North and longitude 4° , $15'$ East. It is regarded as a derived savannah vegetation zone and a low land rain forest area, the zone experience both wet and dry season annually and the climate favour maize production.

Sampling and data collection

Data were collected for this study with the aid of a well-structured questionnaire; the key information gathered included the socio-economic characteristics, the quantity of crop produced and sold in the last crop season and the market participation level of the farmers. Data were collected also on socio-economic characteristics and simple random technique was used to determine village of the local government covered. These include Surulere, Orire, Ogo-Oluwa, Ogbomoso south and Ogbomoso north; 80 questionnaire were randomly distributed among respondents in these five areas.

Analytical techniques

The analytical tools used in the study were descriptive analysis and probit model analysis. Descriptive analysis, which includes mean, frequency and percentage was used to describe the socio-economic characteristics of maize farmers. Probit regression model analysis was employed to determine factors influencing the output market participation of the farmer. The procedure for analyzing the probit model start with identifying the dependent variable, which

DETERMINANTS OF MARKET PARTICIPATION AMONG MAIZE FARMERS

is a dummy and can assume only two values, which are binary (either 0 or 1).

The probit model is given as:

$$Y_i^* = \beta_0 + \sum_{j=1}^7 \beta_j X_j + \varepsilon_i \quad (1)$$

$$\varepsilon_i \sim N(0, 1);$$

$$Y_i = 1 \text{ if } Y_i^* > 0;$$

$$Y_i = 0 \text{ if } Y_i^* \leq 0,$$

where, the dependent variable Y can be observed as an indicator for whether this latent variable is positive; β = Coefficients; ε = Random error; $i = 1 \dots$; X = Independent variables, which are stated below; X_1 = Gender (dummy: if male = 1 and 0 otherwise); X_2 = Age (years); X_3 = Marital status; X_4 = Household size (number); X_5 = Farming experience (years); X_6 = Educational level; X_7 = Member of association/group (dummy: if yes = 1 and 0 otherwise).

RESULTS AND DISCUSSION

Socio-economic characteristics of the respondents

Table 1 shows that maize farmers (70.9%) were males in the study area, while the remaining 29.1% were females. The reasons for this could be due to the stressful nature of agricultural production, which made females to distance themselves from farming activities.

About (49.4%) of the respondents were between ages 46-55 years old, while 26.6% were between 56-65 years old. This shows that majority (76%) of the respondents were above 46 years old. This indicates that most of the respondents were old enough and matured to take decisions as regards farming and marketing activities. This is expected

to assist or influence the market participation in the study area.

Majority (67.1%) of the respondents were married, while 29.1% were widowed. This shows that majority of the farmers in the study area were married, giving the opportunity of getting family labour to be used in farming activities and could also give rise to increase market participation. A rate of 55.4 of the respondents had between five and eight household members, 32.4% had nine and above household members, while 12.2% had four and below household members. This shows that majority of the households would have enough access to the use of family labour.

Table 1 also shows that majority of the respondents (74.7%) had secondary education and above. This suggests that most of the respondents are literate enough to understand the maize marketing strategies that could be implemented in the study area. Education level plays a good role in adoption of new policy and undertaking risks (Asogwa and Okwoche, 2012). This will also assist them in the area of adoption of innovations introduced to them by extension agents. Also, majority (76.9%) of the respondents had farming experience of 11 years and above. As experience has shown to be the best teacher, this is expected to influence their decisions making towards market participation.

Table 1 - Socio-economic characteristics of the respondents (n = 80)

Variable	Market participation distribution		Mean
	Frequency	Percentage	
Age of the household head (years)			
21 – 35	6	7.6	
36 - 45	11	13.9	
46 – 55	39	49.4	50.9 (8.83)
56 – 65	21	26.6	
66 and above	2	2.5	
Gender of the household head			
Male	56	70.9	
Female	23	29.1	
Years of formal education			
No formal education	9	11.4	
1 - 6 years	11	13.9	
7 - 12 years	28	35.4	11.5 (6.59)
13 - 18 years	16	20.3	
19 years and above	15	19.0	
Farming experience (years)			
5 - 10	18	23.1	
11 - 15	26	33.3	
16 - 20	4	5.1	17.7 (3.29)
21 -25	13	16.7	
26 - 30	10	12.8	
30 and above	7	9.0	
Membership of farmers' group			
Yes	44	55.7	
No	35	44.3	
Total	79	100	

Source: Field survey, 2015.

Determinants of market participation

Probit model regression analysis was used to examine the determinants of market participation among maize farmers in the study area. *Table 2* presents the result of the probit model regression analysis. The result shows that sex is significant and have a negative coefficient of (-0.011) on market participation. This implies that being male will lead to decrease in the

probability of market participation by 1%. This is in contrary to the work of Hlongwane *et al.* (2014), where male farmers have some sort of preferences to market participation, compared to female farmers.

Age was found to be significant and have a positive influence on market participation. This implies that a unit increase in age will result to increase in market participation. This goes against Adenegan *et al.* (2013).

DETERMINANTS OF MARKET PARTICIPATION AMONG MAIZE FARMERS

This could be as a result of the fact that as farmers grow older they start losing the strength and power to use in farming in other word they tends to move away from on-farm production to market participation. Marital status was also significant but had a negative effect on market participation. With

respect to household size, the negative and significant coefficient of (-0.03) on market participation implies that increase in household size will decrease market participation. This might be because not all members of household do take part in farming or agricultural activities.

Table 2 - Estimated parameters of probit regression analysis (n = 80)

Variables	Coefficient	Z-value
Gender	-0.011	-6.548***
Age	0.020	9.322***
Marital status	-0.026	-13.510***
Household size	-0.030	-11.345***
Farming experience	0.010	5.892***
Educational level	0.060	37.234***
Members of Ass/Group	0.034	18.559***
Intercept	-1.097	-92.716

Source: Data analysis, 2015

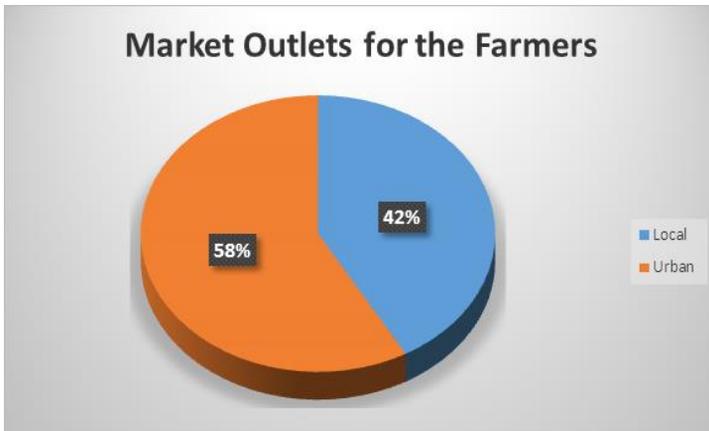


Figure 1 - Distribution of market outlets for the maize farmers in the study area

According to *Table 2*, farming experience variable was positively significant. This indicates that increase in farming experience will increase the level of market participation by farmers. This can be

associated with the fact knowledge and experience of farmers could influence their engagement in market participation. It was also supported by the positive and significant effect education on market participation. It

implies that unit increase in the level of education increases the probability to engage in market participation. This is in consonance with the work of Adeoti *et al.* (2014), that explain that farmers with formal education are more market oriented, knowledge about the prevailing market and tends to take the advantage of the market environment.

Member of association/group is associated positively with market participation and significant at 1%. This shows that being a member of association/group will motivate and educate farmers to participate in the market networking and provision of up-to-date information to members. This corroborates with the findings of (Moyo, 2010).

The distribution of market outlets for maize produced by farmers in the study area, as shown on *Fig. 1*, indicated that many farmers (58%)

sold their maize in the urban market. This could be due to the fact that consumption of maize is high in the urban centres due to different utilization maize is used for by different categories of people (households, e.g. nursing mothers, and industries, e.g. feed mills).

Importance of seed cannot be overemphasized in the production of maize. In light of this, the study cross examined the types of maize seeds available for planting by the farmers and whether there was direct access to improved seeds. There were two maize varieties planted by the farmers in the study area, local and improved varieties. However, the number of farmers who had direct access and planted improved maize seed was higher, representing 70% of maize planted in the study area (*Table 3*).

Table 3 - Cross tabulation of variety of maize planted and direct access to improved maize seeds

Maize variety	Direct access to improved maize seeds			
	No		Yes	
	Frequency	Percentage	Frequency	Percentage
Local	16	55.2	15	30
Improved	13	44.8	35	70
Total	29	100	50	100

Source: Data analysis, 2015

CONCLUSION

The results shows that majority of the farmers were male, married and had a minimum of secondary education. This study, which empirically examine the determinants

of market participation among maize farmers in Ogbomoso agricultural zone of Oyo State, showed that gender, age, marital status, household size, farming experience, educational level and membership of association/group are the major

DETERMINANTS OF MARKET PARTICIPATION AMONG MAIZE FARMERS

determinants that influence market participation in the study area. The study thereby recommends that government should encourage formation of associations and groups where farmers can get information about market situation, have one voice and assists one another through collective means that will improve their market participation. Efforts should also be made towards adult literacy programme and government should formulate policies that will mobilize and encourage farmers to go to school. This will enhance market participation and invariably lead to increased incomes for farmers.

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