MARKET PARTICIPATION AMONG RICE PRODUCING HOUSEHOLDS IN ABIA STATE, NIGERIA

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ABSTRACT
The study assessed the factors affecting market participation among rice producing households in Abia state, Nigeria. Four major rice producing areas of the state namely Bende, Umuahia North, Ikwuano, and Isukwuato local government areas were identified, within which four communities each were selected. Random sampling technique was employed in the selection twenty five farming households from each of the communities, implying a sample of one hundred household for the study. The probit model was applied in the analysis of the data. Estimates of the determinants of market participation among households in the study area showed that the coefficients of household size, output, farm size, extension contact, distance from farm to market, membership of societies were significant in influencing market participation among rice producing households. Among these variables, household size and distance had negative relationships on market participation. It is therefore recommended that markets should be cited near the farms with good infrastructural facilities, including the much needed transportation to encourage participation in markets.

Keywords: Farming households, market, participation, probit and rice.

INTRODUCTION
Rice is an important annual crop in Nigeria. It is one of the major staples, which can provide a nation's population with the nationally required food security minimum of 2,400 calories per person per day (FAO, 2000). In Nigeria, rice is cultivated in virtually all of Nigeria's agro-ecological zones, from the man-grove and swamp environments in the coastal areas of the Niger Delta to the dry zones of the Sahel in the North (UNEP, 2005). By the year 2000, out of 25 million hectares of total land cultivated in Nigeria, about 6.4 percent (1.6 million hectares) were used for growing rice.

Recent rice production figures from 2004 put national rice production at 2.96 million tonnes of paddy cultivated on an area of 1,595,840 hectares. This estimate established a yield of 1.82 metric tonnes per hectare and total milled rice of 1,480,168 tonnes giving a milling recovery rate of 51 percent while total national demand of milled rice is estimated at 3.0 million tonnes per annum. There is therefore a deficit of 1,519,832 tonnes of milled rice.

At Nigeria's independence in 1960, rice was merely a festival food consumed mostly in affluent homes at Christmas and during other religious festivals. However, since the mid-1970s, rice consumption in Nigeria has risen tremendously (Akpokoje *et al*, 2001). This is reflected in an annual per capita consumption of 3kg in 1960 to an average of 18kg in the 1980s, reaching 22kg between 1995 and 1999. It is estimated that total consumption as at 2000 stands at 4.4 million tonnes of milled rice with annual consumption per capita standing at 29kg. It is estimated to rise at 11 percent per annum (UNEP, 2005; USAID, 2008). This increase is expected to be induced by income growth.

Nigeria food sector has been characterized by excess demand over supply due primarily to a high population growth rates of about 3 percent per annum; high rates of urbanization and rising per capita income and stimulated by both export revenue boom and wage increases. Specifically, Nigeria's per capita consumption of rice has grown significantly at about 7.3 percent (Akande, 2004). To bridge the gap, the federal government of Nigeria over the years has embarked on policies and incentives for the farmers to increase production. The most recent among them is the presidential initiative on rice inaugurated by the Olusegun Obasanjo's administration. The objective of the initiative was to increase rice production, improve milling quality, promote marketing to provide domestic rice for consumption and to reduce national rice importation, as well as to achieve 15 million metric tonnes of rice production from the 3 million hectares of consolidated farm lands by 2007.

Estimates indicate that rice imports represent more than 25 per cent of agricultural imports and over 40 per cent of domestic consumption (FMARD, 2004). Nigeria has thus become a major rice importer in the world market and second only to Indonesia in the last five years of this decade (2000-2005). From 1999, the value of rice imports rose steadily from US $259 million to US $655 million and US $756 million in 2001 and 2002, respectively (CBN, 2006). These estimates do not take into account the unrecorded smuggled rice imports into Nigeria (Rahji, 2005).

According to Bamidele *et al*, (2010), the demerit of Nigeria's dependence on imported rice is more so as the share of the imported rice in the Nigerian food market is far above that of the domestically produced rice. Rice imports have affected the domestic production and marketing of Nigeria's local rice. This is due to the decreased demand for local rice by Nigerians as opposed to the imported ones. The local Nigerian variety has a lower demand due to the high cost of producing the crop and cost of production is usually not subsidized by the government. The non competitiveness could also be as a result of poor processing resulting in a final product with a high percentage of broken grains and debris (FAO, 2004).

Over the years, remarkable progress have been made by agricultural research and development organizations on increasing agricultural productivity and promoting sustainable intensification of major food crops for small-scale farmers. However, sustaining success in productivity-based agricultural growth critically depends on expansion of market opportunities (Diao and Hazell, 2007), and requires a holistic view beyond productivity to incorporating profitability and competitiveness. Therefore, the concern of small holder farmers is not only agricultural productivity but also increasingly better market access.

However, improving the ability of smallholder and resource-poor farmers to access market opportunities has been a pressing developmental challenge facing both governments and non-governmental organizations (IFAD, 2001). It is therefore imperative to understand how farming households can best achieve their income and other livelihood outcomes through better links with markets.

While there is a general agreement that improving market access and commercialization of smallholders will help induce greater investment, productivity, and income, there remains several challenges in making progress. Some of these challenges include identification of output markets and types of commodities that can enable large numbers of smallholders to improve their incomes; identification of which markets and commodities can provide significant opportunities for the poor; and identification of constraints to and interventions

that are important for improving access to markets by the poor (Olwande and Mathenge, 2011).

Empirical evidence suggests that currently smallholders do not often participate much in staple food markets and their overall market share is very low (Jayne et al., 2005). Jayne et al. (2005) found that the top 2% of commercial farmers sold about 50% of observed marketed maize in Kenya, Mozambique and Zambia. Ellis (2005) also shows that farmers in semi-arid areas of Africa have very low proportions of output marketed. Further complicating the picture is evidence of growing participation of smallholders in horticulture, dairy, and tree crops, and a shifting away from staple food production as farm sizes shrink.

This is due to the low prices received for staple foods and farmers' desires to increase their returns. Thus there appear to be divergent trends on the demand and supply side: demand trends which may be creating greater opportunities for staple foods in domestic markets and supply trends which suggest an interest of farmers to diversify away from lower value staple food crops. Few studies appear to have focused specifically on market participation and poor farmers in Nigeria. Hence, this present study which is specifically aimed at determining the factors influencing market participation among rice producing households in Abia state, Nigeria.

METHODOLOGY

Study area

The study was conducted in Abia State, Nigeria. Abia State was created on the 27th day of August, 1991 from the old Imo State, with its capital at Umuahia. The state lies between Longitude 04040' and 06014' North and Latitude 07010' and 08040' East. It is bounded by Imo State on the West, Ebonyi and Enugu State on the North, Cross Rivers and Akwa Ibom States on the East and Rivers State on the South (INEC, 2008). The state has a land mass of about 6320 km2 with a population of about 2, 33,999 persons (NPC, 2007). The State is made up of 17 Local Government Areas. The climate is tropical with dry and rainy seasons. It has an annual rainfall of about 668 mm. A large proportion of the people are engaged in agriculture and they produce mostly yam, maize, cocoyam, rice, cashew, plantain and cassava.

Sampling Technique and Method of Data Collection

Purposive and multistage random sampling techniques were employed in the selection of the respondents. First, four local government areas – Bende, Umuahia North, Ikwuano, and Isukwuato local government areas were selected. The second stage involved the selection of four communities each from the already selected local government areas where production is dominant. This was followed by a random selection of twenty five rice farming households from each of the four communities. This came to a total of 100 farmers. These 100 respondents were then administered with a set of questionnaire which aided the collection of data, been a primary one.

Method of Data Analysis and Model Specification

The study employed the probit model which is specified thus:

$Y_i^* = \beta_0 + \beta_1 \times 1_i + \beta_2 \times 2_i + \ldots + \beta_k x k_i + V_i$ ……..(1)

and that:

$Y_i = 1$ If $y^* > 0$

$Y_i = 0$ otherwise;

Where: $x_1, x_2, \ldots x_k$, represent vector of random variables, β, represents a vector of unknown parameters and v represent a random disturbance term (Nagler, 2002).

According to Nagler (2002), probit model constrains the estimated probabilities to be between 0 and 1 and relaxes the constraint that the effect of the independent variable is constant across different predicted values of the dependent variable. This is normally experienced with the linear probability model (LPM). The probit model assumes that while we only observe the values of 0 and 1 for the variable Y, there is a latent, unobserved continuous variable Y* that determines the value of Y. The other advantages of the probit model include believable error term distribution as well as realistic probabilities.

RESULTS AND DISCUSSION

Estimates of the determinants of market participation among households in the study area as shown in Table 1 indicates showed that the coefficients of household size, output, farm size, extension contact, distance from farm to market, membership of societies were significant in influencing market participation among rice producing households. These variables were significant at various probability levels with different signs.

The coefficient of household size was significant at 10 percent probability level with a negative relationship. This implied that as household sizes of the producing household's increases, the degree of participation in the markets reduces. According to Makhura (2001), the size of the household represents the productive and consumption unit of the household. Given this relationship, it meant that household members tend to consume more than they contribute to the sales of rice they produce and hence market participation is reduced. The result is consistent with Randela *et al*, (2008).

Output of rice was also significant at one percent level with a positive sign. The result means that as output increases, the probability of the households participating in markets increases. Among the rural dwellers, there is usually the need for some cash to pay for other household needs, such as school fees, medicine and other consumer goods, coupled with the fact that there are poor storage facilities. Large outputs may prompt these households into participating in markets, so as to dispose these outputs, which will go a long way in meeting their needs as well as reducing the burdens of storage which ordinarily have little or no facilities for them. This finding consolidates that of Janowski (2003); Agwu and Oriuwa (2013).

The coefficient of farm size showed a positive relationship with market participation at five percent probability level. This meant that increase in farm size would probably lead to an increase in market participation among the producers. This findings is in line with Olwande and Mathenge (2011) in a study on market participation among poor rural households in Kenya and in contrast with Randela et al (2008) in factors enhancing market participation by small-scale cotton farmers in Mpumalanga.

Those who had contact with extension workers participated more in markets than those who had no form of contact. This was shown in the positive sign of the coefficient at one percent probability level. It is believed that those who had contacts with extension workers received better information on production and marketing, which in turn gave rise to their participation in markets.

The coefficient of distance from farm to market was significant at one percent level but with a negative sign. By implication, the greater the distance apart, the probability of these households participating in markets reduces. This is most likely to happen after considering the long distance involved, the bad condition of roads within the study area as well as other transportation challenges and the weight of their produce. The result of the present study is in line with those of Makhura et al, (2001) and Omiti et al, (2009).

Membership of societies or organizations showed a positive relationship with market participation at one percent level. Sharp and Smith (2003) had indicated that through networks, information and other resources can be transmitted, and the existence of trust facilitates co-operative behaviour based around these networks. Probably with this type of cooperation, information concerning markets and its associated gains could be shared, thus the positive relationship seen in the result. The LR chi2 was 44.15 which is significant at one percent level, while the pseudo R2 was 0.664 meaning the 66.4 percent of the variability has been explained in the equation.

CONCLUSION

The study has shown the factors which influence market participation among rice producing households in Abia state, Nigeria. The result has shown the negative effects of household size and distance on market participation among the farmers. It is therefore recommended that markets should be cited near the farms with good infrastructural facilities, including the much needed transportation. This will go a long way in making markets accessible to the farmers. This will in turn help farmers to perform much better in market participation and commercialization of their produce.

Table1: Estimates of the determinants of market participation among rice producing households in the study area

Variables	Coefficient	Standard error	z-test
Age (years)	-0.000146	0.000220	-0.66
Education (years)	-0.222651	0.181404	-1.23
Gender (dummy)	0.005566	0.04928	0.11
Household size (no.)	-0.241753	0.119329	-2.03*
Output (kg)	0.00049	0.00010	4.92***
Farm size (ha)	0.00352	0.01425	2.47**
Extension contact (dummy)	0.29858	0.010877	2.74***
Distance to market (km)	-0.61446	0.217316	-2.83***
Membership of society (dummy)	0.069594	0.14141	4.92***
Price (price)	0.007646	0.110525	0.69
Constant	-7.39779	6.47289	-1.14
Log likelihood	-21.13		
LR Chi^2	44.15		
Prob Chi^2	0.004		
Pseudo R^2	0.664		

Note: ***, **, * denotes 1%, 5%, 10% level of significance respectively.
Source: Computations from field Survey, 2013.

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