DETERMINANTS OF AGRIBUSINESS ENTREPRENEURS' PARTICIPATION IN INNOVATIONS: A STUDY OF ABIA STATE, NIGERIA

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Abstract

This study examined the determinants of agribusiness entrepreneurs' participation in innovations using Abia State Nigeria as the study area. The study employed a multi stage sampling technique in the selection of entrepreneurs from the agricultural zones of Abia State (Aba, Ohafia and Umuahia). In the first stage, 2 Local Government Areas (LGAs) each were selected from the zones. The second stage involved random selection of 2 communities each from the 6 LGAs, bringing it to 12 communities. The last stage involved the selection of 15 households each from the communities, giving a sample size of 180 agribusiness households. The probit model was employed in the analysis of the data which was obtained by the use of questionnaire administered on the selected respondents. The study found that age, gender, household size, income and output were statistically significant determinants of entrepreneurs' participation in innovations in the study area.

Key words: *agribusiness, entrepreneurs, participation probit, innovation*.

INTRODUCTION

Agricultural innovations has been defined as the application of new inputs, machines, and methods used in agricultural production processes in order to increase production, yield or quality [6,3].

According to [3], innovations in agriculture can reduce poverty, foster development, and stimulate economic growth in many developing countries. In particular, the adoption of innovation can transform the lives of farmers through increased incomes and improved living conditions.

It has been known that in developing countries, including Nigeria, small-scale farmers dominate the agricultural economy where, over 80 percent of the farming population in Nigeria are small holders residing mostly in rural areas [1].

Most of these smallholder farmers still cultivate using hoe technology and rely heavily on family labour, amongst other traditional methods and so the dominance of subsistence farming with traditional farming systems in the smallholder sector is one of the concerns in achieving higher agricultural productivity.

The technologies people use plays a significant role in determining how fast agricultural productivity grows and how that growth affects the poor and the condition of natural resources [10].

According to the report the experience and evidence from countries within and around the sub-Saharan African region indicates that returns to agricultural technology development could be very high and far reaching, not only in the smallholder sector, but in the entire economy as well. However, improved technologies are of little value unless farmers judge them to be appropriate and subsequently adopt them. It is therefore imperative not only to develop new agricultural technologies, but also promote their adoption by smallholder farmers.

Although, huge financial resources has been expended on formal agricultural research and

development, many poor farmers in remote and less favoured regions have not benefited from technologies developed for resource rich areas, especially were government policies have been unsupportive. A key challenge therefore is for the entrepreneur - innovation approach to be effective is dissemination of technology and methodology.

However, [15] had observed that there is an important role of farmer-to-farmer exchanges and exploitation of indigenous systems and channels for sharing agricultural information and inputs, rather than relying on formal extension system to disseminate innovations. The critical challenge is to involve national agricultural research systems in strengthening the innovative capacity of farmers.

The major problem facing small scale agriculture in Nigeria is over dependent on traditional technologies characterized by poor yield and inefficiency. Transformation of traditional farming system for increased food production calls for adoption of improved practices. One of the major challenges facing agricultural policy makers is the need for the investigation of those economic factors which contribute to the adoption of improved farm technology [13]. Therefore, this study was articulated to determine the factors that influence agribusiness entrepreneurs' participation in innovation using Abia State, Nigeria as a study area.

MATERIALS AND METHODS

Study Area
The study was conducted in Abia state, Nigeria. The state is located within the south eastern geo-political zone of Nigeria and lies between Longitude 04^0 45' and 06^0 07' North and Latitude 07^0 00' and $08^0$10' East. Abia state is bounded by Imo state on the western boarder; Ebony and Enugu States on the North; Cross River and Akwa-Ibom states on the East and Rivers state on the South. Its population stood at about 2.883,999 persons with relatively high density at 580 persons per kilometre [11]. Abia State is divided into administrative blocks called Local Government Areas which is grouped into three (3) agricultural zones namely Aba,

Ohafia and Umuahia zones. In terms of occupation, about 70% of Abians are farmers and have potentials for the production of crops (both arable and permanent), livestock, and fish and also engage in food processing.

Selection of Respondents
The study employed a multi stage sampling technique in the selection of the entrepreneurs from the agricultural zones of Abia State (Aba, Ohafia and Umuahia). In the first stage, 2 local government areas each were selected randomly from the zone (i.e. 6 LGAs).The second stage involved random selection of 2 communities each from the 6 LGAs, set aside for the study (i.e. 12 communities).The last stage involved the selection of 15 households each from the communities, giving a sample size of 180 households, including palm oil processors, poultry and vegetable farmers. For the purpose of social inclusiveness, male and female-headed households were selected.

Method of Data Collection
The study obtained data from primary sources. The primary data were collected with the use of pre-tested and structured questionnaire administered on the respondents.

Method of Data Analysis
Probit model was adopted in the analysis of the data obtained.

Specification of Model
The probit model is a statistical probability model with two categories in the dependent variable. Probit analysis is based on the cumulative normal probability distribution. The binary dependent variable takes on the values of zero and one. The probit analysis provides statistically significant findings of which demographics increase or decrease the probability of consumption.

In the binary probit model, the participation in innovations was taken as 1, while non participation as 0. It is assumed that the household obtains maximum utility if it participates in innovation rather than not participating.

The probability of choosing any alternative over not choosing it can be expressed as in (1), where the probability Yi of choosing any alternative over not choosing it can be expressed as in (1), where ф represents the

cumulative distribution of a standard normal random variable.

The probit model is specified as follows;

$$Y(1,0)= bo+b_1X_1+b_2X_2+b_3X_3+b_4X_4+b_5X_5+b_6X_6+b_7X_7+b_8X_8+ \mu$$

where: $Y (1, 0)$ = is the dependent variable, which is the participation index
X_1 = age of respondents (years)
X_2 = gender (dummy; male =1; female = 0)
X_3 = marital status (dummy; married =1; otherwise = 0)
X_4 = education (years)
X_5 = household size (number of persons)
X_6 = income (₦)
X_7 = years of experience (years)
X_8 = output (kg)
μ = error term
bo= constant
b_1-b_8 = coefficients

RESULTS AND DISCUSSIONS

Estimates of the determinants of entrepreneurs' participation in innovation in the study area

The maximum likelihood estimates the determinants of entrepreneurs' participation in innovation in Abia state, Nigeria is presented below in Table 1.

The maximum likelihood estimates results of the determinants of agribusiness entrepreneur's participation in innovation in the study area indicated that the coefficients of age, gender, household size, income and output were statistically significant at various probability levels with different signs.

The coefficient of age was significant at 10 percent probability level possessing a negative sign. This meant that as the age of the entrepreneur's increases, the probability of them participating in innovations decreases. Many studies in the past had noted that older farmers tend to be more risk averse than younger ones in terms of utilizing agricultural innovations [9, 5, 13]. The result of the present study agrees with these previous findings.

Gender was statistically significant at 99 percent confidence level with a negative sign.

Table 1. The maximum likelihood estimates the determinants of entrepreneurs' participation in innovation in Abia state

Variable	Coefficient	Standard error	z-test
Constant	0.1969037	0.832243	0.24
Age	-0.0040718	0.001838	-2.22*
Gender	-0.5103345	0.143646	-3.55***
Marital status	0.1555072	0.182703	0.85
Education	0.0403741	0.0289831	1.39
Household size	-0.295639	0.0107838	-2.74***
Years of experience	-0.0243066	0.0128427	-1.89
Income	0.318906	1.780006	4.67***
Output	0.605511	0.220140	2.75***

LR chi^2 - 33.09
Prob chi^2 - 0.0001
Pseudo R^2 - 0.6987
Note: *, *** denotes 1% and 10% significant levels respectively
Source: Computations from field survey, 2014.

This implied that the female gender tend to participate in innovations more than the male entrepreneurs in the study area. [8], in their study observed that women tend to adopt improved technologies at a lower rate compared to men. This they attributed to time and resource constraints that women often face. This result is in contrast with the present study. However, going by the fact that women are more involved in very many social activities, including their participation in organizations than their male counterparts in the study area, this result is plausible. The opportunities posed by these organizations could be avenues where they learn about innovations.

Household size possessed a negative sign but was statistically significant at 1 percent probability level. By implication, the greater the number of persons in the household, the probability of the entrepreneur participating in innovation decreases. [4] had a contrary opinion when he reported a positive relationship between household size and technology adoption. [2] had opined that for the fact that agricultural mechanization is still very capital intensive coupled with other institutional problems, farmers in the rural areas will hardly afford it and therefore, the chances of participation in agriculture

decreases. Given this assertion, households with large number of persons may not be very willing to participate due to the cost associated with them and rather will prefer to use the family members as cheap sources of labour.

The coefficient of income was also statistically significant at 99 percent confidence level with a positive sign. This posits that as income of the respondents increases, the probability of their participation in innovation also increases. The economic status of an individual often times plays a significant role in adoption of new techniques. This is basically because the ability to purchase new implements will usually be dictated by individual financial capability. Furthermore, with improved income, the farmer will be better disposed to spend more on recommended farm practices that would further increase his farm earnings. Following this, the result is plausible and is in agreement with [16, 14].

Finally, output came out with a positive relationship which was statistically significant at 1 percent probability level. This result meant that increasing output could probably lead to increased participation in innovation among agribusiness entrepreneurs in the study area. [12] had also observed that there was a positive relationship between intensity of technology adoption and output. This finding is also in line with previous finding of [17, 7, 18].

The LR chi^2 was 33.09 which is significant at one percent level, while the pseudo R^2 was 0.6987 meaning the 69.87 percent of the variability has been explained in the equation.

CONCLUSIONS

The study has revealed the determinants of participation in innovation by agribusiness entrepreneurs in Abia state, Nigeria. It is therefore recommended that the female gender should be encouraged to participate in meaningful social activities which often times exposes them to these innovations. Barriers which tend to place the female gender at disadvantaged positions should be dismantled. It is true that the result of this study went contrary to many other previous results in terms of women and their participation in productive activities, this result has shown that with adequate support and encouragement, changes could be very visible.

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