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Personal and Socio-Economic Determinants of Agricultural Information Use by Farmers in the Agricultural Development Programme (ADP) Zones of Imo State, Nigeria

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Introduction

There is a consensus among Nigerian policy makers, her development partners, and experts in Nigerian agriculture that the wealth of the country can substantially be derived from agricultural production. It is generally believed that the small scale farmer holds the key to the realization of this possibility. However, the average Nigerian small scale farmer is poor, non-literate, and lacks access to most basic social amenities, as well as improved varieties of inputs and modern farming implements. The consequence of these has been low production and productivity. Yet, the agricultural sub-sector of the economy accounts for 41.5% of the country's Gross Domestic Product (Olawunmi, 2007). This is in contrast to the -4.82% contribution of the oil sub-sector. The oil sub-sector accounts for over 95% of the nation's total revenue in 2006 (BusinessDay, 2007). The problem, according to Bello (2002), is that as many as 65% of the country's population are producing 41.5% of the GDP. This shows that the percentage of Nigerians engaged in agriculture is more than the world average of 45.7% (Aina, 1995). The implication of this is that the productivity of this sub-sector of the Nigerian economy is quite low. The consequence is that food production is not keeping pace with the country's population growth rate. While the annual rate of population growth is estimated at between 2.5 and 3%, that of good production is between 1 and 1.5%. This is consistent with Munyua's (n.d.) findings that while agricultural yields in developing countries continue to decline despite technological innovations, their population continue to expand beyond food production capacities.

The performance of Nigerian agriculture so far indicates that the farmers have neither used nor absorbed most of the technologies being introduced to them (Atande, 1999). This appears to be the case considering the findings of Yayock and Misari (1990) which showed that there existed a wide gap between farmers' improved technology yields and farmers' traditional technology yields. This scenario, the authors attributed to the gap between available agricultural information on improved practices and its use. Thus, in agricultural information use studies, it is usual to investigate the personal and social characteristics of farmers in order to understand their relative influence in the farmers' information use behaviours (Onu, 1991). First of all, information use is dependent on the capacity of the user to access information and later use it. This capacity is dependent on certain cultural, socio-economic, personal, political and geographical variables. It also includes the appropriateness of the information, the credibility of the information channel, and the information provider's characteristics.

Nelemaghan (1981) believes that one of the prerequisites for information use is its accessibility. Information may be physically accessible but may not be intellectually so. Some users who possess the intellectual capacity might suffer from lack of the financial capacity necessary for the physical accessibility. This introduces the factors of illiteracy and poverty as militating variables in information use. Exposure to education permits an individual to control the rate of message input and develop the ability to store and retrieve information for later use (Sheba, 1997). For certain technical information, the retrieval capacity may be quite important (Mohammedali, 1977). Education enables the individual to know how to

seek for and apply information in day-to-day problem solving. This is because as the individual gained the ability to read, he is able to extend the scope of his experience through the print media.

Mere provision of agricultural information to farmers does not guarantee its use. This is because a host of social, economic, and psychological factors influence the rate of agricultural information use (Surry, 1997; Akande, 1999). Among the factors Rogers (1995) identified, is the social system into which the information is delivered. A number of studies (e.g. Onu (1991), Alala, Ariyo, and Akpoko (1992), and Akande (1999) have been conducted to find out the variables that influence agricultural information use by farmers. Some of the results of these studies show that socio-economic and personal characteristics of farmers associated positively with the use of agricultural information.

A critical examination of the available literature however, indicates that previous researches, despite their scope and perhaps depth, only examined through univariate approach, the relationship between one or a combination of other attributes except use of agricultural information. These studies also did not provide empirical evidence of the chronological order and strength of any relationship between farmers' use of agricultural information and their phenotypic/organismic (personal) factors. This is in spite of the fact that low literacy and high poverty levels of the farmers could militate against their access and use of agricultural information.

This background emphasizes the need to bring into focus research which seeks to use a multivariate analytical procedure to explain farmers' use of agricultural information in terms of their personal and socio-economic characteristics.

Hypotheses

The following hypotheses were formulated and tested:

- Personal and socio-economic characteristics of farmers when taken together do not significantly predict the farmers' use of agricultural information.
- The personal and socio-economic characteristics of farmers do not equally contribute to the prediction of farmers' use of agricultural information.

Methodology

The research design adopted for this study is the ex-post facto type. The target population for the study comprised all farmers (contact and non-contact farmers) in the three Agricultural Development Programme zones of Imo State, Nigeria. The available records at the three zonal offices of the ADP in Owerri, Orlu and Okigwe gave the population of the farmers as 6300. Stratified proportionate sampling was used to select 16% of the farmers representing 1032 respondents distributed across the 34 farm blocks and the 63 farm cells. Against the background of a proper sampling procedure, sample size of 1032 out of a population of 6300 is considered high enough for generalization based on Krejcie and Morgan (1970) formula in which for a population of 7000, one needs a sample size of 364.

Agricultural Information Questionnaire for Farmers (AIQF), developed by the researcher, was used for data collection. A reliability co-efficient of 0.83 was obtained for the instrument using the Crumbach alpha co-efficient (r). A total of 1032 copies of the questionnaire were directly administered to 1032 farmers across the 34 farm blocks and 63 farm cells in the three ADP zones of Imo State, Nigeria. The data collection exercise lasted for 12 weeks and involved the researcher and the extension staff in each block/cell who served as research assistants. All the data collectors had the capacity to speak, read and write in the local language (Igbo) of the farmers as well as in English language. This capacity was used by the researcher and his assistants in handling the questionnaire as interview schedule or non-self

administered questionnaire in situations where the farmers could not read and write in English. A total of 997 copies of the questionnaire (representing 96.6%) were returned and found useable for analysis.

Data analysis involved the use of stepwise multiple regression procedure (backward solution) to examine the relationship between the personal and socio-economic characteristics of farmers (independent variables) and farmers' use of agricultural information (dependent variable).

Findings

Regression Analysis of Personal and Socio-Economic Variables on Farmers' Agricultural Information use

Multiple R = 0.65254

R Square = 0.29580

Standard Error = 18.07986

Table 1: *Analysis of Variance*

Sources of variance	Df	SS	Ms	F-ratio	P
Due to regression	12	12347.55131	1070.62928	3.275*	0.0014
Due to residual	222	17324.70627	326.88125		
Total	234	30672.25758			

The results show that the use of 12 personal and socio-economic variables (age, gender, educational qualification, years of farming experience, preferred media, indigenous agricultural knowledge system, social participation, income, tenancy status, size of land cultivated, marital status, and part- or full-time farming) to predict farmers' use of agricultural information yielded a co-efficient of multiple regression (R) of 0.65254 and multiple regression square (R²) of 0.29580. The results also show that analysis of variance of the multiple regression data yielded an F-ratio of 3.275 (significant at the .0014 level).

Table 2: *Relative Contribution of the Independent Variables to the Prediction*

Variable No.	Variable	Beta (b)	SE (b)	T-ratio
1.	Gender	.072959	4.958130	.603
2.	Age	.34369	2.185062	.277
3.	Educational Qualification	.271508	1.754460	2.198*
4.	Years of Farming Experience	.160856	1.487583	1.55
5.	Marital Status	.241909	9.670391	2.189*
6.	Part- or Full-Time Farming	.032048	4.962468	.281
8.	Tenancy Status	.149136	6.047861	.920
10.	Size of Land Cultivated	.075815	2.983931	.541
18.	Income	.329815	1.002141	2.644*
27.	Preferred Media	.262797	21.371563	2.152*
51.	Social Participation	.168218	2.967827	1.415
120.	Reliance on Indigenous Agricultural Knowledge	.157392	3.074797	1.229

*Significant at the 0.05 level

Discussion

The findings of the present study reveal that the twelve personal and socio-economic variables, when taken together are effective in predicting farmers' use of agricultural information. The observed F-ratio is significant at the 0.05 level – an indication that the effectiveness of a combination of the independent variables in predicting farmers' use of agricultural information could not have occurred by chance. The magnitude of the relationship between farmers' use of information and a combination of the independent variables is reflected in the values of co-efficient of multiple correlation (0.65254) and multiple correlation R² (0.29580) as shown in Table 1. It may therefore be said that about 29.58% of the total variability in farmers' use of agricultural information is accounted for by a linear combination of the twelve personal and socio-economic variables.

With regards to the extent to which each of the twelve independent variables contributed to the prediction, the value of the T-ratio associated with respective variables as shown in Table 2. The results indicate that each of the following variables: Educational qualification (V3), Marital status (V5); Income (V18); and Preferred Media (V27) contributed significantly to the farmers' use of agricultural information. Furthermore, the values of the standardized regression weights associated with these variables (as shown in Table 2) indicate that variables 18 (income) is the most potent contributor to the prediction followed by variable 3 (educational qualification), variable 5 (marital status), and variable 27 (preferred media) in that order.

The significant correlation between income and agricultural information use as revealed by the present study is consistent with the findings of previous investigations such as Osuji (1983) and Atala (1984). Income is crucial in agricultural information use because the higher the income of the farmer, the more likely he would seek and obtain information for use. With improved income, the farmer will be better disposed to spend more on recommended farm practices that would further increase his farm earnings. However, most of the small scale farms in Nigeria are poor and have little or no access to credit facilities. They therefore have no access to modern farming inputs which involve huge capital outlay that is far beyond their financial resources. Poverty is the denial of opportunities and choices (UNDP, 1997). The poverty profile of Nigeria is so high that the World Bank Group (1996) considered it crucial for targeted efforts aimed at reducing the depth and severity of poverty in all regions of the country.

Formal education in this study was measured by the highest educational qualification attained. The statistical result (as shown in Table 2) shows a positive correlation between educational qualification and agricultural information use. This is consistent with results of previous studies such as those of Voh (1979), Osuji (1983), and Atala (1984). However, it is inconsistent with the finding of Chikwendu et al (1996). All the same, the result of the present study is not surprising, considering the fact that exposure to education permits an individual to control the rate of message input and develop the ability to store and retrieve information for later use (Sheba, 1997). For certain technical information such as that dealing with agricultural innovations, this retrieval ability may be quite important (Mohamedah, 1977). Education enables the individual farmers to know how to seek for and apply information on improved farm practices. This is because as the individual gained the ability to read, he is able to extend the scope of his experience through the print media. An illiterate farmer is generally apathetic, and lacks choice, and according to Flyvberg (1990) and Mabogunje (1999), lack of choice is due largely to lack of knowledge which can be epistemological, technical or prudential. Prudential knowledge is knowledge of what to do under different circumstances and involves the understanding of the social, economic, political and cultural context in which one lives (Ohuwatosin, n.d.). Lack of literacy excludes the small scale farmers from being active participants in development. The most important effect of illiteracy on society is that it works as an inhibitor. That is to say, the more illiterate people there are in a country, the harder it will be for the country to develop. The most disturbing aspect of illiteracy is that it has the potential to be 'regenerative' because it has a kind of 'genetic' effect. The children of illiterate people are more likely to be illiterate than those who are not. Ozowa (1995) is of the view that a general lack of awareness among traditional farmers in Nigeria can be attributed to the high level of illiteracy, which in turn contributes to the

low level of adoption of agricultural production technology. It is widely acknowledged that farmers with basic education are more likely to adopt new technology, and become more productive. With basic education they are better equipped to make more informed decisions for their lives and for their communities and to be active participants in promoting economic, social and cultural dimension of development (UNESCO, n.d.). It is therefore possible to expect educated farmers to have favourable attitude toward change. Education then becomes a catalyst of modernization by giving the individual access to information.

As can be seen from the statistical results in Table 2, marital status significantly associated with agricultural information use. One of the most important factors affecting the level of production and productivity on peasant farms is the composition and size of farming family. The statistical result of this study is not surprising, considering the finding of Igben (1988) that the marital status of the farmers he surveyed ranged between 94 to 99.5%, with Imo State (where the present study was conducted) having the highest percentage of married farmers. Married farmers are likely to be under pressure to produce more, not only for family consumption but also for sale. The desire to produce more could lead to agricultural information seeking and use. Similarly, the availability of family labour could be an incentive to the married farmer to cultivate more crops and to use agricultural information.

The statistical results further show that the use of preferred media contributed significantly in predicting agricultural information use by farmers. This result perhaps emphasizes the fact that communication is at the heart of any change process in a society. Particularly in the farming community, communication of farm information provides a major break-through from the traditional to modernity. If we accept the view of Savile (1965), that the aim of agricultural extension is to find out what the farming community feels it needs and what problems are involved, then the extension agent needs to first identify farmers' preferred media for agricultural information provision. This will enable the information provider to re-examine the sources of information, which are currently used in disseminating farm practices information to farmers. As Meyer (n.d.) has noted, the manner in which information is communicated, will largely determine whether the user community will react positively to it or not. The result of an investigation by Meyer (2000) shows how the information behaviour of traditional people was unwittingly applied to encourage a group of traditional farmers to produce food for their consumption. The incoming information was better understood and used by the group because the messages were communicated in a way with which they could identify. Therefore, Meyer (2003) noted that rural people used to oral tradition have their own peculiar way of handling information that is closely related to their social and cultural background. This makes choice of appropriate medium very crucial in agricultural information delivery. Djojomartono and Pertini (1998) note that no one medium is best. The selected medium, they argue, must be adapted to the message, target audience and the social-economic environment of the farmers.

The statistical results of the present study show that eight of the twelve independent variables did not significantly associate with agricultural information use. However, in previous studies such as that of Chikwendu et al (1996), age and years of experience in farming were found to have significantly associated with information use. Furthermore, Atala (1984) found that age and social participation significantly associated with agricultural information use. The differences in the results of the present study and results of some of the previous ones may be accounted for by the variation in the personal, social, economic, and cultural backgrounds of the farmers who participated in these studies, as well as differences in time and environment.

Conclusion

The present study has shown that educational qualification, marital status, income, and preferred media contributed significantly to the farmers' use of agricultural information. On the other hand, social participation, reliance on indigenous knowledge, tenancy status, gender, size of land cultivated, years of farming experience, part- or full-time farming, and age, did not correlate with agricultural information use.

However, the twelve personal and socio-economic variables, when taken together were found to be effective in predicting farmers' use of agricultural information.

Recommendations

The following recommendations are made based on the findings of the present study.

- There is urgent need to intensify adult literacy campaign among the rural dwellers. Literacy is capable of making people more conscious and receptive of innovations. As a corollary, community library/information centers should be established and maintained in rural communities not only to provide reading materials to the neo-literate but also to attend to the information needs of this people.
- More attention should be paid to the socio-economic conditions of the small scale farmers. Where these conditions remain poor, the farmers are unlikely to be active participants in development. Specifically, effective poverty reduction programmes should be initiated and religiously implemented. Political patronage should not be allowed to vetiate such programmes.
- Credit institutions should be established for farmers. Loans should be soft and mode of repayment attractive. Lack of credit facilities inhibits the farmers' ability to access inputs.
- Subsidies should be re-introduced to enable the farmers access farm inputs, particularly fertilizer.
- There is need for change agents to identify and use farmers' preferred media of information delivery as this, is likely to facilitate their acceptance and use of information presented to them.

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