MEASUREMENT OF FARM HOUSEHOLDS' SOCIO-ECONOMIC AND SOCIO PSYCHOLOGICAL VARIABLES: A PARADIGM FOR EVOLVING A MORE APPROPRIATE METHOD

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ABSTRACT

Since improper and inadequate data collection in researches could result in invalid and unreliable research results, researches from which policies and developmental programmes could emerge, demand tact and sampling adequacy. Therefore, method of collecting data on researches targeted on households, and for which only the household-heads are being sampled, excluding other members, appear inadequate and less reliable. The study was carried out in Kogi State. A multistage random sampling technique was used to select three zones from four Agricultural Development Program (ADP) delineated zones. Nine local Government Areas (LGAs) zone. Also, three communities were sampled from each selected LGA giving a total of 27 communities. In each community also, 10 households were chosen, therefore 270 households were interviewed but 253 were finally considered for the study. The paper, therefore, compared the result of the use of collective data collection strategy with that which was based only on the household heads and concluded that, the method of collective data collection, reflecting every member of the household is more valid and more reliable. It is therefore recommended that data collection should be more focused on the entire household rather than the individual household head as result obtained from it would be more reliable for researchers and policy makers.

Key words: **Measurement, farm households, socio-economic and socio psychological variables**

INTRODUCTION

Focusing research on rural households could be a positive step in a right direction. This is because, a large percentage, about70 percent, of food produced for Nigerian populace, ditto for most developing nations of Africa and Asia, is by the rural populace (FAO1996). The Nigerian census (1991) put the rural population at 60 percent of the declared 88 million. Adoption of technologies for increased production is however subject to socio economic and psychological factors.

According to Crozall and Smith (1984), socio-economic characteristic of farmers influence decision-making ability, availability and level of use of conventional inputs and acceptance of new technology. Also Adams (1982) explained that, the farmers with higher scores on socio-economic status scale used institutional sources more frequently than the farmers with lower scores who relied mostly on non-institutional personal sources. Equally, psychological variables have influence on adoption or non-adoption of technology by farm households. Only few studies have however been carried out on this. According to Monu (1980), very few considerations were generally given to socio-psychological and cultural implications in the diffusion of innovation in many developing countries, as excessive emphasis is on the economic aspects of the development programmes. The result, according to Williams (1984) is that, many technologically sound projects have failed precisely because they lack appreciation of the non-economic preconditions. Psychological variables, which influence predisposition to act, perceive, think and fed towards a phenomenon (Monu, 1980), are actually important considerations in adoption research, particularly too, its appropriate measurement.

This trend therefore, makes it imperative for research to have its focus on the rural

societies, with the objective of gathering enough data which will enable effective policies to be put in place for greater and easier production of food. However, gathering of data with whatever instrument, is just a phase, the effectiveness of the data gathering, its analysis and classification are strong determinants of the validity and utilizability of the subsequent phases of the research. To this extent, therefore, the study variables required some tact for their measurements. The measurement techniques of variables focused on a single respondent cannot all be applicable to those which are focused on a household, which by implication, should have more than one respondent, that is, the father, the mother, the children and other relatives living together as a household and in which contributions to the total output are by the members.

On this basis of evolving a more valid method of measuring socio-economic and socio-psychological variables, this paper

- Identified some socio-economic and socio-psychological variables
- Devised methods of collective measurement, and
- Determined the effect of the measured variables on the household's adoption of innovation and production.

METHODOLOGY

The study was carried out in Kogi State of Nigeria. The State was divided into four zones, based on ADP's delineations. A multistage random sampling technique was adopted to select three zones out of the four zones in the state, three LGAs from each zone and three communities from each chosen LGA, giving 21 LGAs and 27communities. Each community was stratified according to council wards from where two wards were chosen and from ward, five households were randomly selected giving sample size of 270 households. However, 253 households were finally used for the study. The sampling frames were lists of council wards at the Ministry of Local Government Affairs, Lokoja, the state capital and households in the communities compiled by the resident agricultural extension agents and the informants.

A structured interview schedule was used to collect data on the socio-economic and psychological variables using trained enumerators along with the resident extension agents. Frequencies and percentage were used to identify the socio-economic and socio-psychological characteristics of the respondents; t-test was used to find the significant difference between the socio-psychological variables collected using Likert scale. Correlation analysis was used for the relationship between household adoption and socio-economic and socio-psychological variables.

Measurement of Variables

Gender: Gender was considered by whether the household head was a male or female in addition to the number of males and females therein. The maleness or femaleness of the household was however determined by the proportion of the household that were females or males

Household Age: This was determined by finding the mean of the age of all the members that made up the household. The average classified the household into young aged, middle aged, or old aged.

Household Level of Education: Each of the member scored on education attained; no education, "0", non-formal, "1", primary education, "2", secondary education, "3", and tertiary education, "4". The scores of all the members were summed and averaged. The derived average put the household into the class of low education, middle level of education or higher education.

Social Economic Status: This was measured by the number of social items each household had for possession. Having less than the average of the population's possession and having above it classified the household into low SES or high SES respectively.

Farm Size: This was determined by taking the size of farm crop land in hectares owned by the household jointly or severally.
Income: This was arrived at by summing up the total income in Naira of every member of the household who responded to earning some income. Income of household above or equal to the mean income is regarded as high income and below the mean is taken as low income.
Social Status: This was determined by how many members of the household have one social status or the other (occupying a position higher than the ordinary persons) and the percentage of the proportion were used to classify the household into low social status or higher social status. Higher social status if 50% and above of the household held positions and lower social status if less than 50% held positions.
Change Proneness: Each member of the household was subjected to statements that evoke responses that proved proneness to change (showing a desire to embrace a departure from tradition). The average score for each household classified it into low change proneness or high change proneness (below the mean and the mean or higher)
Attitude: was determined using the procedure of change proneness. Scores on 30 statements obtained through Likert scale (SA, A, U, D, SD) scored as S, 4, 3, 2, 1 respectively for positive statements and the reverse for negative ones) on positive or negative disposition to a continuum. Scores above the mean indicates positive attitude, lower than the mean showed negative attitude and where if is exactly the mean, it indicate a neutral stand.
Knowledge of Technology: Questions on the practices of the introduced innovations were administered to households. Scores for each household was obtained. Scores below 60% was taken as low knowledge, 60% and above4 were taken as higher knowledge.

RESULTS AND DISCUSSION

The method adopted for measuring the variables in the study when compared with the conventional method of singling out the household head, have variation in results. The comparison was made for some of the variables used in the study.
Gender: Result of gender distribution of respondents showed that 87.4% were males while 12.6% were females. This result was as applied to the household heads that were sampled. However, considering the gender composition of the households, it was 5.41 males and 5.21 females on the average per household. Given the result as stated, one could draw a conclusion for the conventional method that, there were more males that took to farming than females in the study area, whereas the collective data collection strategy gave about equal representation of females and males in households.
On the premise of this scenario, since gender responsibility analysis relies much on household gender composition, data collected based on the conventional method would not offer a satisfactory results like that which put into consideration the household gender ratio as emphasized by the adopted method. This is because, it is presumed that each household member contributes to the total output of the household.
Level of Education: the result showed that 53.1% of the household heads had no formal education whereas 46.9% of household heads had formal education. This method did not however take care of the entire members of the household. By scoring every member of the household's level of education, it was found that 32.4% had low or no education (scoring 40 – 59%) while 28.5% had higher education (scoring 60 and above).

Table 1: Socio-Economic Characteristics of the Rural Households in Kogi State

Variable	Frequency	Percentage
Gender:		
Male	220	87.0
Female	33	13.0
Total	253	100.0
Age:		
Less than 30 years	26	10.3
31 – 45	59	23.3
46 – 60	117	46.2
Above 60	51	20.2
Total	253	100.0 mean= 49.4yrs
Level of Education Scores		
0 – 39	82	32.4
40 – 59	60	23.7
60 and Above	72	28.5
Invalid	39	15.4
Total	253	100.0 mean = 45.3
Income Distribution		
Less than N5, 000	122	48.2
N5, 001 – N10, 000	32	12.6
Above N10, 000	22	8.7
Invalid	77	30.4
Total	253	100.0 mean= N4, 400

Source: Field survey, 2003

Where only the households were scored for their level of education with the exclusion of other members, such assessment of level of education of the household appear deficient. This is because, level of education of every member of households affect the level of adoption of the household (Okunlola and Alfred, 1998). Households that were higher in education scores were expected to have had higher level of adoption consequent of presumed higher level of awareness of information. This inference was substantiated by the result of correlation analysis in the study which showed a significant relationship between household's education score and knowledge of technology score (.238).

Income: Income for household was calculated on the basis of income generated by every member of the household including the children. It was found that larger percentage of the respondents were of low income group. This group had below the average income of the population (114400.00). This method of calculating income was adopted because of the tendency for revenue to be generated by any of the members of the household different from that by the household head. The children for instance, could be engaged in trading and so, if it were to be only the household head, the difference might be significant.

Furthermore, social status, change proneness, attitude and knowledge of technology, jointly measured for the entire household members, gave a more reliable result than when they were based on the head alone.

In Table 2, it was found that 26.1% of households had high score in attitude tests, while 4.3 had low attitude score and 64.8% had medium score. Respondents with high score indicated a positive disposition towards the defined continuum\um (attitude towards change).

Table 2: Psychological Characteristics of the Rural Households in Kogi State

Varieties	Frequency	Percentage	Remark
Attitude:			
1 – 50	11	4.3	Low Score
51- 100	164	64.8	Medium Score
101 – 150	66	26.1	High Score
Invalid	12	4.7	Invalid
Change Proneness Score (%):			
1 – 59	85	33.6	Low Change proneness
60 – 100	150	59.3	High Change proneness
Invalid	18	7.1	
Total	253	100.0	
Knowledge Score (%):			
0 – 59	22	8.7	Low Knowledge
60 – 100	226	89.3	High Knowledge
Invalid	5	2.0	
Total	253	100.0	

Source: Field survey, 2003

Also, 59.3% of the households had high change proneness, this means, that, with effective mobilization strategy, the households would desire to embrace a change from their tradition, *ipso facto*, new technologies. In addition, according to table 2, 89% of the households had high knowledge of the introduced innovations. The higher the respondents have the knowledge of a particular technology, the higher they are likely to adopt the technology.

Effects of the Measured Variables on Adoption

The identified and measured variables were correlated with adoption by the households The variables included age score, household size, education score, farm size, income, socio-economic scores, distance of farm land, while the psychological variables made up of attitude scores, knowledge of technology and social status score.

Table 3: Results of Correlation between Some Socio-Economic and Psychological Variables on Household Adoption

Variable	Partial Correlation	Remarks
Household Age Score	-0.0296	NS
Household Size	0.0943	NS
Household Education Score	-0.0855	NS
Farm Size	0.1012	S
Income	0.0239	NS
SES	0.4459	S
Distance of Farmland	-0.0021	NS
Attitude Score	0.0057	NS
Knowledge of Technology	-0.0401	NS
Social Status Score	0.2248	S

NS – Not Significant at 5% Level of significance
S - Significant
Source: Correlation Analysis of Field Data, 2003

Table 3, shows that, farm size, SES and social status have significant relationship with adoption at 0.05 level of significance while all others had no significant relationship with adoption at 0.05 level of significance. The result agrees with Williams (1984), who reported a significant relationship of the trio with the adoption of new practices. The non-significance in the relationship of other variables with adoption might be as a result of other intervening variables.

CONCLUSION

The 21st century researches require more valid and reliable approaches that would ensure the collection of data that would be sufficient for policy making in agricultural and social developments. The study has shown that, data collected from the entire households rather than that collected from the household heads alone, in terms of gender, age, level of education, income, attitude, change proneness and knowledge of technologies gave a more realistic result. This is because, to a great extent, the interaction of members of an household could in one way or the other influence the decision taken by the entire household as represented by the head of the household. Income generation, for instance,

For the household cannot be said to be by the household head alone as income, in form of gifts, trading, hired labour can be equally come from the members with which the entire household could benefit.

It is therefore recommended that researchers and policy makers should give more premium to the report of the data collected from the entire household rather than the individual household for attention.

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