

## DEVELOPMENT AND VALIDATION OF SOCIO-ECONOMIC STATUS (SES) INDICATORS FOR AGROPASTORALISTS IN NORTH-CENTRAL, NIGERIA

<sup>1</sup>Busari, I. Z., <sup>2</sup>Bello, O. G. and <sup>3</sup>Diyoke, K. O.

<sup>1</sup>Environmental Conservation Department, Abuja Environmental Protection Board, Plot 776 CBD, FCT, Abuja

<sup>2</sup>Department of Agricultural Economics and Extension, Federal University Dutse, Jigawa State, Nigeria

<sup>3</sup>Department of Economics, Faculty of Arts and Social Sciences, Nile University of Nigeria, plot 681 Cadastral Zone C.O.O Research and Institution Area Airport Road, Jabi Abuja

Correspondence details: maikangu@gmail.com

### ABSTRACT

Social intervention in the agricultural sector requires an evaluation of the changes such intervention has brought, therefore without valid socio-economic indicators (SES) such assessment could not be empirically determined. This present work is a baseline information for construction of SES scale for measuring changes in status of agropastoralists especially before and after intervention and for prediction of intervention outcome. This study was designed to develop indexes of SES indicators for agropastoralists (sub-rural population) in North-central, Nigeria. Multiple-stage sampling procedures comprising simple random sampling and cluster sampling techniques were used to select respondents in the three states of the study area to get 557 respondents. Structured interview was used for data collection while discriminant analytical tool was used to analyse the data. Out of 79 universe of cross sectional variables collated, 40 variables were valid indicators. Indicators with high indexes included grinding stone, types of bathrooms, mattress, GSM phone, wrist-watch and donation of cows.

**Keywords:** Agropastoralists, Discrimination coefficient, Item analysis, SES indicators, valid indices

### INTRODUCTION

Socio-economic status as is variously defined deals with access to value resources in the society. These resources include material, cultural, economic and social variables. There is a growing interest of contemporary scholars in socio-economic status study because it serves as an indicator of the strength of social system or society, often measured against some meritocratic or democratic ideal (Oakes and Rossi, 2003).

Agropastoralists are settled pastoralists who cultivate sufficient areas of land to feed their families and for marketing purposes alongside their reared livestock. Agropastoralists in Nigeria comprises of various ethnic groups such as *Kenembu, Bororo, Manga, Koyo, Shuwa Arab, Fulbe, and Bodani* among others. Fulani or Fulbe is the largest of the country's agropastoralist ethnic groups and constitute about 95% of the nomadic herders in Nigeria (Fabusoro, 2007; Ismail, 1995). Nigerian pastoralists are estimated to be around 14 million accounting for a quarter of Sub-Saharan Africa's (SSAs) 50 million pastoralists (Ibrahim, 2012; Rass, 2006). However, as it occurs in every society, there is significant differentiation within agro-pastoral communities. Some households are rich while others are poor. This is due to unequal access to resources or social position and unequal utilisation of resources or advantage in the market.

Socio-economic status (SES) is the term used to assess this social and economic inequalities in a given society, households and family or group. This is defined as the position of an individual, household, family or group in a community with respect to the amount of cultural, economic (wealth), and material possessions, level of education and social participation (Busari, *et al.*, 2021). Thus, SES

can be measured by a single indicator, by several indicators which are used separately, or by combining several indicators (or variables) to form an index (Cowan *et al.*, 2012). Multiple and composite measures are derived from an array of variables such as occupation and educational achievement, income and possessions, such as video recorders, television, cars, size of home and types, number of books in the home and other home possessions (Marks *et al.*, 2000;). It is not only income, consumption, wealth, education, and occupation that can be used as concepts for SES typology, but demographic and cultural activities (variables) are also of interest, particularly for population sub-groups (Australia Bureau of Statistics, 2011). A composite index is a mathematical combination (or aggregation) of a set of individual indicators that represent the different dimensions of the phenomenon to be measured.

The Nigeria National Bureau of Statistics (NBS) report showed that the incidence of multidimensional poverty (MPI) in Nigeria is higher in rural areas where 72% of the population are poor (NBS, 2022). Therefore, the government strategy of lifting people out of poverty requires adequate data for proper intervention.

The main objective of social intervention in rural farm families is to improve the rural livelihood/socio-economic conditions. Socio-economic status indicators offer the best insights to the type of intervention and extension support in term of technological transfer and adoption of improved practices. Socio-economic indicators are prerequisite for decision support (local monitoring which are based on specific features and issues of each settlement/farmstead). It is also used for policy evaluation which can bring information on the impact and efficiency of policies in order to justify

their conception or improve on their implementation. It is a tool for comparing farms and settlement and for benchmarking (Ambre *et al*, 2014). Therefore, this research has two theoretical implications: first, it indicated that SES affect overall human functioning including physical, mental, social, cultural and economic life. Second, it provided empirical evidence from agropastoralists socio context to support SES inequality as a result of differences in possession of socio-economic indexes.

Validation is a statistical procedure that variables are subjected to in order to be included as indicators of latent variable of interest through item analysis. Previous study on scale development have used different statistical tools for item analysis. These included t-test and point biserial correlation as used by Ovwigho (2009) to validate 69 SES indicators out of 106 items that were collated. Also, Oladipo and Adekunle (2009) used t-test and point biserial correlation for item analysis of 94 SES indicators out of which 46 were found valid. However, Olaniyi (2013) used Pearson Product Moment Correlation (PPMC) to determine 38 valid items out of 75 collated. Other statistical tools that could be used include Multiple Regression Analysis (MRA), Tetrachoric Correlation (rt) and factor analysis among others.

Majority of the indicators of SES developed in Nigeria were meant for either rural households, head of rural farm families or rural youth. However, pastoral and agropastoral communities are different from other rural groups by the specific dependence on livestock-based activities and mobility patterns of their livelihoods. Furthermore, there is significant differentiation within pastoral communities. Some households are rich while others are poor. This is due to unequal access to resources or social position

and unequal utilisation of resources or advantage in the market. This type of indicators has not been developed for agropastoralists, particularly, in north-central Nigeria. The findings of this research work could not only be a baseline information for ascribing socio-economic position to agropastoralists in the North-central zone of Nigeria, but also a useful tool for extension/rural development experts in giving policy direction and advice to the government on how to integrate the pastoral society in the economic development of the zone. Furthermore, the present work is additional contribution to the enhancement of literature methodologies on the validation and development of indicators in scale/ index construction in applied sciences.

This study, therefore, aimed to develop indexes of socio-economic status (SES) indicators for agropastoralists in north-central, Nigeria. The specific objectives were to determine the valid indicators through item analysis; select the valid SES indicators for the agropastoralists in north-central, Nigeria; categorise the valid indicators into different components of SES; and examine social and economic importance of some of the valid socio-economic indicators.

## METHODOLOGY

This study was conducted in North-central Nigeria (Figure 1). It is situated in the moist Savannah Agro-ecological zone of the country. It has a total land area of 296, 898km<sup>2</sup> representing about 32% of the total land area of the country. North-central Nigeria comprises six states and the Federal Capital Territory (FCT), Abuja. The states are Benue, Kogi, Kwara, Nasarawa, Niger and Plateau.

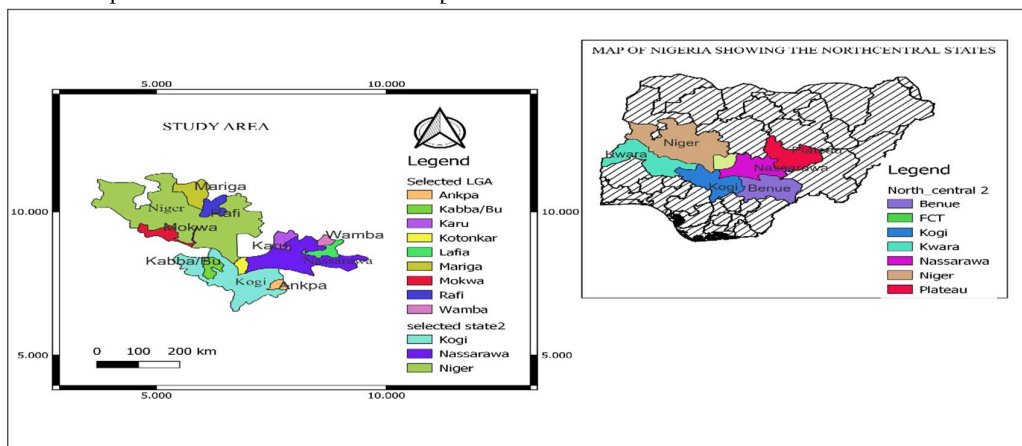


Figure1: Map showing the study area

This study adopted multi-stage sampling procedure which involves simple random sampling and cluster sampling techniques as follows: firstly,

three states (Kogi, Nasarawa and Niger) were randomly selected for the study. In the second stage, three Agricultural Development Programme (ADP)

agro-ecological zone in each state were randomly selected, which gave a total of nine ADP zones. Thirdly, from each of the three agro-ecological zones in each state, one Local Government Area (LGA) having preponderance of Agropastoralists was purposively selected for the study. Thus, a total of nine LGAs were sampled. Fourthly, from each LGA selected, four clusters of agropastoralists were randomly selected for the study to give a total of 36 clusters. In the fifth and final stage, simple random sampling technique was employed in selecting 60% of respondents from each cluster to give a total of 557 respondents.

Reconnaissance survey, observation and focus group discussion were used to gather information regarding those items that were indicators of the construct of the study. A universe of 93 items were collated from pre-research survey which was later pruned to 79. These are indicators considered suitable for the areas visited, observable during the survey, measurable and being representatives of SES. The questionnaire contains final 79 indicators and interview schedule technique was used to elicit information from the respondents.

Measurement of variables- The indicators were first assigned value of two (2) for possession and one (1) for non-possession of dichotomous items, while the quantitatively measured items were assigned continuous scores ranging from one (1) upward depending on the number of items listed against a particular indicator. The respondents were asked to indicate possession or non-possession of dichotomous indicators or tick the number of items possessed in the case of quantitative items.

This study used discriminant analytical tools which consists of the inter-item homogeneity that ensures that sample items measure the same concept (SES indicators) along a one-dimensional scale and approximate them into popular Bernoulli Density Distribution (BDD). Therefore, discriminant analysis as a pre-diagnostic test was conducted on

each of the 79 cross sectional variables. As a result, variables with lower coefficient were taken in line with the Bernoulli principle and Ebel and Frisbie (1988) rules for item selection signifying that they were less likely to be defaulted in the intended outcome (result) of the model. The above means that 70% of the respondents who make up the sample size will have a validate value of 1 in order to be functionally used in our model creation for analysis. The standardized canonical discriminant function coefficients allow us to compare variables measured on different scales and coefficients with large absolute values corresponding to variables with greater discriminating ability.

Also, in assessing the contribution of each variable to the discriminant model, the equality of means, canonical discriminant function coefficient and the structure matrix revealed the potential (contribution) of each variable to the function. Furthermore, Wilk Lambda revealed that every variable in the discriminant model is statistically significant given that the p-values are less than 0.10 (or 10%) significance level. This is because the Wilks' Lambda coefficients measure the variable potential in measurement of studied phenomenon and the smaller the value the better the model. Similarly, the associated chi-square showed that there was a significant difference in the contribution of each variable in the model. Furthermore, in order to ensure the robustness of the intended model for accurate prediction and simulation, classification table was employed to identify those items that would enhance the model precision and would not default.

## RESULTS AND DISCUSSION

Forty variables were identified as valid indicators of socio-economic status (SES) for agropastoralists across North-central Nigeria. These indicators and their indices were listed in the Table 1.

**Table 1:** Valid Socio-economic Status Indicators of Agropastoralists in North-central, Nigeria

Indicators	Index	Indicators	Index
Number of wives	5.4	Ladder	7.8
Total number of Children	7.4	Wall hanger	3.8
Total number of male children	0.3	Portmanteau	4.7
Children Tertiary Institution	2.4	Grinding stone	26.9
Total number of relatives living in the Household	3.5	Travelling bag	0.9
Total number of Household	3.1	Coal/electric Iron	4.4
Sources of cooking	10.5	Gourd spoon	7.0
Types of bathroom	25.1	Commercial vehicle	4.9
Chieftaincy Title	11.0	Plot of land outside the village	5.8
Axe	14.7	Herd of Cattle	3.2
Mattresses	22.1	Herd of Sheep	10.6
Types of beds	10.5	Herd of Goat	0.8
GSM phones	16.3	Donation of cow	12.9
Rain coat	11.2	Farm size	4.5

Wrist watch	17.9	Do you belong to a social club?	0.7
Umbrella	1.3	Do you travel to city during festival?	4.6
Sources of light	0.5	Are you a member of traditional dancing group?	3.3
Metal bucket	7.2	Are you a member of Kraal cattle sellers association?	8.4
Calabash Gourd	3.0	Do you hold official post in Kraal market?	2.4
Floor mat	0.3	Highest education level	1.0

**Categorisation of socio-economic status indicators**

All the forty 40 valid socio-economic status indicators of agropastoralists in North-central Nigeria were categorised into components that made

up socio-economic status for proper placement and identification. These are cultural indicators, economic indicators, material indicators, social participation and educational level.

**Table 2: Categorisation of Socio-economic Status Indicators**

Cultural indicators	Economic indicators	Material indicators	Social participation	Educational
Number of wives	Commercial vehicle	Mattresses	Do you belong to a social club?	Educational qualification
Total number of Children	Plot of land outside the village	Types of beds	Do you travel to the city during festival?	
Total number of male children	Herd of Cattle	GSM phones	Are you a member of trade? dancing group?	
Children Tertiary Institution	Herd of sheep	Axe	Are you a member of Kraal cattle association?	
Total number of relatives living in the Household	Herd of goat	Raincoat	Do you hold official post in Kraal market?	
Total number of Household size	Donation of cow	Wristwatch		
Sources of cooking	Farm size	Umbrella		
Types of bathrooms		Sources of light		
Chieftaincy Title		Metal bucket		
		Calabash		
		Floor Mat		
		Ladder		
		Wall hanger		
		Portmanteau		
		Grinding stone		
		Travelling bag		
		Coal/Electric iron		
		Gourd spoon		

Table 2 reveals the categorization of SES indicators for agropastoralists in North-central, Nigeria. It shows that cultural possession consisted of nine (9) indicators, economic possession had 7 indicators, material possession was 18, while social participation had 5 indicators and highest educational level with seven sub-types (i.e. No formal education, below primary education, Primary Education, Arabic education, Junior Secondary Education, Secondary Education and Tertiary Education).

Indexes of valid indicators of socio-economic status for agropastoralists in North-central, Nigeria was given in Table 1. From the final 79 SES indicators only 40 were found to be valid indicators of SES for agropastoralists in the North-central, Nigeria. These are the items that were socially, culturally, educationally and economically valued by the agropastoralists. Some items like Grinding stone, types of bathrooms, mattresses, GSM phones, wrist watches and donation of cows among others were items with higher discriminating indexes while ladder, portmanteau, Gourd spoon, commercial

vehicle and plot of land outside the village were some of the items of moderate indexes. However, level of education, floor mat, sources of light, travelling bag, belonging to social club and the like were items with low indexes. This indicates that those indicators with high indexes were own by few members of the society, while moderate ones were possessed by relatively more people. Indicators with low indices were possessed by majority of the respondents within the study area. This result is consistent with earlier works on validation of items of SES by Adegboye et. al. (2015), Olaniyi, (2013), Oladipo and Adekunle (2009) and Ovwigho, (2009).

#### **Social and economic implication of valid items among the agropastoralists**

The valid items are those indicators of SES that were culturally, economically and socially valued by the respondents. A few of these items namely: Grinding stone; types of bathrooms; mattresses; GSM phones; wrist watches and donation of cows have a very significant social and economic implication in the study area.

**Grinding stone:** Grinding stone stands out with highest discrimination index of 26.9. Based on our experience on the field, three reasons can be adduced for this: First, majority of respondents particularly the low SES class live in remote settlements where grinding machines were not available and only few among them possessed this stone. Since they live a communal life, some of them who did not have preferred to go to their neighbour's house to grind whenever they wanted to cook stew/soup. Second, where the grinding machines were available, either electric or diesel powered, they have to trek a long distance or wait till the market day which hold every seven days. Third, there are few who, despite the availability of both electric and diesel-powered grinding machines, still believed that grinding their pepper and other cooking ingredients with this stone maintains the natural taste of their soup/stew and thus hold on to its usage within themselves. They only resorted to grinding machine during any big occasion when the volume of their ingredients was much high.

**Types of bathrooms:** The types of bathrooms used by a given household indicates how affluent the family was. This is because the common type of bathroom among the agropastoralists were communal and open roof bathrooms. However, few households were using private, bricked and roofed bathrooms which confers on them special status among their peers.

**Mattress:** Mattress is considered an important indicator of social status among agropastoralists because majority were either using mat or bamboo bed. Therefore, for someone who is using mattress within their midst is a sign of high social status.

**Cell phone:** Cell phone has become one of the important determinants of social and economic

status among the rural dwellers particularly the agropastoralists because it gives them opportunity to connect with market for information about current prices of cattle in distance places (New Zealand Statistics Bureau, 2008; Adegoye, *et al* 2015). Those who possessed phone take advantage of the market by deciding where and how much they sell their livestock based on price variations. However, a number of agropastoralists in the study area were still lagging behind to join the phone revolution.

**Wristwatch:** Wristwatch is another important indicator of SES among the agropastoralists in North-central. This confirms the result of Adegboye, *et al* (2015) who also validate wristwatch among the indicators of SES for the rural dwellers in Northern Nigeria. It is a symbol of richness among the respondents and usually worn during a very important ceremony by chiefs and wealthy among them.

**Donation of cow/cattle:** Cattle is a very important asset among the agropastoralists and signifies the importance and recognition of individual in the community. Livestock (cattle) represents the means through which the continuity of pastoral institutions, customs and cultural ties are guaranteed and are the currency for building connection between families, group or communities (Daramola, 2012). Few individuals who were rich among the respondents donate cattle and this signifies their status in the community.

#### **CONCLUSIONS**

The result revealed the indicators of socio-economic status (SES) for agropastoralists in North-central Nigeria. These forty valid indicators play a very significant role in the socio-economic, cultural and educational lives of the agropastoralists of the North-central Nigeria. They are indicators with varying indexes ranging from high to low index. These indicates that these indicators are robust owing to its power of discrimination across different groups. Indexes of socio-economic status provide basis for assessing such changes among the agropastoralists and could be used to predict the expected impact of social intervention or project. These empirical indicators, are therefore, recommended for the construction and standardization of socio-economic status scale for agropastoralists in North-central.

#### **REFERENCES**

- Adegboye, M.A., Oyesola, O.B. and Olumodeji, E.O. (2015). Construction of a Socio-economic Status Scale for Rural Dwellers in Northern Nigeria. *Asian Journal of Agricultural Extension, Economics and Sociology* 4 (1): 75-85. Retrieved 5/8/2017

