

AGRICULTURAL SURVEY SUMMARY REPORT

Variable Types

From the questionnaire used for the research, several variable types are used:

- a. dichotomous variables – variables that have only two categories like the gender of the farmers in this instance
- b. Nominal variables – variables that can be categorized. In this case, the farmers religious practices fall into five distinct categories.
- c. Discrete variables - Variables that can only take on a finite number of values like the number of days or weeks the farmers spent farming or in a secondary occupation.

Study Design and Sources of Bias

Multi-stage stratified random sampling was employed to select the households to be surveyed. It is appropriate in this case as it reduces sampling errors like bias the researcher may have about the population. Findings from this kind of sampling can also be applied to the larger population since the samples are a good representation of the various farm types and sizes as well as agro-climatic conditions. Sources of bias noted in the survey include:

Non-response bias in cases where the respondent is unable to provide information required in the questionnaire.

Measurement bias where the respondents answer may be influenced by the interviewer and in cases where the respondent cannot recall details required for the survey

Research Questions and Data Analysis

The dataset can be used to analyze:

- a) How has climate change impacted the farming practices of African households?
- b) What is the economic impact of climate change on Agriculture in Africa?

While looking at the economic impact of climate change, the null hypothesis would be that climate change has had no effect on the economic returns for farmers and the alternative hypothesis would be that climate change has affected the economic returns of farmers. To test this, I would use the paired t-test to examine differences in income from farming activities before and after farmers changed practices to adapt to climate change. Based on the sample size, the paired t-test would be appropriate and the t-statistic and confidence level(p-value) can be used to determine significance. A low p-value results in the rejection of the null hypothesis, indicating that climate change has affected the economic returns of farmers while a high p-value results in a failure to reject the null hypothesis.

Data Visualization and Comparison

- a) Contingency tables – to show the observations like level of access to electricity, extension services, government subsidies and other categorized data per country
- b) Pie charts – to represent data on farmers borrowing sources in the last 12 months. This would be appropriate since the responses fall into five categories.
- c) Bargraphs and histograms to compare income from farming actives to income from non-farming activities

Comparing findings from the survey to those from the FAO and the World Bank showed the impact of inclusion of traditional biological pesticides traditional, organic fertilizers like plant residue and animal manure data on the population averages. Comparing the sample averages to the population averages gives insights on the practical significance of the findings.