

APPLICABILITY OF PROBABILITY SAMPLING TECHNIQUES IN SOCIAL SCIENCE RESEARCH, PROBLEMS AND PRACTICES IN NIGERIA: A SOCIOLOGICAL ANALYSIS.

BY

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ABSTRACT.

Research is the most important tool for advancing knowledge, for promoting progress and for enabling man to relate more effectively to his environment, to accomplish his purpose and resolve his conflicts. Research is focused towards the discovery of the relationships that exist among the phenomena of the world in which we live. Research arises when there is a problem. Social Science researches deal with events around man. The basic aim of social science research is to find an explanation to social events or phenomena. When such a study entails a large population, all of them cannot be studied. This is the basis for selecting a sample. A sample, is the portion of the population that is studied. There are two categories of sampling techniques, namely: probability and non-probability sampling techniques. Thus, the important of this work on the applicability of probability sampling techniques in social science researches, problems and practices in Nigeria: a sociological analysis cannot be over emphasizes.

Key words: applicability, probability sampling technique, social science research, problem, practice, sociological analysis.

INTRODUCTION.

CONCEPT OF SAMPLING.

Sampling involves the selection of a number of study units from a defined study population or universe. Barton and Cherry (1990) define sampling as the selection of part of an aggregated of material to represent the whole aggregate. According to Ofordile (2002) the small group that is observed is called a sample and entire body, the larger group about which the generation is made is called a population. A population is defined as all members of any well-defined class of people, events or objects. A sample is

therefore a smaller representative of a larger whole. The sample shows the study population in microcosm. Sample is an essential key procedure of the scientific method, not just in the social sciences but in all sciences.

In the social sciences, however, sampling is increasingly being applied as a conscious and careful procedure. Sampling is well advanced in biological and agricultural sciences as well as in physics and chemistry where every experiment is merely a sample of all possible observations which could be made. According to Eboh (1998) all experiments are indeed samples from a large universe of all possible experimental situations.

ADVANTAGES OF SAMPLING.

According to Ezeah (2004) sampling has the following advantages:

1. sampling is economical. It is an economic way of pursuing research work. It is economical in terms of resources and time.
2. sampling is used in the case of a very large population that cannot be counted.
3. studies based on small samples are focused and accessible. This is because there are situations where population elements are not accessible.
4. in situations where some elements of the population are accessible such as the population of criminals and prostitutes, a sample of those that are available can be studied.

TYPES OF SAMPLING TECHNIQUES.

According to Nachmias and Nachmias (1995) in modern sampling theory, a basic distinction is made between probability and non-probability sampling techniques. In other words, there are two major types of sampling techniques, namely, non-probability and probability sampling. According to Obikeze (1990) in

non- probability sampling, the researcher selects his| her sample with interest. Furthermore, non- probability sampling is a procedure where units are selected by some non- random process. According to Chukwuemeka and Oji (2000) the method of selection is not based on the theory of probability. In non- probability sampling, there is no way of specifying the probability of each unit's inclusion in the sample and there is no assurance that every unit has some chance of being included. Example of non-probability sampling techniques are snowball sampling, accidental sampling, quota sampling and purposive sampling. The major reasons for using non-probability sampling techniques are convenience and economy which under certain circumstances may outweigh the advantages of using probability sampling. Non-probability sampling techniques are also used when a sampling population cannot be precisely defined and when a list of the sampling population is unavailable.

However, this work is centred on probability sampling techniques. The distinguishing characteristic of probability sampling is that one can specify for each sampling unit of the population the probability that it will be included in the sample. According to Akuezuilo (1993) each of the units has the same probability of being included in the sample. Oji and Chukwuemeka (2000) defined probability sampling as a procedure in which every unit of the universe is given an equal chance of being included in the sample. The method of selection in probability sampling is based on the theory of probability. According to Ezeah (2004) the following are some examples of probability sampling techniques: (a). simple random sampling (b). systematic sampling (c) stratified sampling (d) cluster sampling or area sampling.

SIMPLE RANDOM SAMPLING.

A basic method of sample selection is simple random sampling. In this method, each unit in the population has the same probability of being selected in the sample. The selection is usually made with the help of random numbers after the units in the frame have been numbered from 1 to N. All samples have the same probability and are therefore equivalent. For example, when you toss a perfect coin, the

probability that you will get a head or a tail is equal and known (50 percent), and each subsequent outcome is independent of previous outcomes

SYSTEMATIC RANDOM SAMPLING.

When a list is available of all units of the population to be sampled, the sample can be compiled by selecting every n th unit on the list, the value of n being determined by the size of the sample that is required. It is customary to select the first unit by the random choice of a number falling between 1 and n . Thus, if one desires to select a sample of 100 persons from a population of 10,000, one takes every hundredth individual ($k=N/n=10,000/100=100$). The first selection is determined by some random process, such as the use of a table of random digits. Suppose that the fourteenth (14th) person were selected, the sample would then consist of individuals numbered 14, 114, 214, 314, 414 etc.

STRATIFIED SAMPLING.

The underlying idea in stratified sampling is that available information on the population is used to divide it into groups such that the elements within each group are more alike than are the elements in the population as a whole. In this method, the units in the population are allocated to groups or strata on the basis of information or criteria. An attempt is made to make the strata internally homogeneous by placing in the same stratum units which appear to be similar. By selecting a sample of a suitable size from each stratum, it is possible to produce an estimate for the population characteristic of which is considerably better than that given by a simple random sample from the entire population.

For example, in a family budget, inquiry to determine expenditure pattern in a particular area, the families could be classified according to different income groups. When every group is represented in the sample in proportion to the size of that group in the parent population, we have what is called "proportionate stratified sampling". For example, suppose we have a population made up of three strata, 200, 400, 600 units respectively. We select a sample that contain units from these strata in the ratio of 2, 4, 6, that is, 1,

2, 3, then we have a proportionate stratified sample. When selection is not done proportionately, we have a disproportionate stratified sample. This is a case where there is variation in the degree of heterogeneity in the different strata.

CLUSTER SAMPLING

According to Chukwuemeka and Oji (2000) cluster sampling is sometimes called Area Sampling. in large . It is frequently used in large –scale studies because of less cost. Cluster sampling involves first selecting larger groupings, called cluster and then selecting the sampling units from the clusters. The clusters are selected by a simple random sample or stratified sample.

In cluster sampling, the whole population is divided into heterogeneous group called clusters and a random sample of some clusters are taken and a complete enumeration of the desired items in the Sampled clusters are done. This is called single stage cluster sampling. In multi-stage cluster sampling, the initial heterogeneous groups or clusters are further divided into smaller heterogeneous groups or clusters before the sampling is done.

THE APPLICABILITY OF PROBABILITY SAMPLING TECHNIQUES IN SOCIAL SCIENCE RESEARCH –PROBLEMS AND PRACTICES IN NIGERIA.

According to Obodoeze (1996) probability sampling techniques are not always advisable in social science research and the applicability of probability sampling techniques in social science research in Nigeria is not always viable. In using probability sampling techniques such as simple random sampling, why do the researchers leave the house of one person to another in the course of research is a problem. In the advanced countries like America, the researchers could explain the reason(S) to the respondents and they will understand but in Nigeria, it is not so. There is issue of why me syndrome. In why me, the researcher wants to select the respondent through a probability sampling technique, the respondent will

wonder why him and not others. Then the people you did not select through the sampling technique will say why not me. Why me brings about resistance and why not me leads to organizing against the researcher.

Also in the advanced countries, people discuss such issues as religion, politics etc and agree on the same opinion to give when ask questions but this is not applicable in Nigeria where people speak with different voices and have diverse opinions on issues.

Eze (1996) emphasized that probability sampling techniques are developed in foreign countries and not suitable for Nigeria. They are transferred to our country where population do not understand them. Nigeria is different from other developed countries. Most of the people in developed countries know about the sampling techniques unlike Nigeria. The notion people have about government workers like tax collectors is carried by the people into research.

In Nigeria, the researchers' values influence the ways they decide who are to be involved in the sample. Nigeria is a cultural country and the influence of values lead to bias in the application of probability sampling techniques in social science research by the researchers.

A lot of difficulties are involved in drawing sample frame in Nigeria. Most of the background data are not readily available. There is scanty statistics in Nigeria. The basic statistics that formed the bedrock of research are often not available and where they are available, they are not reliable. Even in the government ministries in Nigeria, information that would otherwise be for public consumption is marked secret. These make the application of probability sampling techniques difficult in Nigeria. The short comings of the universal primary education scheme in Nigeria for example are attributed to the lack of reliable statistics required for the planning and execution of the programme.

Furthermore, application of probability sampling techniques in social science research in Nigeria is associated with political questions as well as administrative ones. Odo (1992) observed that there is always disagreement within the social science community on these ethical and political questions and this affects the applicability of probability sampling techniques in Nigeria. The ethical problems which affect the applicability of probability sampling in social science research in Nigeria involve the issues of lack of voluntary participation, problem of protection of subjects from harm and problem of confidentiality.

According to Madu (1997) there is wide spread agreement that participation in social science research should be voluntary but prospective research subjects such as students and prisoners sometimes have good reason to believe that their participation would benefit them personally and in such situations the decision to participate may not be purely voluntary and this affect the application of probability sampling techniques.

In the protection of subjects from harm, conforming to the agreement that research subjects should not be harm is also difficult at times, particularly in cases where psychological harm may result from studies that call attention to your subjects less desirable traits or qualities and this also affect the application of probability sampling techniques in Nigeria.

Application of probability sampling techniques in social science research in Nigeria is also made difficult by issue of confidentiality. It is likely that many subjects would suffer harm if their identities were disclosed in a research and this affects the applicability of probability sampling techniques in Nigeria. Thus, researchers try to assure confidentiality of the research subjects whenever possible and even when confidentiality is not possible.

Similarly, application of probability sampling techniques in social science research in Nigeria is affected by political considerations. Most of the social science researches are interwoven with politics and

application of probability techniques is made difficult in such a situation. According to Obasi (1997) to have a realistic understanding of social science research, you need to recognize that social science as a science of social life is touched by politics. Many policy makers in Nigeria think that it is a waste of precious time funding research, when such money would be better utilized in provision of social amenities. They fail to realize that thorough research could help to make these things possible.

Also choice of probability sampling techniques depend on resources available to the researchers. In Nigeria, the huge amount of money required for application of probability sampling techniques in social science research is not available. The researchers have no opportunity of obtaining the resources needed for carrying out probability sampling techniques and the result is that he is forced to manipulate the choice and application of probability sampling techniques. This results to bias which otherwise would have been avoided. This is in line with the findings of Barton (1990) that emphasized the issue of bias in the use of probability sampling techniques in the social science researches. According to Barton and Cherry (1990) bias arising from errors in the selection of a sample using probability sampling techniques, is caused in several ways and these include: (a) by conscious or unconscious cheating on the part of the investigator who allows his desire to obtain a particular (predetermined result) to affect his selection of the sample and (b) by the substitution of an alternative convenient units in the sample when difficulties are encountered in obtaining data from the originally selected unit. Nonetheless, much of the selection bias can be avoided by a strict adherence to sampling procedures but in Nigeria it is not possible since we are always in a haste.

CONCLUSION.

Research is the process of arriving at dependable solutions to problems through the planned and systematic collection, analysis and interpretation of data. Social science research if well carried out helps to produce practical solutions to known problems and help to predict future events that enable us to plan

ahead. Probability sampling makes for representativeness in which every element has the probability and opportunity of being selected. This helps the researchers to make empirical generalization. Nigeria social researchers should in their researches concern themselves with Nigerian problems. Also every effort should be made for proper application and use of probability sampling technique in social science researches. The Nigerian industrialists and government should form the habits of utilizing the research results of the social science researches for the benefit and development of the nation.

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