DEM 2110

Sample Surveys

Outline

- Definition of sample survey
- Historical background of sample surveys
- Types of surveys
- Stages in planning sample surveys
- Advantages and disadvantages
- Link between census and sample surveys
- Errors in surveys and their sources - sampling & non-sampling errors

Learning objectives

- By the end of lessons on sample surveys, students should be able to:
  - Demonstrate understanding of household sample surveys as a source of data
  - Demonstrate knowledge on development of survey sampling and its relevance today
  - List and explain the types of surveys
  - Know and explain the stages in planning of sample surveys
  - Demonstrate knowledge on the advantages and disadvantages
  - Explain the links between census and sample surveys
  - Identify the types and sources of errors in surveys

Sample Surveys

- It is not always that we need to collect data about the entire population, i.e. through a census.

- Sometimes we just need to collect data from a subset of the population in order to understand the entire population; and to meet the additional and emerging data needs on a continuous basis.

- In a sample survey, **part of the population is selected** from which observations are made or data are collected and then **inferences are made** to the whole population.

Historical background of sample surveys

- **Early developments of survey sampling**
- To fully understand the historical development of survey sampling, we also need to understand: history of official statistics; history of sampling; and history of the representative method
- Intuitive application of the principles of sampling in science has been taking place for a long time.
- Graunt (1662) and Laplace (1812) applied the principles of sampling in an intuitive way, but there was no proper scientific foundation.
- It was not called sampling but inductive reasoning.

John Graunt (1620-1674)

- In 1662, Graunt made the first known attempt to make statements about the population using only information about part of it
- In his writing, Graunt describes a method to estimate the population of London based on partial information
- He surveyed families in a sample of parishes where the registers were well kept
- He found that on average there were 3 burials per year in 11 families
- He assumed this ratio was constant for all parishes

John Graunt (1620-1674)

- Knowing the total number of burials per year in London to be about 13000, he concluded that the total number of families was approximately 48000
- Putting the average family size at 8, he estimated the population of London to be 384000
- Graunt invented **two concepts** that are even today important for survey sampling

John Graunt (1620-1674)

1) He observed and then applied the fact that some social and demographic indicators remained stable in time and space

- This stability is an essential assumption, without which making inferences based on data collected by social surveys would not be justified. *Example: he discovered that nearly the same proportion of boys and girls were born, though slightly more boys*

2) He used averages to estimate total values

- Essential to his method was the observation that the proportion of burials in a year remained around 3 to 11 families, and that the average family size was 8 persons

Pierre Simon Laplace (1749-1827)

- Laplace realized that it was important to have some indication of the accuracy of the estimate of the French population
- He implemented an approach that was similar to that of John Graunt
- He selected 30 departments distributed over the area of France

Pierre Simon Laplace (1749-1827)

- Two criteria controlled the selection process;

1) He saw to it that all types of climate were represented

- In this way, he could compensate for climate effects

2) He selected departments for which the mayors of the communes could provide accurate information

- However, Laplace used a cluster sample instead of a simple random sample, and communes were selected purposively and not at random

Historical background of sample survey

- Although inductive reasoning has been commonly applied both in everyday life and in science for a long time, sampling as a well-defined statistical method is fairly young
- It was invented together with the development of other statistical methods
- Its history, as a well defined statistical method, started in the year 1895 and it took some 50 years before the principles of probability sampling were widely accepted
- Credit is given to one man, Anders Kiaer who was director of the Norwegian Statistical Bureau

Anders Kiaer (1838-1919)

- Kiaer started the process that ended in the development of modern survey sampling theory and methods
- He was the first to use a sampling survey on its own
- The survey was an investigation carried out throughout Norway on a proposed retirement and sickness insurance scheme
- Kiaer used enumerators to fill out forms (120000) about the adult population according to rules he laid out

Anders Kiaer (1838-1919)

- 80000 forms were collected by the representative method and 40000 forms by a special method areas where the working class people lived
- For the 80000 respondents, households in Norway were divided in two strata based on the 1891 census
- 20000 were selected from cities and the rest from rural areas
- Further selections were made following rules

Anders Kiaer (1838-1919)

- His method resembles the methods of modern sampling theory
- The main difference is that there was no explicit random selection mechanism but some kind of purposive sampling
- There was a multi-stage stratified area sample with systematic sampling of household at the final stage
- The major innovation was that the variation in population was considered an essential characteristic

Anders Kiaer (1838-1919)

- The three important principles in Kiaer's approach were;

1) Importance of the representativeness of the sample

2) The selection of elements for observation should, insofar as possible, be made objectively (subjective judgment of enumerators should not be allowed)

3) For every survey, the reliability of the results should be assessed.

Historical background of sample survey

- Contributions by different scholars led to development of survey sampling as we know it today.
- The UN Statistical Commission established the Sub-commission on Statistical Sampling in 1947.
- The work of the Commission consisted of drawing up standards that would assist national statistical institutions in improving their statistics by using modern sampling procedures.

Historical background of sample survey

- The first publication was a paper on "The Preparation of Sampling Survey Reports", see UN Statistical Commission (1950).

- This paper promotes probability sampling and still provide a useful guide for achieving clarity, comprehensiveness, and international comparability in sample survey reporting.

Sample surveys

Two ways in which data can be collected

1) **Retrospective**: involves questioning respondents about past events, i.e. events that have already occurred.

- **Advantages:** it is fast to administer and generate results-since events already occurred, we just have to ask and tabulate all the results.
- Relatively inexpensive process to undertake

- **Limitations:** some of the information that is needed may be hard to get due to recall lapse or memory bias.

Sample surveys

2) **Prospective**: involves recording events as they happen among the target population.

- **Advantages:** the collection of information is at regular time intervals, so recall error is minimized

- **Limitations**: Problem of conditioning effect;
- Takes time to design and implement;
- It is very costly to undertake

Types of Sample Surveys

- **Introduction**
- Many countries have in place household survey programmes that include both **periodic** and **ad hoc** surveys.

- The household survey programme can be part of an integrated statistical data collection system of a country.

- If this is the case, then the social and demographic statistics intercensal household surveys can constitute part of this system.

Types of surveys

- There are different types of household surveys that can be conducted to collect data on social and demographic statistics.
- We will focus on types of surveys classified by scope and content. These include:

1) specialized surveys
2) multi-subject surveys
3) multi-phase surveys
4) longitudinal surveys

Selection of type of survey

- The selection of the appropriate type of survey is dependent on a number of factors including:
- **subject matter requirements**;
- **resources; and**
- **logistical considerations**.

Specialized surveys

- This type of survey cover single subjects in one round of a survey.
- Since the 1970s, countries have been conducting specialized surveys concerned with very specific topics, such as fertility, infant and child mortality, reproductive health and morbidity.

- **Example**: individual in-depth single-round retrospective surveys that use extended individual questionnaires, including a birth history and/or pregnancy history (maternity history) such as the World Fertility Survey (WFS) programme.

Multi-subject surveys

- In this survey, **different subjects** are covered in a **single survey**.
- This one survey can cover demographic and socio-economic characteristics, labour force participation, health and nutrition, etc.

- This approach is generally **more cost-effective** than conducting **a series of single subject surveys**.

- *What example can you give of a multi-subject survey?*

Multi-phase surveys

- These surveys entail collecting statistical information in **succeeding phases** with one phase serving as a forerunner to the next.
- The initial phase usually constitutes a larger sample than subsequent phases.
- It is used to screen sample units based on certain characteristics to ascertain the eligibility of such units to be used in the subsequent phases.
- The study of such topics as disability and orphanhood are among those suited to this approach. *Why do these topics suit this type of survey?*

Longitudinal surveys

- In longitudinal surveys, data is collected from the **same sample units over a period of time**.
- The interval of data collection can be monthly, quarterly or annually.
- One purpose for conducting such surveys is to measure changes in some characteristics for the same population over a period of time.
- Major problems with this type of survey are;

1) the high attrition rate of respondents
2) conditioning effect

Planning of sample survey

- **Introduction**
- In planning of surveys, there is need to pay particular attention to the preparations that precede the field work.

- Amount of planning will vary depending on the type of survey, materials and information required.

- The development of an adequate survey plan requires sufficient time and resources and a planning cycle of two years is not uncommon for a complex survey.

Planning of sample surveys

- **Planning of a survey**
  - General planning of a survey programme
  - Objectives of a survey
  - Survey universe
  - Subject matter/information to be collected
  - Budget estimates and calendar of operations
- **Planning sample survey execution**
  - Preparation of the sampling design
  - Data collection methods
  - Questionnaire design
  - Tabulation and analysis plan
  - Implementation of field work
- **Planning for report writing and dissemination of results**

PLANNING OF A SURVEY

- **General planning of the survey programme**
- Planning is usually carried out by a relatively small group of senior staff members representing subject-matter, technical and administrative backgrounds (budget, personnel, survey design, calendar, etc.).

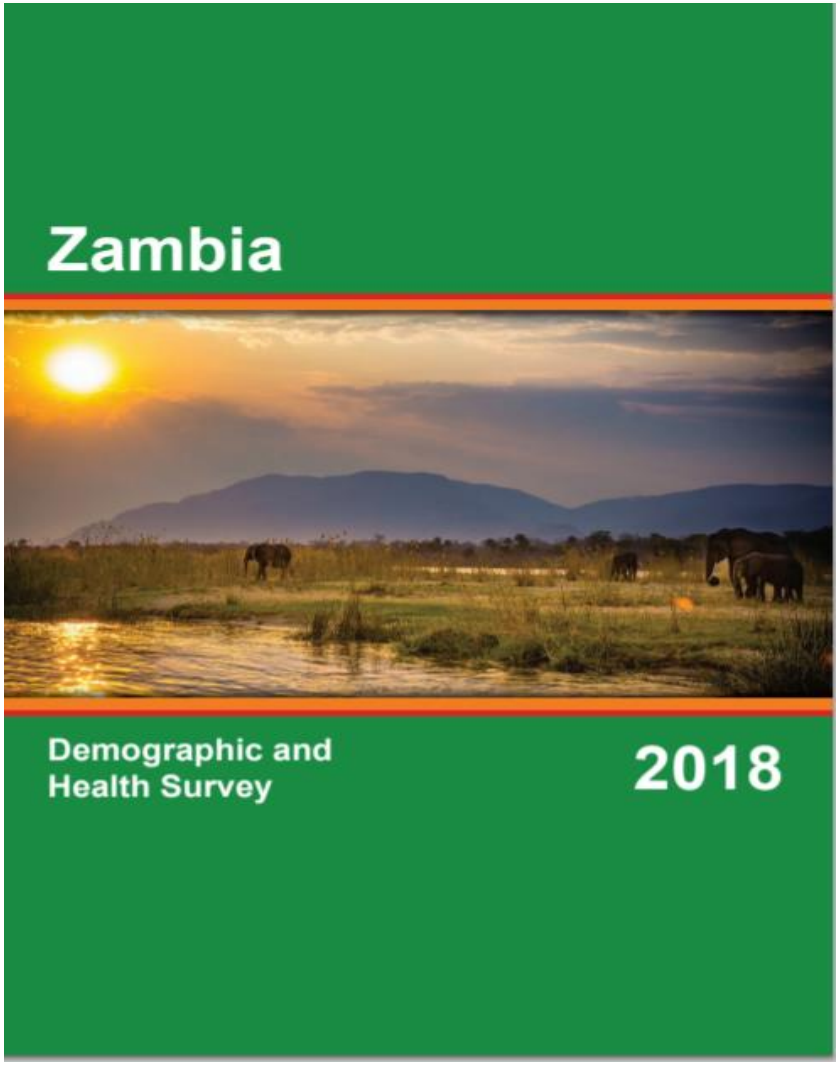
Objectives of the survey

- The first step in planning is to lay out the objectives of the investigation.
- This is generally the function of the sponsor, who maybe a government agency, a university researcher, etc.
- The objectives of the survey should be as specific, clear-cut, and unambiguous as possible.
- Clearly stated objectives is the first step in forming the basis of what questions to ask in the survey for which statistical answers are required.

Objectives of the survey

- **Example of survey objectives**
- The 2018 ZDHS had many objectives, which include:

1) To estimate anaemia prevalence among women age 15-49 and children age 6-59 months
2) To assess the nutritional status of children under age 5 (via weight and height measurements)
3) To estimate HIV prevalence among men age 15-59 and women age 15-49 and behavioural risk factors related to HIV
4) Assessment of situation regarding violence against women


Zambia
Demographic and
Health Survey
2018

Survey universe

- It is necessary to define the geographical areas to be covered and the target population.
- In defining the universe, the exact population to be sampled should be identified.
- The first stage would be EAs e.g. in urban areas and the second stage would be the households in selected EAs.
- The target population, however, is somewhat smaller than the population forming the universe.
- Once target population is defined, sample size (e.g. number of people to be interviewed will be 13,000 men age 15-59 and 15,000 women age 15-49) is then determined.

Subject matter/information to be collected

- There is need to clearly specify the *"subject matter"* or information to be collected.
- Subject matter must be adequate to answer the questions the survey is intended to answer and in line with the objectives.
- Need to manage a tension between the desire to collect more information and the need not to overburden the respondent.
- In determining subject matter, these should be organized by core items, e.g. demographic or social characteristics, etc.
- There are standardized groups of topics, e.g. DHS has have Child Health, Maternal Health, nutritional status of women and children, etc.

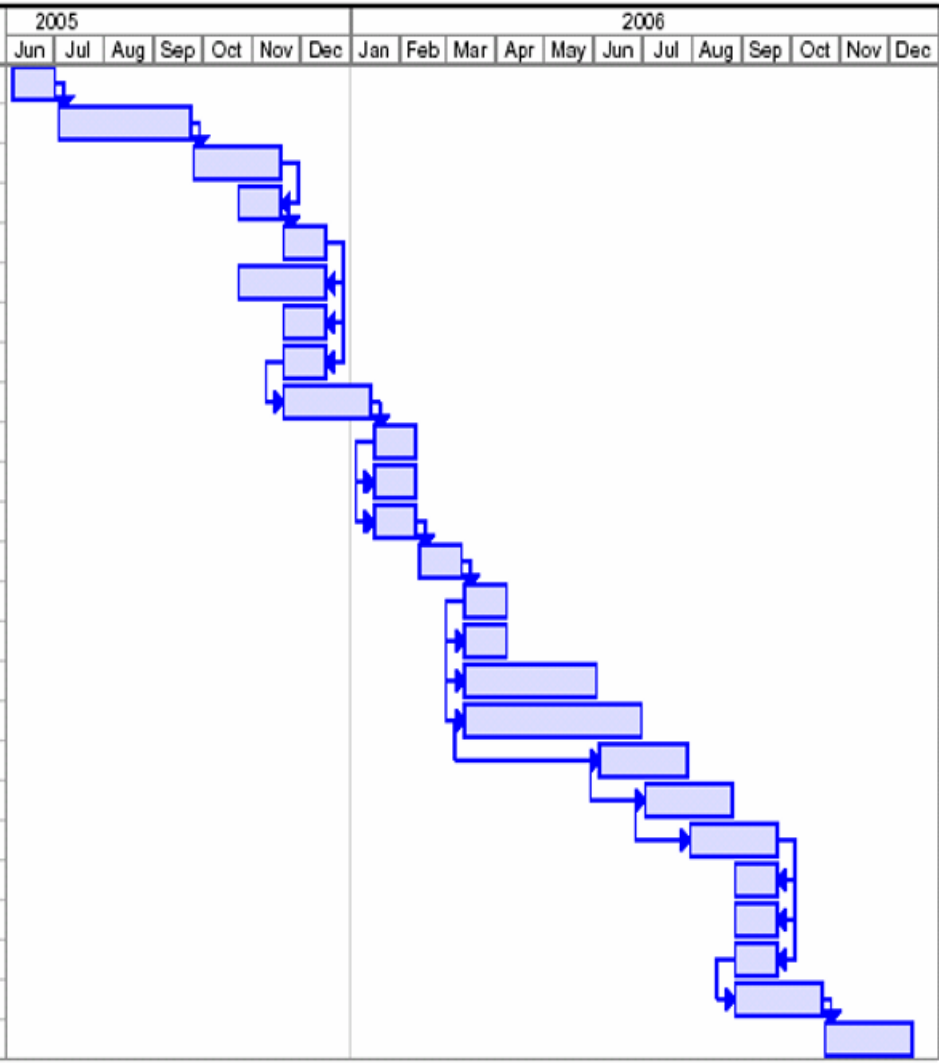
Budget Estimates and Calendar

- There is need to establish a general calendar/timetable of operations which is logically coordinated.
- Budget indicates the financial requirements of the survey which is to be conducted.
  - It is necessary to support and guide the implementation of the survey and the construction of the timetable for producing the survey results.
  - It shows cost of personnel, equipment and all other items of expense.
- Cost estimates must be as detailed as possible.
- Worth noting is that, budget (e.g. small or huge) will depend largely on the survey design, and geographical coverage.

Example - Calendar

Time-table of Household Survey Activities for Country X

ID	Task Name	Duration
1	Meeting with stakeholders	1 mon
2	Preparatory activities	3 mons
3	Initial questionnaire design	2 mons
4	Send questionnaires to user committee members	1 mon
5	Include in questionnaire agreed suggestions	1 mon
6	Draft interviewer's & supervisor's manuals	2 mons
7	Print questionnaires & manuals	1 mon
8	Make plans for pre-test	1 mon
9	Train interviewers and supervisors	2 mons
10	Conduct the pre-test	1 mon
11	Revise questionnaire (if need be)	1 mon
12	Revise manuals (if need be)	1 mon
13	Sample design	1 mon
14	Design & test data entry programme(s)	1 mon
15	Design & test data cleaning programme(s)	1 mon
16	Data collection	3 mons
17	Data entry	4 mons
18	Design & test tabulation plan	2 mons
19	Data cleaning (eg. range and consistency checks)	2 mons
20	Assignment of chapters to authors	2 mons
21	Carry out the processing according to plan	1 mon
22	Calculate sampling errors among other estimates	1 mon
23	Distribution of tabulations to authors	1 mon
24	Analysis and report writing	2 mons
25	Compilation & tabulation of final report	2 mons



Example of items/things to be included when preparing a budget

B. *Training of interviewers*
   1. Supervisor costs .....
   2. Interviewer costs:
      (a) Personnel costs .....
      (b) Travel costs .....

C. *Data collection (including quality control)*
   1. Supervisor costs:
      (a) Personnel costs .....
      (b) Travel costs .....
   2. Interviewer costs .....

D. *Field administration*
   1. Field direction .....
   2. Travel .....
   3. Other costs (for example, control and shipment of materials) .....

E. *Subtotal components*
   1. Professional staff .....
   2. Technical staff .....
   3. Service staff .....
   4. Travel .....
   5. Travel subsistence .....
   6. Interviewing .....
   7. Miscellaneous .....

SUBTOTAL

2) PLANNING EXECUTION OF SURVEY

- **<u>Preparation of the sampling design</u>**
- Virtually all surveys taken seriously by social scientists and policy makers use some form of random sampling.
- The goal of *probability sample* is that *all of the units* in the *population have a known* and *non-zero chance* of being selected.
- This enable to infer survey estimates to entire population.
- *Random* methods guard *against selection biases.*
- Most national surveys make use of multistage sampling.
- Choice of sampling design depends on: *the nature of the potentially available sampling frame, the budget, subject matter and kind of respondents*.

Data collection methods

- A number of methods may be used among them, direct observation and measurement; mail questionnaires; telephone interviews; personal interviews
- Each method has their strengths and weaknesses
- The survey planners should decide on a method that is feasible given the available resources and target population-e.g. education attainment and literacy levels, etc.
- *See handout for details on each data collection method*

Design of Questionnaire

- Once the survey objectives have been determined, the relevant questionnaire can be developed.
- It is advisable to design survey questionnaire (s) at the time of planning for the surveys.
- In the survey process, this allows for information to be transferred from those who have it (the respondents) to those who need it (the users).
- Questionnaire (s) is the instrument through which the information needs of the users are expressed in operational terms.

Design of Questionnaire conti….

- Every questionnaire should have clear instructions
- There is need to look also at;

1) Question construction: Open and closed-ended questions
2) Question wording (clear, precise, unambiguous)
3) Leading/loaded questions should be avoided
4) Relevance of the questions
5) Question sequence

See handout for details on each one of these

Tabulation and Analysis Plan

- A tabulation plan should be produced at the time of planning the survey.
- Design output tables in accordance with study objectives
- Draft dummy tables-are draft tabulations which include everything **except** the **actual data**.
- The blank tables should be circulated for comments and improvement.
- The way in which the data collected in the survey will be used to answer the questions (attain the objectives) can be referred to as the data analysis plan.

Table 1.5: Percentage distribution of households by housing characteristics, Zambia 2020

Housing characteristics	Urban	Rural	Total
Electricity			
Yes			
No			
Rooms used for sleeping			
One			
Two			
Three or more			
Place for cooking			
In the house			
In a separate building			
Outdoors			
No food cooked in household			
Other			

Implementation of Field Work

- If survey operations are to be successfully carried out, field work should be properly organized and implemented in order to utilize the limited resources available for the survey. Implementation involves a number of aspects and are described below:

- **a) <u>Equipment and materials</u>** e.g. vehicles, boats, bicycles, etc., should be available and in working condition.
- Materials, like folders, clipboards, pencils, pencil sharpeners, notebooks and fuel, etc., should be available in adequate supplies for use during the survey operations.

Implementation of Field Work

- **b) <u>Management of survey operations-</u>** there must be a clear and well defined line of command from the survey manager to the interviewer.

- **c) <u>Publicity:</u>** Some surveys have had limited success partly due to high non-response owing to refusals.
- Publicity plays an important role in soliciting cooperation from respondents.
- Different approaches can be adopted depending on prevailing circumstances (rural/urban).
- *E.g. Local/traditional leaders could play a vital role especially in rural areas.*

Implementation of Field Work

- **<u>d) Selection of interviewers</u>**
- Interviewers are the interface with the respondents.
- They are the representatives of the survey organization.
- The selection of an interviewer should therefore be given great consideration.
- An interviewer should be capable of effectively communicating with the respondent.

  -should have adequate level of education.

  -should be able to record information honestly, without *"**cooking figures**".*

Implementation of Field Work

- **e) Training of interviewers**
- Involves training on how to present the questions, fill out the responses, how to attend to non-responses or invalid responses, etc.
- It brings about uniformity in the interviewing procedures.
- This is necessary to avoid different interpretations of the definitions, concepts, and objectives of the survey by the interviewers and hence avoiding interviewer bias.

Implementation of Field Work

- **<u>e) Training of interviewers cont.…</u>**
- Purpose of the survey and how the results are going to be used should be adequately explained to the interviewers.
- Qualified trainers should be responsible for the training.
- During the training process, the interviewers, in the presence of the trainers, should take turns in explaining to others the various items in the questionnaire and also do role play.

Implementation of Field Work

- **<u>f) Pretests</u>**
- This is **involves testing** of the questionnaire and survey operations to learn if the questionnaire and field methods are right for the survey objectives.
- Whether any of the questions:
  - *are too sensitive?*
  - *unduly invade the respondent's privacy?*
  - *they are too difficult even for the willing respondent to answer?*
- Pretest report needs to be reviewed and adjustments are made (e.g. to questionnaires) where necessary.

Planning of sample survey

- **Data processing**
- How is the data going to be analyzed.
- Plan for the software to be used in data entry.
- Software to be used in data analysis.

3) TECHNICAL REPORT WRITING AND DISSEMINATION

- There is need to also plan for report writing and dissemination of results.
- The analytic results are often presented in the form of tables and charts.
- Authors are assigned sections/chapters and interpretation of the results is then done.
- Report is compiled, validated and finalized for dissemination.

Advantages of surveys

- The following are the advantages of sample surveys compared to censuses:
- **1) Less costly**; the overall cost of a survey is generally lower compared to a census as the latter requires large amounts of manpower, financial, logistical and material resources.

- From a probability sample, properly selected and implemented, accurate and reliable results can be a basis for making inferences on the total population.

Advantages of surveys

- **2) Sample surveys produce statistical information of better quality** because, it is more feasible to engage better and well-trained interviewers.

- It is also easier to provide better supervision because supervisors are usually experienced and well trained and the supervisor/interviewer ratio can be as high as 1 to 4.

Advantages of surveys

3) **More detail is provided on subject matter**; sample survey allow for longer time for interviews and small workloads for interviewers, therefore most subject matter can be covered in greater detail than is possible in a census.

- **For example** the weighing of food and other measurements in a nutrition study are feasible in a survey than in a census.

- It is likewise not feasible to subject every person in the population to a medical examination to collect health information such as the incidence of HIV/AIDS infection by taking blood samples.

Advantages of surveys

4) Surveys are **more flexible with respect to the subject matter covered**, making it a good source of data for meeting users' needs, since new questions can be experimented and if failure, remedial action is taken sooner unlike in a census which is not only costly but remedial action is only possible after 5 or 10 years.

5) The **shorter time interval** between surveys makes them more suitable for studying those population characteristics that change frequently in some countries, such as household formation, fertility, and employment status.

Advantages of surveys

- 6) Surveys such as the DHS simultaneously **obtains information related to enumerated events and population at risk.**

- For example, the population at risk for each ASFR will consist of all women in that age group.

Limitations and problems of surveys

1) Detailed cross-classifications are subject to sampling errors.
2) Inability to produce estimates for small areas.
3) Requires close supervision of field work.
4) Coverage is only extended to a limited geographical area.
5) Poor response rate is inevitable

Link between census and surveys

1) Census data/statistics serve as benchmark for analyzing and evaluating survey data.

2) Census is often used as a sampling frame for selecting the population to be surveyed.

3) Surveys have been used to determine the amount of error in a census, e.g. through the post enumeration survey.

Errors in Sample Surveys

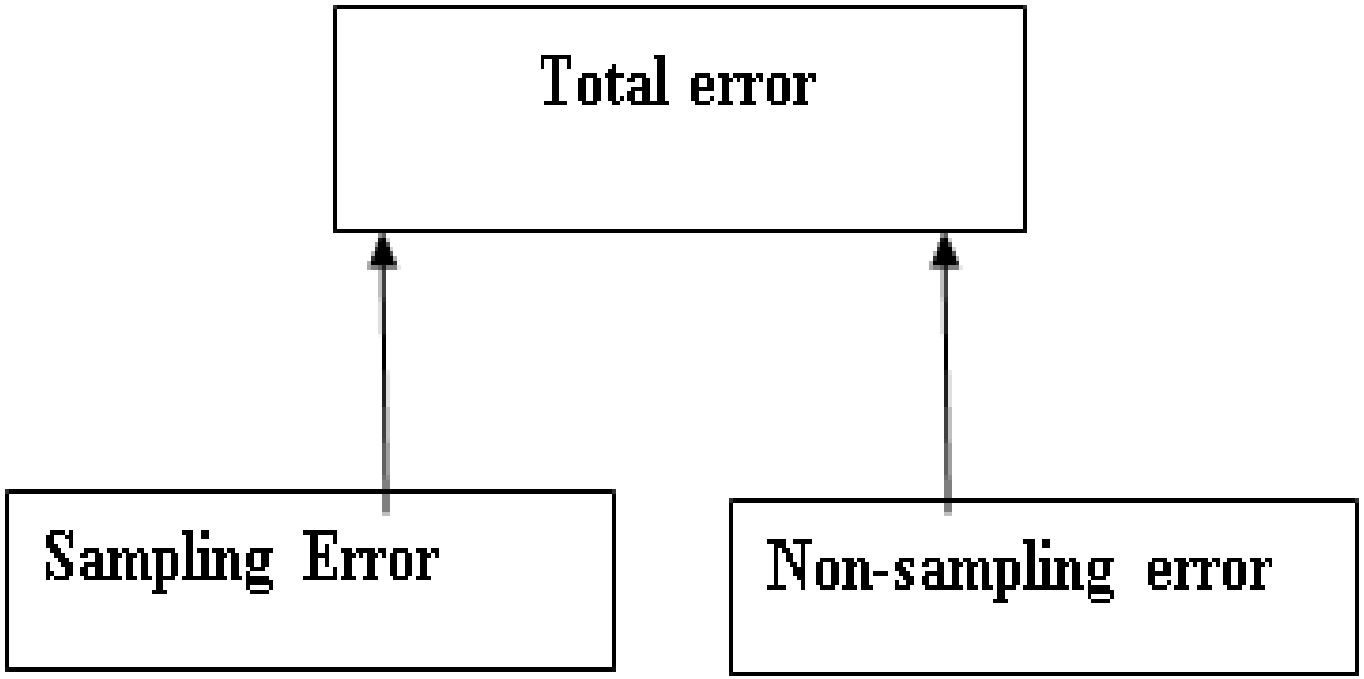
- Among the disadvantages of surveys is that they are prone to **sampling** and **non-sampling errors**.
- All survey data are subject to error from various sources.

- The quality of a **sample estimator** of a **population parameter** is a **function of total survey error,** comprising both **sampling** and **non-sampling errors**.

- **Total survey error** is equal to **sampling error** plus **non-sampling error**.

Errors in sample surveys

Graphical illustration of Total survey error



Sampling and non-sampling errors

- **Sampling error** is as a result of selecting a sample of the population instead of canvassing the entire population.

- **Non-sampling errors** is mainly due to **adopting wrong procedures** in the system of data collection and/or processing.

Sources of sampling errors

- **Sampling errors may arise due to the following:**
- Defects (biases) in the sample design

- **How will the sample be determined?**
- Decide on whether the results will be generalized to the entire population or not
- Then make a **choice between** the use of **probability** and **non – probability** sampling
- Good survey practice includes calculation and/or estimation of errors
- That is; margin of error and/or amount of variability

Errors in sample surveys

- **The Margin of Error**
- This is a **measure of the difference** between the **sample estimate** and the **actual population value.**
- The **better the design**, the **less is the margin of error** and the **more precise the estimates.**
- **Design =** (stratification, clustering, and proportionate sampling, etc.)

Errors in sample surveys

- **E.g. (**opinion poll) **votes that the candidates for a particular office are expected to get**, the results could be stated that candidate A's **votes are estimated at 57 percent with the error unlikely to be more than 3 percent**, so that this candidate's votes are expected to fall in the range of 54-60 percent.

Non-sampling Errors

- In general, non-sampling errors may arise from one or more of the following factors:

1) Data specification being inadequate and/or inconsistent with respect to objectives of the survey.
2) Duplication or omission of units due to inaccurate definition of the boundaries of area units, incomplete or wrong identification particulars of units or faulty methods of enumeration.
3) Inappropriate methods of interview, observation or measurement using ambiguous questionnaires, definitions or instructions.

Non-sampling Errors

4) Lack of trained and experienced field enumerators including lack of good quality field supervision.
5) Inadequate scrutiny of the basic data to correct obvious mistakes.
6) Errors in data processing operations such as coding, keying, verification, tabulation, etc.
7) Errors during presentation and publication of tabulated results.

Components of non-sampling errors

- Brieumer and Lyberg (2003) identify five components of ***non-sampling error***, namely **specification**, **frame**, **non-response**, **measurement** and **processing error**.

1) <u>Specification Error</u>

- This occurs when the concept implied by the question is different from the underlying construct that should be measured.
- A simple question such as how many children does a person have can be subject to different interpretations in some cultures.

Errors in sample surveys

2) Coverage or Frame Error

- **Frame imperfections** can bias the estimates in the following ways:
- If **units are not represented** in the **frame** but should have been part of the frame.
- This **result in zero probability** of selection for those units omitted from the frame.
- On the other hand if some **units are duplicated**, this results in **overcoverage** with such units having larger probabilities of selection.

Errors in sample surveys

- Errors associated with the frame may, therefore, result in both ***overcoverage*** and ***undercoverage***. The latter is the most common in large-scale surveys in most African countries.
- **Non-coverage error** denotes **failure to include some sample units** of a defined survey population in the **sampling frame**.
- Because such units have zero probability of selection, they are effectively excluded from the survey results
- Non-coverage is often associated with problems of incomplete frames.

Errors in sample surveys

- Thus **non-coverage** refers to the **negative errors** resulting from failure to include elements that would, under normal circumstances, belong in the sample.
- **Positive errors** of **overcoverage** also occur due to inclusion in the sample of elements that do not belong there.
- It should be noted that non-coverage errors differ from nonresponse errors.

Errors in sample surveys

3) Nonresponse error

- **Nonresponse** refers to the **failure to measure some of the sample units**.
- Results from **failure to obtain** observations on some selected sample units, **due to refusals**, **failure to locate addresses** or **find respondents at home** and **losses of questionnaires.**

Errors in sample surveys

- In summary **the types of non-respondents** include:

1) **Not-at-homes**: prospective respondents who may not be at home when enumerators visit their households.
2) **Refusals**: respondents who refuse to give information for whatever reasons.
3) **Not identifiable respondents**

Errors in sample surveys

4) Measurement Error

- These errors arise from the fact that **what is observed** or **measured** departs from the **actual values** of sample units.
- These errors centre on the **content** of the survey such as **definition of survey objectives**, their **transformation into usable questions,** and the **obtaining** of responses.

Errors in sample surveys

- These errors concern the accuracy of measurement at the level of individual units.
- 1) For example at the initial stage, wrong or **misleading definitions** and **concepts** on **frame construction** and **questionnaire design** lead to **incomplete coverage** and **varied interpretations** by different interviewers **leading** to **inaccuracies** in the collected data.

Errors in sample surveys

- **2) Inadequate instructions to field staff**. For some surveys instructions are unclear leaving interviewers to use their own judgment in carrying out fieldwork.
- **3) The interviewers themselves can be a source of error.** At times the information collected on a given item for all units may be wrong; this is mainly due to inadequate training of field workers.
- **4) Age reporting** in **Africa** is a common measurement problem through age heaping and digital preference.

Errors in sample surveys

- These and other examples of measurement error may be **attributable to respondents** or **interviewers** or both. At times there may be **interaction between the two**, which may contribute to **inflating such errors**.
- **Respondents** can introduce errors because of the following reasons:

1) **Failure to understand the survey question(s)**
2) **Careless** and **incorrect answers** due to, for example, **lack of adequate understanding** of the objective(s) of the survey; in particular, the respondent may not give sufficient time to think over the questions.

Errors in sample surveys

3) **Desire to "cooperate"** by answering questions even when they do not know the correct answer.
4. **Deliberate inclination to give wrong answers**, for example, in surveys dealing with sensitive issues, such as income and stigmatized diseases.
5. **Memory lapses** if there is a long reference period.

Errors in sample surveys

5) Processing Errors

Processing errors arise during the data processing stage and comprise:

- **Editing** errors
- **Coding** errors
- **Data entry** errors
- **Programming** errors, etc.

Note

- Surveys are prone to errors
- However, both **sampling** and **non-sampling errors** need to be controlled and reduced to a level at which their presence does not defeat or eliminate the usefulness of the final survey results.

References

- Colm O'Muircheartaigh (2005), *Balancing Statistical Theory, Sampling Concepts, and Practicality in the Teaching of Survey Sampling*

- Jelke Bethlehem (2009), *The rise of survey sampling*. Statistics Netherlands Henri Faasdreef 312 2492 JP The Hague

- United Nations (2005). *Designing Household Survey Samples: Practical Guidelines.* New York

- Zambia Statistics Agency, Ministry of Health (MOH) Zambia, and ICF. 2019. *Zambia Demographic and Health Survey 2018*. Lusaka, Zambia, and Rockville, Maryland, USA: Zambia Statistics Agency, Ministry of Health, and ICF.

Recommended additional readings

- 2017 Labour Force Survey Report
- 2006-2010 Living Conditions Monitoring Survey
- *Obtain these reports from the ZamStats website*