

# CHAPTER-1

## INTRODUCTION

The data collected through any field inquiry is subjected to certain amount of error, that normally creeps in due to the error committed by the investigator or the respondent. A massive operation like the population census is no exception, where some amount of error is inevitable considering the fact that a large number of enumerators and supervisors are engaged in the collection of data, inspite of the best of the intentions and efforts to collect the accurate data. Post Enumeration Survey (PES) is a sample survey conducted immediately after the census in order to assess the coverage and quality of the census enumeration. A large number of countries carry out a Post Enumeration Survey (PES) after the completion of the census to scientifically measure the degree of accuracy. The Post Enumeration Check (PEC), as it used to be called earlier and now renamed as Post Enumeration Survey (PES) in the 2001 Census, has become an integral part of the census operations in India since 1951 Census.

**1.1** The primary objective of the PES is to estimate the magnitude of omissions (under-count) and duplications (over-count) of individuals in the Census, or in other words, to determine the **coverage error**. Omission or under-count included omission of individual persons in enumerated households as well as omission of households and consequently persons in those households. Duplication or over-count included erroneous inclusion of persons in the enumerated households as well as erroneous inclusion of households and consequently persons in those households. During the conduct of this survey, opportunity was also taken to measure errors in response, or **content error** in the recorded individual characteristics, with regard to certain items canvassed in the census like age, literacy, type of disability, types of occupation and fertility etc.

**1.2** The PES is, thus, intended to provide possible answers to the questions:

- (i) How accurately the persons have been enumerated (coverage error) in the census?
- (ii) How precisely have certain characteristics of the individual been recorded (content error) in the census?

**1.3** For any census to provide reliable information to users, it is essential that such errors be kept at the minimum possible level. Study of such errors is useful in understanding the source of these errors and taking corrective measures in the design of questionnaire and operational procedures in future censuses. This will also help the data users in better understanding of the census data.

**1.4** As mentioned above, the coverage error investigated in the PES, consists of two components:

- (i) Omission or duplication of persons due to omission or duplication of households.
- (ii) Omission or duplication of individuals in enumerated households.

These are called Type I and Type II errors respectively.

**1.5** The content error arises from the way in which the enumerator canvasses the question or from the way the respondents understand the question or both. Further in a mass operation like census, it is not always the concerned individual who provides the data. Errors may also arise because the respondent may not know all the particulars of a person about whom the information is being reported in the census. For example, the head of the household may not know the correct age or place of birth of his daughter-in-law or some other person who stays with him at the time of census. Errors can also occur because of the difficulty in understanding the concepts. For example, one may give his running age instead of the completed age, which is required.

**1.6** For the first time, the PES of the population enumeration was conducted in all the 35 States and union territories of the country in 2001 Census. In 1991, it was conducted in all the major states, having population 2.5 million and above as per projections for 1991.

**1.7** It is the aim of the PES to find out both the cases of omission and also cases of duplication. For any study of the coverage error, the most important item is the instructions issued on 'whom to enumerate' in census. The census defines certain persons as eligible for enumeration in a particular household. These are,

- (i) Persons, who normally reside and are present in that household during the entire period of enumeration i.e., from 9<sup>th</sup> February to 28<sup>th</sup> February, 2001 (both days inclusive);
- (ii) Persons, who are known to be normally residing and had actually stayed during a part of the enumeration period in the household (9<sup>th</sup> February to 28<sup>th</sup> February 2001) but are not present at the time of enumeration;
- (iii) Persons, who are known to be normally residing in the household and are not present at the time of visit of the census enumerator but are expected to return by 28<sup>th</sup> February, 2001; and
- (iv) Visitors who are present in the household at the time of population enumeration and are expected to be away from the place of their usual residence during the entire enumeration period. For the purpose of census enumeration, such visitors are treated as normal residents of the household where they are actually found during the enumeration period provided they have not been enumerated elsewhere.

**1.8** All the persons in the household at the time of PES enumeration, that is, as on the date of the PES and in addition, any other person during the reference period of the population enumeration were initially listed to make the list exhaustive and then persons covered under the above mentioned four categories were only considered for the PES.

**1.19** Coverage errors can arise in the following situations: -

1. There are houses, which are unconventional like garages, temples, *gurudwaras*, school buildings, where people, though not expected to live, do live. In many school and office buildings, *chowkidars* live. Census enumerators may consider these houses as non-residential, which in fact is residential resulting in omission of

these residential houses and subsequently omission of the occupants of these residential houses.

2. One or more houses might be locked at the time of the visit of the census enumerator in his Enumeration Block (EB). So those residential houses are treated as omitted if the same households are occupants of those houses during the census and the PES. These types of situations arise mostly in the urban areas, where all the members of the households may be absent during daytime due to employment or studies etc.
3. Visitors and domestic servants who may be living with the household during the entire enumeration period may be omitted, as the respondent may not be aware that they are also to be enumerated.
4. There may be cases where persons, who usually living at one place have come to visit their families at weekend, may also be included in the household unless probed by the enumerator. In fact she/he should be enumerated only at her/his normal place of residence.

**1.10** The content error arises mainly because (i) either the instructions are not strictly followed or properly understood in the field by the enumerators, (ii) the questions asked by the enumerators are not understood by the respondents and (iii) sometimes the respondents do not provide factual positions intentionally because of some reasons or the other. Errors can also occur due to the difficulty in understanding the concepts and definitions followed in both census and PES by the enumerator as well as the respondent.

**1.11** As mentioned, the intention of conducting the PES is to provide an idea of errors in census count and no attempt is made to adjust the Indian census results based on the PES. More than estimating the level of errors accurately, the PES is expected to throw light in the areas that would need attention in the next census specifically in procedures and instructions to the field staff so as to reduce the level of errors.