INDEX NUMBERS

Index numbers are statistical devices designed to measure the relative change in the level of a phenomenon (variable or a group of variables) with respect to time, geographical location or other characteristics such as income, profession, etc." In other words, these are the numbers which express the value of a variable at any given date called the 'given period' as a percentage of the value of that variable at some standard date called the 'taste period'. The variable may be: The price of a particular commodity e.g., silver, iron, etc., or a group of commodities like consumer goods, foodstuffs, etc.:

Problems Involved in the Construction of Index Numbers. The methods of construction of index numbers warrant a careful study of the following problems:

1. The purpose of Index Number. The first and foremost problem is to determine the purpose of index number without which it is not possible to follow the steps in its construction. Moreover, precise statement of the purpose usually settles some related problems, e.g., if the purpose of index number is to measure the changes in the production of steel, (say), the problem of selection of items (commodities is automatically settled.

2, Selection of Commodities. Having defined the purpose of index numbers, select only those commodities which are relevant to the index. For example, if the purpose of an index is to measure the cost of living of low income group (poor families) we should select only those commodities or items which are consumed/utilised by persons belonging to this group and due care should be taken not to include the goods/services which are ordinarily consumed by middle-income or high-income group For such an index, selection of commodities like cosmetics and other luxury goods like scooters, cars, refrigerators, television sets, etc., will be absolutely useless.

3. Data for Index Numbers. The data, usually the set of prices and of quantities consumed of the selected commodities for different periods, places, etc., constitute the raw material for the construction of index numbers. The data should be collected from reliable sources such as standard trade journals, official publications, periodical special reports from the exporters, etc., or through field agency. The principles of data collection, viz., accuracy, comparability, sample representatives and adequacy should be borne in mind. In any case the data should strictly pertain to what is being measured. For example, for the construction of retail price index numbers, the price quotations for an adequate number of (used by a particular group of people for whom the index is intended) should be obtained from super bazars, fair price shops, departmental stores, etc., and not from wholesale dealer'.

4. Selection of Base Period. The period with which the comparison of relative changes in the level of a phenomenon are made is termed as 'base period' and the index for this period is always taken as 100. The following are basic criteria for the choice of the base period. The 'base period' must be a normal period free from all sorts of abnormalities or chance fluctuations such as economic boom or depression, labour strikes, wars, floods, earthquakes etc. If the base period be taken as a period of economic instability or depression in which the prices of various commodities and goods, due to 'their scarcity, have been abnormally high then the comparison of price relatives in any given year will not be of much practical utility.

The base period should not be too distant from the given Perl Since Index numbers are essential tools in business planning and in formulation of executive decisions, the base period should not be too far back

in the past relative to the given period because due to dynamic pace of events these days, distant base period is likely to be entirely different from the given period. Moreover. If the base year is shifted far away from the given period, it is possible that the pattern of consumption of commodities may change appreciably. For example, for deciding about grant of D.A. (dearness allowance) increment to government personnel, the prices should be compared with the period when last D.A. was announced or granted.

5. Type of Average to be used. Since index numbers are specialised averages, a judicious choice of average to be used in their construction is, of great importance. Usually the following averages are used: (i) Arithmetic Mean (A.M.): simple or weighted,

(ii) Geometric Mean (G.M.): simple or weighted, (iii) Median.

6. Selection of appropriate weights. Generally, various items 00mmodities, say, wheat, rice, kerosene, clothing, etc., included in the index are not of equal importance, proper weights should be attached to thereto take into account their relative importance. Thus there are two types of indices:

(1) Unweighted Indices, in which no specific weights are attached to various commodities and (it) Weighted Indices, in which appropriate weights are assigned to various items.