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Meaning of Index Number:

Index Numbers are devices which measure the change in the level of a phenomenon with respect to time , geographical location or other characteristics . For example, when it is said , the price index number for the year 1988 was 360 as compared to the year 1975 when it was 100, it gives an idea about change in the price level between two periods. Similarly , when it is said that the Indian National Income Index increased by 5 per cent in the year 1985 as compared to year the year 1984 and in Japan , the rise in national income during these two periods was 12 per cent , we are making a comparison both on the basis of time and geographical location..

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- The first index number was constructed in the year 1764 by an Italian named **Carli** to compare the price for the year 1750 with the price level of the year 1500.Thus ,initially index number was designed to study the change in the price level or the purchasing power of money . Today , there is hardly any phenomenon which does not make use of the device of index number. In present day situation , changes in production , consumption , export, import ,national income, cost of living and a very wide variety of other phenomenon are studied with the help of index number . Index numbers are supposed to be barometers which measure the change in the level of phenomena. An Index Number may be Univariate Index or Composite Index.
- **Univariate Index**-It is computed from a single variable.
- **Composite Index**-It is computed from a group of variables.

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- **Definition:**
- According to **Croxton and Cowdon** ,"Index numbers are device for measuring differences in the magnitude of a group of related variables".
- According to **Spiegal,** "An Index Number is a statistical measure designed to show the changes in a variable or a group of related variables with respect to time , geographical location or other characteristics ".

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- **Characteristics of Index Number:**
- **Index Numbers are a specialised type of Average:**

Averages can be used to compare only those series which are expressed in the same units. If the units in which two or more series are expressed are different, or if the series are composed of different types of items , average can not be used to compare them.However,the device of index numbers helps us in comparing change in series which are in different units. Index number are specialised average in the sense that the technique of index numbers facilitates the computation of an average of

(a)Two or more series expressed in different units(e.g. , wheat price per ton , ghee per kg.)

(b)Two or more series composed of different type of items (e. g. ,Rice per ton, cloth price per meter).

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- **Index Numbers shows the changes on an average bases.**For example, when it is said that between the year 2018 and 2019 , prices have risen by 6 per cent but it does not mean that prices of all goods and services have uniformly risen by 6 per cent ; it only means that on an average there has been a 6 per cent rise in the prices of various goods and services , even when prices of certain goods might have risen by more than 6 per cent and of certain others by less than 6 per cent.

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- **Index Numbers study the effects of such factors which can not be measured directly**:
- Statistical series are generally affected by multiple causation and it is not easy to study their effects separately. For this reason , it is not possible to directly measure the effects of such factors .With the help of Index Numbers it is possible to study the relative changes in such phenomena. For example , Changes in business activity in a country are not capable of direct measurement but it is possible to study relative changes in business activity by studying the variation in the values of some such factors which affect business activity, and which are capable of direct measurement .

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- **The technique of Index numbers measures changes in one variable or group of related variables** . For example , one variable can be the price of rice , and group of variables can be the price of wheat , price of sugar, price of milk, price of vegetables.
- **Index Numbers measure changes over period of time or in two or more places** . For example, the cost of living of a certain group of persons may vary over two periods of time , or the cost of living may be different at two different places at the same time . The technique of Index Numbers is employed to measure both these types of changes.

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- **Measures of relative changes:**
- Index Numbers measure relative or percentage changes in a variable or a group of variables over time. Index Numbers are expressed in terms of percentage to show the extent of relative change. However , percentage sign is not used. For example, if the price of a certain commodity rises from Rs.100 in the year 2008 to Rs. 150 in the year 2019, Price Index number will be 150 showing that there is 50 per cent increase in the prices over this period.
- **Quantitative Expression:** Index Numbers offer a precise measurement of the quantitative change in the concerned variables over time. Index Numbers are not qualitative statements.
- To be continued……