

Week-01-L-03

Agricultural Statistics in Practice

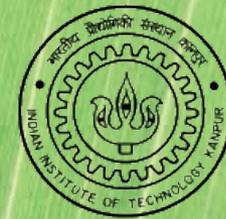
Index Numbers & Forecasting

**Chain based index numbers
and cost of living index with
special reference to farmers**

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Chain based Index Number

- A chain index is an index number that compares the value of a given period to the value of its immediately preceding period.
- It is different from a fixed-base index, where the value of every period in a time series is compared to the same value of one fixed base period.
- Chain indices are named as such because they can be multiplied and divided to convert consecutive indices into a series with the first reference period equal to 100.



2022 2023



Chain based Index Number

- By doing this, the consecutive values create a chain from the first reference period to the last.
- This type of index is useful for tracking changes in economic indicators over time.
- Chain Index for current year:

$$\frac{\text{Average Link relative of current year} \times \text{Chain Index of previous year}}{100}$$



Example

Example Construct an index number via chain based method for given data. Price of a commodity from 2020-2022:

Year	Price
2020	80
2021	90
2022	100

Solution

Year	Price	Link Relative	Chain Index (Base 2020)
2020	80	100	100
2021	90	$\frac{Price_{n+1}}{Price_n} \times 100$ = 112.5	$\frac{Link\ Relative_{n+1} \times Link\ Relative_{n-1}}{100}$ = 112.5
2022	100	111.1	124.98



Cost of Living Index

- The cost of living index is a measure of the average cost of basic necessities such as food, housing, healthcare, and transportation that people need to maintain a certain standard of living.
- For farmers, the cost of living index is particularly important because their income is often tied to the prices of the goods they produce, which are influenced by changes in the cost of living.
- Increases in the cost of living can make it more difficult for farmers to make ends meet, as they may have to spend more money on their own basic needs while also dealing with fluctuations in the prices they receive for their crops or livestock.



Cost of Living Index

- In some cases, farmers may also face additional challenges related to their location or the availability of resources, which can further impact their ability to manage the cost of living.
- As a result, understanding and tracking changes in the cost of living index is an important part of managing the financial health and stability of farming communities.
- Cost of Living Index Number:

$$\frac{\text{Price in the current year}}{\text{Price in the base year}} \times 100$$

50

$$= \frac{1}{50} \times 100^2$$

*Factors
affecting Cost
of Living Index*

*Scope and
Coverage*

*Family Budget
Enquiry*

*Retail Price of
different
commodities*

Thank You



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