

Price Statistics



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OUTLINE

- I. What are Price Statistics?
- II. Price Collection in PSA
- III. Price Statistics Generated by PSA
- IV. Consumer Price Index (CPI)
- V. Inflation Rate
- VI. Other Applications of CPI



I. What are Price Statistics?

Price Statistics are statistics that are used to measure the levels and movement of prices of goods and services that are purchased by consumers.



I. What are Price Statistics?

Examples:

- What is the average price of a kilo of tomato?
- What is the average increase/decrease of price of food from 2012 to 2018?
- What is the year-on-year growth of prices of goods and services from September 2017 to September 2018?





II. Price Collection in PSA

Three Kinds of Collected Prices



- Wholesale Price



- Retail Price



- Farmgate Price





II. Price Collection in PSA

Retail Price

Retail price is the price at which retailers sell their commodities to consumers in the marketplace.





II. Price Collection in PSA

Retail Price – contd.

1. Survey of Retail Prices of Selected Commodities for all Income Households

| | | |
|----------------------------|--------------------------------|--|
| Frequency Varied | Coverage All regions | No. of Outlets 2-37/commodity/area |
|----------------------------|--------------------------------|--|

2. Survey of Retail Prices of Selected Commodities for the Bottom 30% Income Households

| | | |
|----------------------------|--------------------------------|---|
| Frequency Varied | Coverage All regions | No. of Outlets 2-6/commodity/area |
|----------------------------|--------------------------------|---|



II. Price Collection in PSA

Retail Price – contd.

3. Survey of Retail Prices of Selected Commodities for the General Price Index

| | | |
|---------------------------------------|------------------------|---|
| Frequency Bi-weekly, weekly | Coverage NCR | No. of Outlets 4/commodity/area |
|---------------------------------------|------------------------|---|

4. Survey of Retail Prices of Selected Construction Materials

| | | |
|-----------------------------|------------------------|---|
| Frequency Monthly | Coverage NCR | No. of Outlets 1/commodity/area |
|-----------------------------|------------------------|---|



II. Price Collection in PSA

Retail Price – contd.

5. Weekly Survey of Retail Selling Price of Selected Agricultural Commodities

| Frequency | Coverage | No. of Markets |
|---------------|---------------|-----------------------|
| Thrice a week | All provinces | 111 (5 stalls/market) |

6. Weekly Cereals and Fertilizers Price Monitoring Survey

| Frequency | Coverage | No. of Outlets |
|---------------|---------------|----------------|
| Thrice a week | All provinces | 5/province |



II. Price Collection in PSA

Recording of Prices



Computer-Aided Personal Interview (CAPI)

- use of tablet



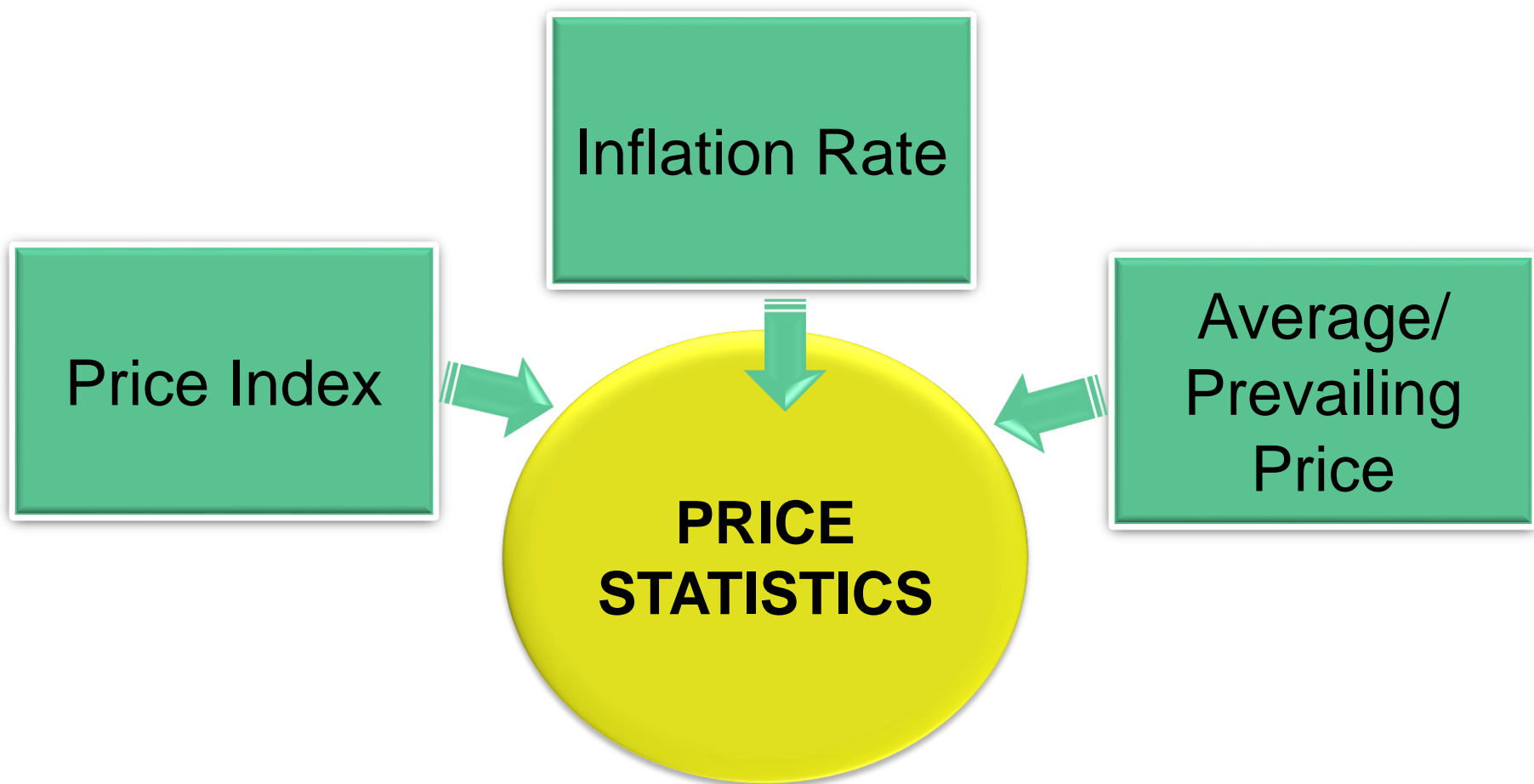
Paper and Pen Personal Interview (PAPI)

- use of questionnaire





III. Price Statistics Generated by PSA





III. Price Statistics Generated by PSA

1. Price Indices

a. Consumer Price Index for all Income Households

b. Consumer Price Index for Bottom 30% Income Households

c. General Retail Price Index



III. Price Statistics Generated by PSA

1. Different Price Indices – cont'd.

d. General Wholesale Price Index

e. Construction Materials Wholesale Price Index

f. Producer Price Index for Agriculture



III. Price Statistics Generated by PSA

2. Inflation Rate

a. Headline Inflation

b. Headline Inflation (Seasonally Adjusted)

c. Core Inflation



III. Price Statistics Generated by PSA

3. Average/Prevailing Price

a. Retail Price of Selected Agricultural Commodities

b. Price of Cereals and Fertilizers (Wholesale, Retail and Farmgate)

c. Farmgate Price of Crops, Livestock and Poultry



III. Price Statistics Generated by PSA

3. Average/Prevailing Price – contd.

c. Farmgate Price of Pesticides

d. Wholesale Price of Selected Agricultural Commodities



IV. Consumer Price Index (CPI)

What is Consumer Price Index?

The Consumer Price Index (CPI) is an indicator of the change in the average prices of goods and services commonly purchased by consumers relative to a base year.





IV. Consumer Price Index (CPI)

What is Consumer Price Index?

Example:

2017 CPI₍₂₀₁₂₌₁₀₀₎ = 111.5

Interpretation:

On the average, prices of goods and services have increased by 11.5 % from **2012** to **2017**.

2012



₱100

same volume



2017



₱111.50



IV. Consumer Price Index (CPI)

How is CPI Computed?

Three Elements

1. Base Year/Base Period
2. Market Basket
3. Weights



IV. Consumer Price Index (CPI)

How is CPI Computed?

1. Base Period/Base Year

The **base period** is the period, usually a year, at which the index number is set to 100. It is the reference point of the index.



IV. Consumer Price Index (CPI)

How is CPI Computed?

1. Base Period/Base Year

- Current Base Year is 2012



IV. Consumer Price Index (CPI)

How is CPI Computed?

1. Base Period/Base Year

Why Rebase?

- to ensure that market basket continues to capture goods and services commonly purchased by households over time.
- to update expenditure patterns of households



IV. Consumer Price Index (CPI)

How is CPI Computed?

1. Base Period/Base Year

Policy on Rebasing

- PSA Board Resolution No. 1, Series of 2017-145

Approves the synchronized rebasing of the price indices to base year 2006 and every six (6) years thereafter



IV. Consumer Price Index (CPI)

How is CPI Computed?

2. Market Basket

Market basket refers to a sample of goods and services commonly purchased by an average Filipino household.



IV. Consumer Price Index (CPI)

How is CPI Computed?

2. Market Basket

- Goods and services included in the CPI market basket were **selected** to represent the price behavior of all goods and services purchased by consumers.
- The market basket used in the construction of the 2012-based CPI was drawn from the results of the **2007-2008 Commodity and Outlet Survey (COS)**.



IV. Consumer Price Index (CPI)

How is CPI Computed?

2. Market Basket

- Commodities in the market basket were updated based on the results of the **2013 Survey of Key Informants**.
- Provinces have their individual market baskets.
- Number of commodities in the market basket ranges from 247 (Sulu) to 720 (NCR).



IV. Consumer Price Index (CPI)

How is CPI Computed?

2. Market Basket

Classification of commodities are based on the **2010 Philippine Classification of Individual Consumption According to Purpose (PCOICOP)** which was patterned after the 1999 COICOP issued by the United Nations Statistics Division (UNSD).



IV. Consumer Price Index (CPI)

How is CPI Computed?

2. Market Basket

The **PCOICOP** is a detailed classification of individual consumption expenditures on goods and services incurred by the three of the five institutional sectors of the 1993 and 2008 SNA.



IV. Consumer Price Index (CPI)

How is CPI Computed?

2. Market Basket

Structure of the 2010 PCOICOP

| | | |
|-----------|---|--|
| Division | ➡ | 01 - Food and Non-Alcoholic Beverages |
| Group | ➡ | 01.1 - Food |
| Class | ➡ | 01.1.1 - Bread and Cereals |
| Sub-class | ➡ | 01.1.11 - Rice |
| Commodity | ➡ | 01.1.11007 - Rice, Regular Milled, Loose, 1 Kg |



IV. Consumer Price Index (CPI)

How is CPI Computed?

3. Weights

Weights represent the relative importance of the commodities or groups of commodities to consumers.



IV. Consumer Price Index (CPI)

How is CPI Computed?

3. Weights

Computed as Proportion of the expenditure for the commodity or group of commodities to the national total expenditure.

Expenditure data are based from the Family Income and Expenditure Survey (FIES).





IV. Consumer Price Index (CPI)

How is CPI Computed?

3. Weights

| Commodity Group | Phil | NCR | AONCR |
|---|---------------|--------------|--------------|
| All Items | 100.00 | 22.52 | 77.48 |
| 01 – Food and Alcoholic Beverages | 38.34 | 6.42 | 31.92 |
| 02 – Alcoholic Beverages, Tobacco and Other Vegetables | 1.58 | 0.27 | 1.31 |
| 03 – Clothing and Footwear | 2.93 | 0.59 | 2.34 |
| 04 – Housing, Water, Electricity, Gas and Other Fuels | 22.04 | 6.50 | 15.54 |
| 05 – Furnishings, Household Equipment & Routine Household Maintenance | 2.95 | 0.70 | 2.25 |
| 06 – Health | 3.89 | 0.69 | 3.20 |



IV. Consumer Price Index (CPI)

How is CPI Computed?

3. Weights

| Commodity Group | Phil | NCR | AONCR |
|--|-------|------|-------|
| 07 – Transport | 8.06 | 1.87 | 6.20 |
| 08 – Communication | 2.93 | 0.80 | 2.13 |
| 09 – Recreation and Culture | 1.41 | 0.33 | 1.08 |
| 10 – Education | 3.28 | 0.82 | 2.46 |
| 11 – Restaurant & Miscellaneous Goods and Services | 12.59 | 3.53 | 9.06 |



IV. Consumer Price Index (CPI)

How is CPI Computed?

Methodology

1. Monthly Average Price of Commodity

$$\text{Monthly Average Price} = \frac{\text{Price for Outlet 1} + \text{Price of Outlet 2} + \dots + \text{Price of Outlet } k}{k}$$

where: k = number of outlets for each commodity



IV. Consumer Price Index (CPI)

How is CPI Computed?

Methodology

2. Average Price of the Base Year

- Arithmetic Mean



IV. Consumer Price Index (CPI)

How is CPI Computed?

Methodology

3. Price Relative (PR)

- Chain Method

$$PR = \frac{\text{Current Month's Average Price}}{\text{Previous Month's Average Price}} \times 100$$



IV. Consumer Price Index (CPI)

How is CPI Computed?

Methodology

4. Sub-Class or 5-Digit Index ($I_{i(5),t}$)

$$I_{i(5),t} = \text{GeomMean}(PR_i) \times I_{i(5),t-1}$$

where: $I_{i(5),t-1}$ is the Sub-class Index at time t-1





IV. Consumer Price Index (CPI)

How is CPI Computed?

Methodology

8. All Item Index ($I_{\text{all items},t}$)

$$I_{\text{all items},t} = \frac{\sum_{l=1}^o w_{l(2)} I_{l(2),t}}{\sum_{l=1}^o w_{l(2),t}}$$

where: o is the number of Divisions

$w_{l(2)}$ refers to the weight of the Division l



V. Inflation Rate (IR)

What is Inflation Rate?

Inflation Rate is the rate of change in the average price of a commodity between two periods.



V. Inflation Rate (IR)

How is Inflation Rate Computed?

Formula:

$$IR = \frac{CPI_{m,t} - CPI_{m,t-1}}{CPI_{m,t-1}} \times 100$$

where: $CPI_{m,t}$ is the CPI for month m at year t
 $CPI_{m,t-1}$ is the CPI for month m at year $t-1$



V. Inflation Rate (IR)

How is Inflation Rate Computed?

Example:

CPI for all items in September 2018 = 119.5

CPI for all items in September 2017 = 112.0

What is the inflation rate for all items in September 2018?

Solution:

$$IR = \frac{CPI_{m,t} - CPI_{m,t-1}}{CPI_{m,t-1}} \times 100 = \frac{119.5 - 112.0}{112.0} \times 100 = 6.7$$





V. Inflation Rate (IR)

How is Inflation Rate Computed?

Example:

IR = 6.7 for Sept. 2018

Interpretation:

On the average, prices of goods and services have increased by 6.7 % from **September 2017** to **September 2018**.

Sept.
2017



₱100

same quantity



Sept.
2018



₱106.70



VI. Other Applications of CPI

Purchasing Power of Peso (PPP)

Purchasing Power of Peso shows how much one peso in the base year is worth in another year.





VI. Other Applications of CPI

How is PPP Computed?

$$PPP = \frac{1}{CPI} \times 100$$



VI. Other Applications of CPI

How is PPP Computed?

Example:

CPI for all items in September 2018 = 119.5

What is the Purchasing Power of Peso in September 2018?

Solution:

$$PPP = \frac{1}{CPI} \times 100 = \frac{1}{119.5} \times 100 = 0.84$$



VI. Other Applications of CPI

CPI as Deflator

Deflator is a factor that is used to change current prices or wages so that they are comparable with past prices or wages by removing the effect of inflation.



VI. Other Applications of CPI

CPI as Deflator

Example:

2017 Salary = 40,000/mo

2018 Salary = 50,000/mo.

2017 CPI=112.2

2018 CPI = 120.2

Compare the real salaries
for the two periods.

Solution:

$$\begin{aligned} 1. \text{ 2018 Real Sal} &= 2018 \text{ Sal} \times \frac{CPI_{2017}}{CPI_{2018}} \\ &= 50,000 \times \frac{112.2}{120.2} = 46,672.21 \end{aligned}$$

$$\begin{aligned} 2. \text{ 2017 Real Sal} &= 2017 \text{ Sal} \times \frac{CPI_{2018}}{CPI_{2017}} \\ &= 40,000 \times \frac{120.2}{112.2} = 42,852.05 \end{aligned}$$

$$\% \text{ Change of Real Sal} = 7.13$$



Thank You



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