Inflation

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Please Read Me

- Check the message **Welcome greeting** published in the News Bulletin Board.

- Dear student please edit your profile uploading a photo where your face is clearly visible.

- The purpose of the virtual meetings is to answer questions and not to make a summary of the study material.

- This presentation is based on (Blanchard and Johnson 2017, Chapters 1 & 2)

Purpose

Introduce the students to the three (3) main variables in macroeconomics (production, inflation and unemployment) with an emphasis on how the two (2) first variables are measured (production and inflation).

What is inflation?

- **Inflation** is a persistent increase in the price level:
    - Inflation refers to a general increase in the price level.
    - This increase must be persistent.
    - A measure that represents the behavior of the price level is required.
- Review the videos found in:
    - **Primer corte 30% > Learning Resources > Links of interest**

Price level

- The **price level** is an **index number** (Ralph, O'Neill, and Winton 2015)
  - An **index number** is a quantity that by varying shows the changes of a magnitude over time or space.
  - Usually to represent the **price level** an index number known as the **Laspeyres Index** is used.
  - **Laspeyres Index** compares the cost of a basket of products with a base period assuming that the quantities consumed are the same as the base period.

Price level

Table 1: Fruits prices and quantities

Fruits	Price 2012	Price 2013	Quantity 2012
Apples	$0.40	$0.42	220
Bananas	$0.50	$0.55	230
Pineapples	$1.25	$2.00	50

- **Laspeyres Index** for 2012 (Base 2012):

$$\frac{Basket\ 2012}{Basket\ 2012} = \frac{0.40 * \mathbf{220} + 0.50 * \mathbf{230} + 1.25 * \mathbf{50}}{0.40 * \mathbf{220} + 0.50 * \mathbf{230} + 1.25 * \mathbf{50}} * 100 = 100$$

- **Laspeyres Index** for 2013 (Base 2012):

$$\frac{Basket\ 2013}{Basket\ 2012} = \frac{0.42 * \mathbf{220} + 0.55 * \mathbf{230} + 2.00 * \mathbf{50}}{0.40 * \mathbf{220} + 0.50 * \mathbf{230} + 1.25 * \mathbf{50}} * 100 = 102$$

- The variation in the **price level** from one period to another is used to measure inflation.

- In our example:

$$\frac{102 - 100}{100} * 100 = 0.02 * 100 = 2$$

- The previous number means that the **price level** increased by 2% between 2012 and 2013 where the **price level** was calculated based on the year 2012.

Index numbers and inflation in Colombia

- The value that the index number takes to measure the **price level** will depend on the products that are taken into account in the basket that is used. In our example the products that were taken into account were Apples, Bananas and Pineapples.

- If all final products that are produced within an economy are taken into account then this index number is known as **GDP Deflator**:

$$GDP \ Deflator_t = \frac{Nominal \ GDP_t}{Real \ GDP_t} * 100$$

- Therefore **inflation** is calculated as:

$$Inflation_t = \frac{Deflator_t - Deflator_{t-1}}{Deflator_{t-1}} * 100$$

Index numbers and inflation in Colombia

- **Indice de Precios al Productor (IPP)** or **Producer Price Index (PPI)**.
  - In Colombia, this index measures the average variation of the prices of a basket of products representative of the internal supply in its first stage of commercialization (DANE 2015).

- **Indice de Precios al Consumidor (IPC)** or **Consumer Price Index (CPI)**
  - In Colombia, this index measures the average variation of the prices of a basket of products representative of household consumption (DANE 2019).
    - You can check out the basket of products included in the **(IPC)** or **(CPI)** in: (DANE 2019) > Actualización metodológica 2019 > Nomenclatura basada en la COICOP (canasta de bienes y servicios) > Estructura IPC 2018

Consumer Price Index (CPI) in Colombia

- The **CPI** is build using information from **Encuesta Nacional de Presupuesto de los Hogares –ENPH- (2016-2017)** where it is conducted every 10 years.

- Additionally, monthly price information is collected for 443 items in 38 cities where divisions included in the **CPI** are based on **Classification of Individual Consumption According to Purpose (COICOP)**

Consumer Price Index (CPI) in Colombia

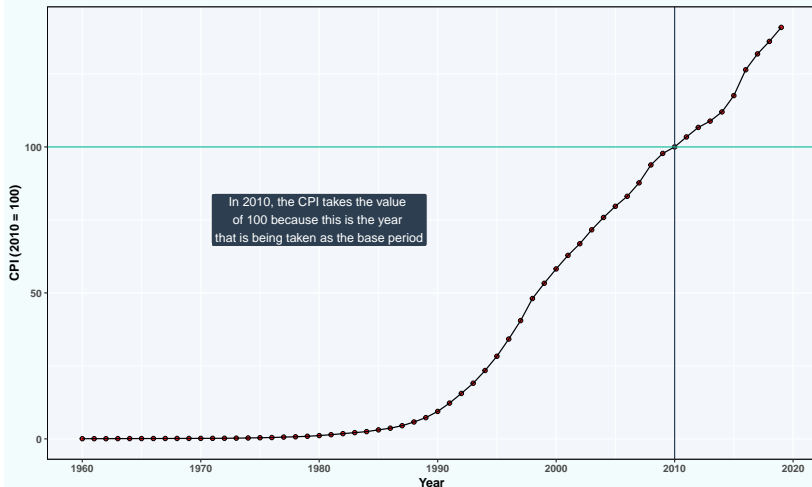**Table 2:** COICOP divisions used in the CPI

Division	Name
01	Food and non-alcoholic beverages
02	Alcoholic beverages, tobacco and narcotics
03	Clothing and footwear
04	Housing, water, electricity, gas and other fuels
05	Furnishings, household equipment and routine household maintenance
06	Health
07	Transport
08	Information and communication
09	Recreation, sport and culture
10	Education services
11	Restaurants and accommodation services
12	Insurance and financial services

Consumer Price Index (CPI) in Colombia

Colombia Consumer price index (CPI)
CPI code WDI: FP.CPI.TOTL
CPI units: none but Base Year 2010

CPI (2010 = 100)

Year

In 2010, the CPI takes the value
of 100 because this is the year
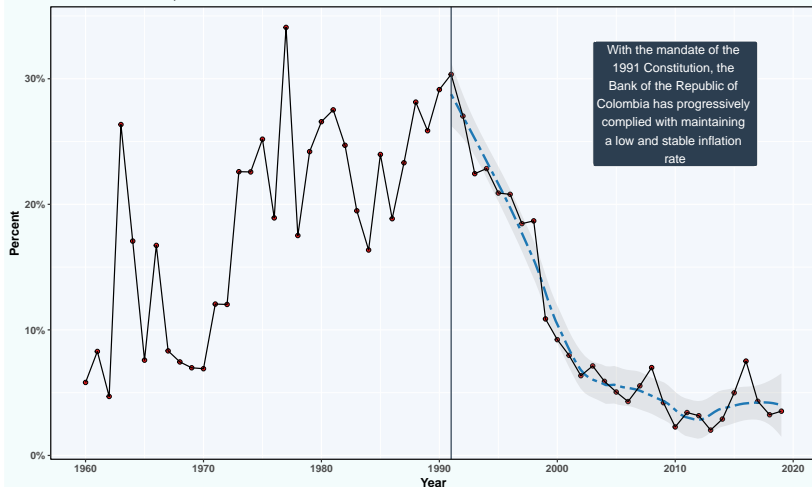that is being taken as the base period

Source: World Bank – World Development Indicators (WDI)
Last update date: 2020–07–01

Consumer Price Index (CPI) in Colombia

Inflation using CPI in Colombia
Variable code WDI: FP.CPI.TOTL.ZG
Variable units: annual percent Base Year 2010

With the mandate of the 1991 Constitution, the Bank of the Republic of Colombia has progressively complied with maintaining a low and stable inflation rate

Source: World Development Indicators (WDI) – World Bank
Last update date: 2020–07–10

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References

Blanchard, Olivier, and David R. Johnson. 2017. *Macroeconomics*. Seventh edition. Boston: Pearson.

DANE. 2015. "Metodología General índice de Precios Del Productor - IPP." Dirección de Metodología y ProducciónEstadística - DIMPE. https://www.dane.gov.co/index.php/estadisticas-por-tema/precios-y-costos/indice-de-precios-del-productor-ipp.

———. 2019. "IPC Actualización Metodológica 2019." https://www.dane.gov.co/index.php/estadisticas-por-tema/precios-y-costos/indice-de-precios-al-consumidor-ipc.

Ralph, Jeff, Rob O'Neill, and Joe Winton. 2015. *A Practical Introduction to Index Numbers*. Chichester, West Sussex: Wiley.