

# Money, prices and the exchange rate

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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 ([Cardenas 2020, chap. 7](#))

# Purpose

Analyze the money market and introduce the concepts of inflation, nominal exchange rate and interest rate

# Money and Central Banks

- Money is an **asset** that fulfills in general 3 functions
  - Medium of exchange
  - Unit of account
  - Store of value
- A central bank is the institution that issues and administrates legal currency and exercises the function of banker of banks ([República 2021](#))
- In the case of Colombia, some of the functions of the central bank are:
  - Keep inflation low and stable and achieve the highest sustainable level of output and employment
  - Manage international reserves
  - Act as the bank of bankers
  - Issue currency
  - Act as a government banker, fiscal agent and trustee

# Money and Central Banks

- Establishment date of central banking institutions<sup>1</sup> ([Herger 2019](#), p 15)

Bank	Established
Sveriges Riksbank	1668
Bank of England	1694
Banque de France	1800
Bank of Finland	1800
Nederlandsche Bank	1814
Austrian National Bank	1816
Norges Bank	1816
Danmarks Nationalbank	1818
Banco de Portugal	1846
Belgian National Bank	1850
Banco de España	1874
German Reichsbank	1876
Bank of Japan	1882
Banca d'Italia	1893
Banco de la Republica (Colombia)	1923

<sup>1</sup>For a list of central banks around the world check out <https://www.bis.org/cbanks.htm>

# Inflation and Consumer Price Index

- **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 where it is necessary to specify a basket of products
- Review the videos found in:
  - **Tercer corte 40% > Learning Resources > Links of interest**

# Inflation and Consumer Price Index

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



# Inflation and Consumer Price Index

- Usually the **price level** used to measure inflation in Colombia is called **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 historical basket of products included in the **(IPC)** or **(CPI)** in: ([DANE 2019](#)) > Información adicional > Estructura histórica de ponderaciones y canasta de seguimiento del IPC

# Inflation and Consumer Price Index

- 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, usually monthly, but in some cases bimonthly, quadrimestral and biannual, 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)** and adapted for Colombia.

# Inflation and Consumer Price Index

**Table 1:** COICOP divisions (International version)

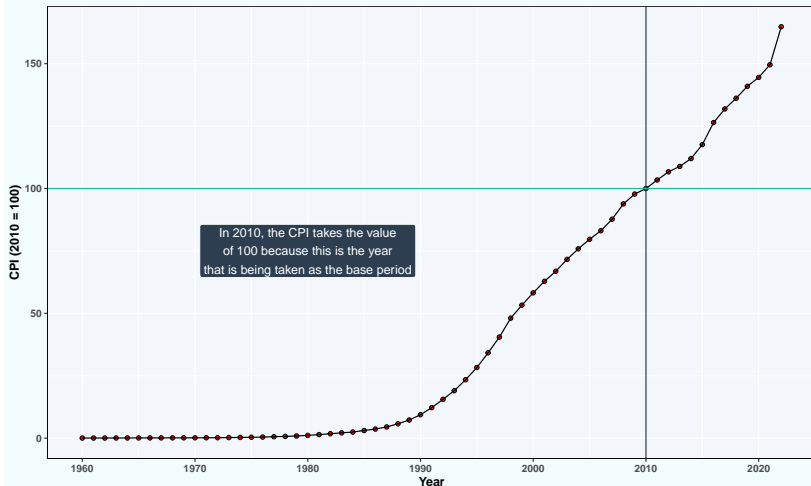
Division	Name
01	Food and non-alcoholic beverages
02	Alcoholic beverages, tobacco and narcotics
03	Clothing and footwear
04	Housing, water, electricity, gas and other fuels
05	Furnishings, household equipment and routine household maintenance
06	Health
07	Transport
08	Information and communication
09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

# Inflation and Consumer Price Index

## Colombia Consumer price index (CPI)

CPI code WDI: FP.CPI.TOTL

CPI units: none but Base Year 2010



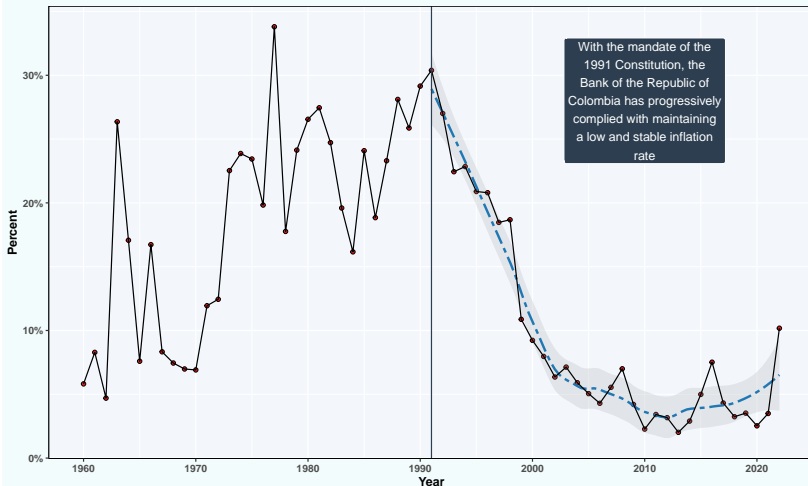
Source: World Bank – World Development Indicators (WDI)  
Last update date: 2023-06-29

# Inflation and Consumer Price Index

## Inflation using CPI in Colombia

Variable code WDI: FP.CPI.TOTL.ZG

Variable units: annual percent Base Year 2010



Source: World Development Indicators (WDI) – World Bank  
Last update date: 2023-06-29

# Inflation and Consumer Price Index

- Calculating inflation using the **Consumer Price Index (CPI)**
  - CPI annual periodicity

$$Inflation_t = \frac{CPI_t - CPI_{t-1}}{CPI_{t-1}} \times 100$$

- CPI monthly periodicity

$$Inflation_t = \frac{CPI_t - CPI_{t-12}}{CPI_{t-12}} \times 100$$

# Exchange Rate and TRM COP/USD

- An exchange rate is the amount of **units of national currency** that must be given in exchange for a **unit of foreign currency**
- If the exchange rate between COP<sup>2</sup> and USD<sup>3</sup> is 3808 COP/USD, it means that 3808 COP must be given to obtain 1 USD
- To have a reference of the exchange rate between COP and USD, the “**Superintendencia Financiera de Colombia (SFC)**” currently calculates and certifies an *average* exchange rate called “**Tasa Representativa del Mercado (TRM)**” on a daily basis
- Also it is important to take into account the following terminology:
  - **Devaluation:** TRM - COP/USD (↑)
  - **Revaluation:** TRM - COP/USD (↓)

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<sup>2</sup>Colombian peso according to ISO 4217 code

<sup>3</sup>United States dollar according to ISO 4217 code

# Exchange Rate and TRM COP/USD

## Daily TRM (COP/USD)

Period: 1991-11-27 – 2023-07-19,  
Observations: 11550



Data source: Banco de la República (Colombia) & Superintendencia Financiera de Colombia (SFC)  
Last update: 2023-07-19



# Monetary policy intervention rate

- In the link <https://www.banrep.gov.co/es/estadisticas/tasas-interes-politica-monetaria> on **2023-07-19** it was pointed out that:
  - *“La tasa de intervención de política monetaria o tasa de referencia es la tasa de interés mínima que el Banco de la República (BanRep) cobra a las entidades financieras por la liquidez que les suministra mediante las operaciones de mercado abierto (OMA). Esta tasa es el principal instrumento de intervención de política monetaria utilizado por el BanRep para afectar la cantidad de dinero que circula en la economía.”*
  - Also the *“tasa de intervención de política monetaria”* on **2023-07-19** was 13.25%

# Monetary policy intervention rate

## Monetary policy intervention rate of the Bank of the Republic (Colombia)

Interest rate expressed as annual effective overdue

Frequency: daily



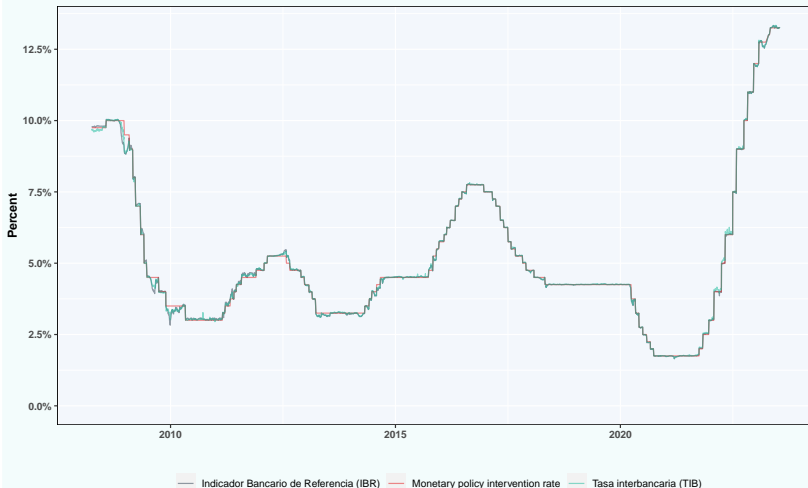
Source: Banco de la República – Colombia

# Monetary policy intervention rate

## Monetary policy intervention rate, TIB and IBR

Interest rates expressed as annual effective overdue

Frequency: daily



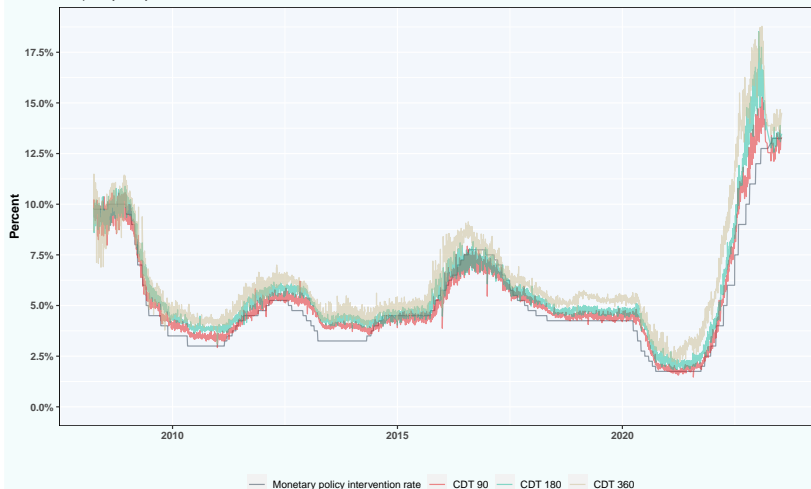
Source: Banco de la República – Colombia

# Monetary policy intervention rate

## Monetary policy intervention rate and CDT interest rates

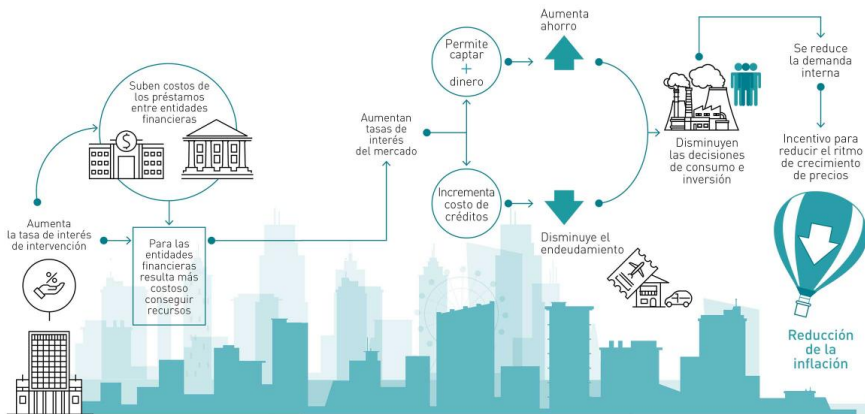
Interest rates expressed as annual effective overdue

Frequency: daily



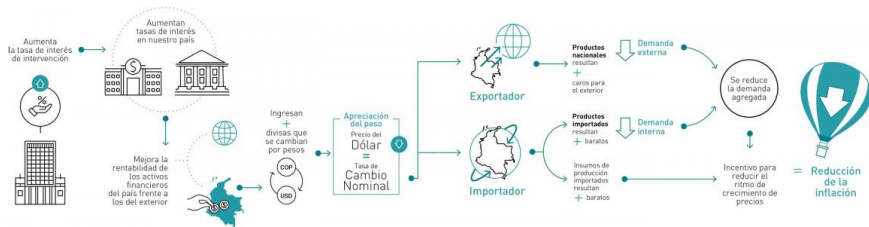
Source: Banco de la República – Colombia

# Monetary policy transmission channels



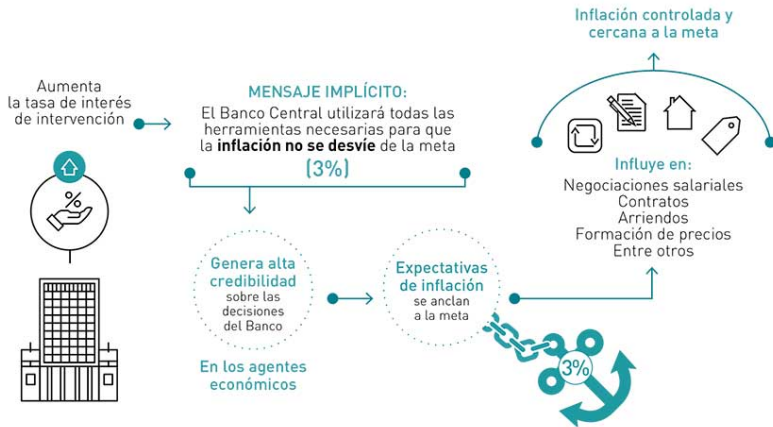
**Figure 1: Interest rate and credit** (Banrep 2020, fig. Canal De Tasa De Interés Y De Crédito: Ejemplo Gráfico)

# Monetary policy transmission channels



**Figure 2: Exchange rate** (Banrep 2020, fig. Canal De Tasa De Cambio: Ejemplo Gráfico)

# Monetary policy transmission channels



**Figure 3: Expectations** (Banrep 2020, fig. Canal De Las Expectativas: Ejemplo Gráfico)

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- To my family that supports me
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- To the **Linux kernel community** for allowing me the possibility to use some **Linux distributions** as my main **OS** without paying for a license



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