Money and Inflation

- In 1970 the New York Times cost 15 cents, the price of a single-family home was $23,400 and the average wage in manufacturing was $3.36 per hour. In 2020 the Times cost $4.50, the price of a home was $383,300, and the average wage was $39.85 per hour. This overall increase in prices is called *INFLATION*.
- When we say that a person has a lot of money, we usually mean that he or she is wealthy.
- By contrast, economists use the term "money" in a more specialized way.
- To an economist, money does not refer to all wealth but only to one type of it: money is the stock of assets that can be readily used to make transactions.
- The Functions of Money:
  - Store of value
  - Unit of account

- Medium of exchange (barter economy with double coincidence of wants)

➢ The Types of Money:

- Fiat money
- Commodity money (gold standard)
- Case Study – Money in a POW Camp

➢ The Quantity Theory of Money:

- Having defined what money is and described how it is measured; we can now examine how the quantity of money affects the economy.
- The theory we will now develop, called the quantity theory of money. It remains the leading explanation for how money affects the economy in the long run.

$$\text{Money} \times \text{Velocity} = \text{Price} \times \text{Transactions}$$

$$M \times V = P \times T$$

- For example, suppose that 60 loaves of bread are sold in a given year at $0.50 per loaf. Then T

equals 60 loaves per year, and P equals $0.50 per loaf. The total number of dollars exchanged is PT = $0.50/loaf × 60 loaves/year = $30/year. The right-hand side of the quantity equation equals $30 per year, which is the dollar value of all transactions. Suppose further that the quantity of money in the economy is $10. We can compute velocity as V = PT/M = ($30/year) / ($10) = 3 times per year.

- That is, for $30 of transactions per year to take place with $10 of money, each dollar must change hands 3 times per year.

➢ From Transaction to Income:

$$\text{Money} \times \text{Velocity} = \text{Price} \times \text{Output}$$

$$M \times V = P \times Y$$

➢ Assumption of constant velocity:

$$MV^* = PY$$

- Where, the star over V means that velocity is fixed. That is, if velocity is fixed, the quantity of money determines the value of the economy's output.

- Money, Price and Inflation: This theory has three building blocks:

  - The factors of production and the production function determine the level of output Y.
  - The money supply M determines the nominal value of output PY.
  - The price level P is then the ratio of the nominal value of output PY to the level of output Y.

- In other words, the productive capability of the economy determines real GDP, the quantity of money determines nominal GDP, and the GDP deflator is the ratio of nominal GDP to real GDP.

- This theory explains what happens when the central bank changes the supply of money.
- Because the inflation rate is the percentage change in the price level, this theory of the price level is also a theory of the inflation rate.
- The quantity equation, written in percentage-change form, is

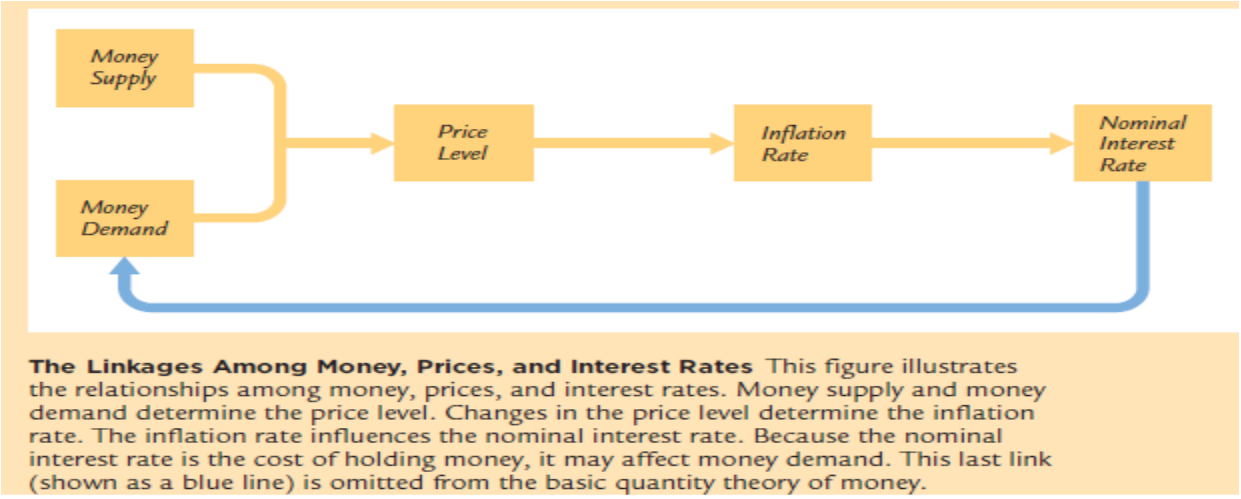
  % Change in M + % Change in V = % Change in P + % Change in Y.

- Thus, the quantity theory of money states that the central bank, which controls the money supply, has ultimate control over the rate of inflation. If the central bank keeps the money supply stable, the price level will be stable. If the central bank increases the money supply rapidly, the price level will rise rapidly.

- Inflation and Interest Rate: Suppose you deposit your savings in a bank account that pays 8 percent interest annually. Next year, you withdraw your savings and the accumulated interest. Are you 8 percent richer than you were when you made the deposit a year earlier?

  - $i = r + p$ (Fisher Equation/Effect)

- According to the quantity theory, an increase in the rate of money growth of 1 percent causes a 1 percent increase in the rate of inflation. According to the Fisher equation, a 1 percent increase in the rate of inflation in turn causes a 1 percent increase in the nominal interest rate.



The Linkages Among Money, Prices, and Interest Rates This figure illustrates the relationships among money, prices, and interest rates. Money supply and money demand determine the price level. Changes in the price level determine the inflation rate. The inflation rate influences the nominal interest rate. Because the nominal interest rate is the cost of holding money, it may affect money demand. This last link (shown as a blue line) is omitted from the basic quantity theory of money.

- Seigniorage: The revenue raised by the printing of money is called seigniorage. The term comes from seigneur, the French word for “feudal lord.” In the middle Ages, the lord had the exclusive right on his manor to coin money. Today this right belongs to the central government, and it is one source of revenue. Printing money to raise revenue is like imposing an inflation tax.
- The Cost of Inflation: Consider the case of expected inflation.
  - Shoe leather cost
  - Menu Cost

- Types of Inflation: In the context of causes, inflation is classified into three types.
  - Creeping Inflation
  - Hyperinflation
  - Galloping Inflation

- Creeping Inflation: When the rate of inflation slowly increases over time. For example, the inflation rate rises from 2% to 3%, to 4% a year. Creeping inflation may not be immediately noticeable, but if the creeping rate of inflation continues, it can become an increasing problem.

- Hyperinflation: Hyperinflation is often defined as inflation that exceeds 50 percent per month, which is just over 1 percent per day. Compounded over many months, this rate of inflation leads to very large increases in the price level.
  - Life during the Bolivian Hyperinflation
  - Hyperinflation in Interwar Germany
  - Hyperinflation in Zimbabwe

- Causes of Hyperinflation: This question can be answered at different levels.

The most obvious answer is that hyperinflations are due to excessive growth in the supply of money. But this answer is incomplete. To address this deeper question, we must turn our attention from monetary to fiscal policy.

- Galloping Inflation: If prices rise by double or triple digit inflation rates like 30% or 400% or 999% per annum, then the situation can be termed as Galloping Inflation. When prices rise by more than 20% but less than 1000% per annum, galloping inflation occurs.

- Key Takeaways:

  - Inflation is the rate at which the general level of prices for goods and services is rising and, consequently, the purchasing power of currency is falling.
  - Inflation is classified into three types: Demand-Pull inflation, Cost-Push inflation, and Built-In inflation.

- Most commonly used inflation indexes are the Consumer Price Index (CPI) and the Wholesale Price Index (WPI).

➢ Causes of Inflation: In the context of causes, inflation is classified into two types.

Demand-Pull inflation and Cost-Push inflation

- Demand Pull Inflation:
  - An increase in money supply
  - Overall demand for goods and services increases more rapidly than the economy's production capacity.
- Cost Push Inflation:
  - Result of the increase in the prices of production process inputs.

➢ Types of Inflation Indexes: In the context of indexes, inflation is classified into two types.

Consumer Price Index (CPI) and Wholesale Price Index (WPI).

- **The Consumer Price Index:**

  The CPI is a measure that examines the weighted average of prices of a basket of goods and services which are of primary consumer needs. They include transportation, food, and medical care.

  - To illustrate the method of calculation, in January 2015, the Consumer Price Index of India was 202.416, and in January 2016 it was 211.080. The formula for calculating the annual percentage rate inflation in the CPI over the course of the year is:

    (211.080-202.416) / (202.416) X 100 = 4.28%

    this means that, the general level of prices for typical Indian consumers rose by approximately four percent in 2015.

- **The Wholesale Price Index:**

  The WPI measures and tracks the changes in the price of goods in the stages before the retail level.

While WPI items vary from one country to other, they mostly include items at the producer or wholesale level. For example, it includes cotton prices for raw cotton, cotton yarn, cotton gray goods, and cotton clothing.