HSS 201: Economics for Engineers

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The US Economy

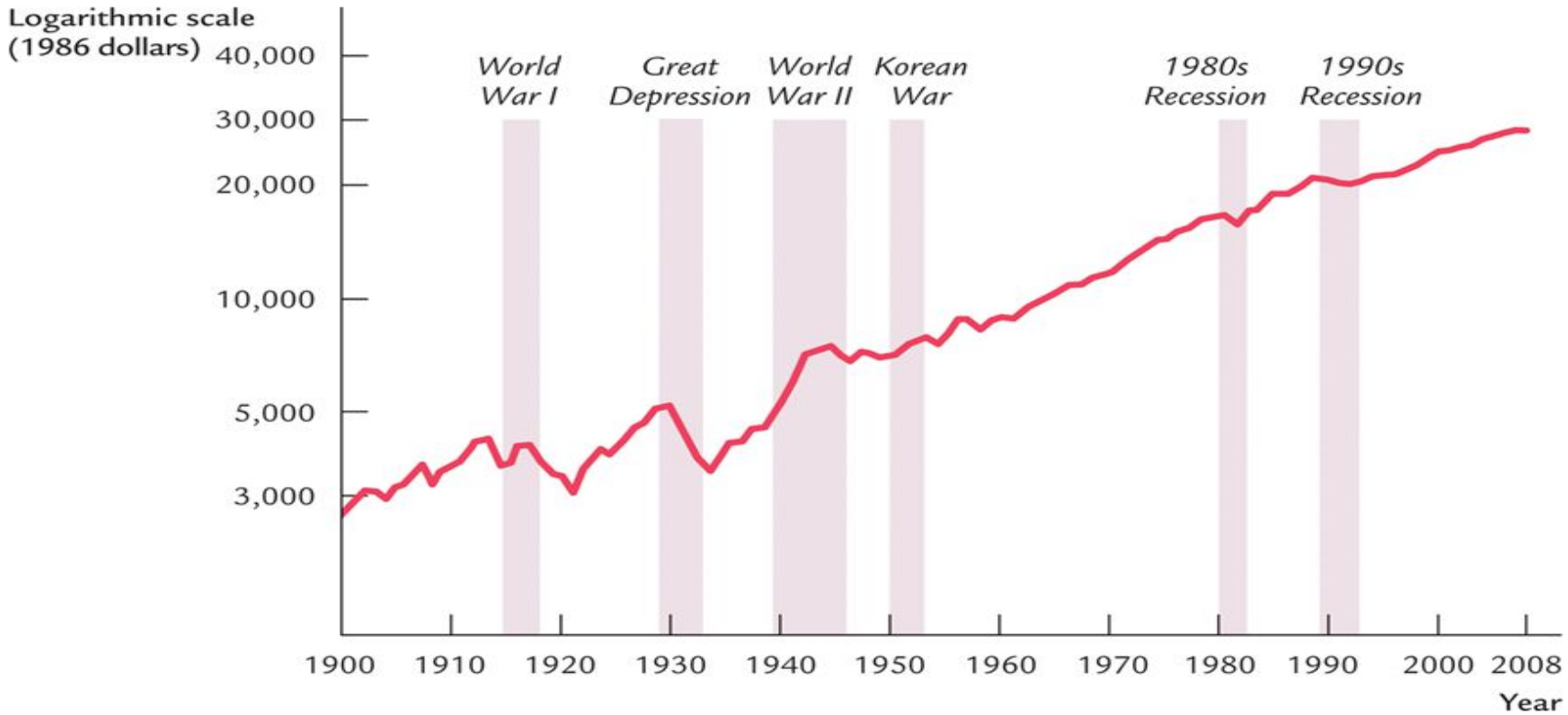


Figure 1.1 Real GDP per Person in the Canadian Economy

Mankiw and Scarth: Macroeconomics, Canadian Fourth Edition

The US Economy

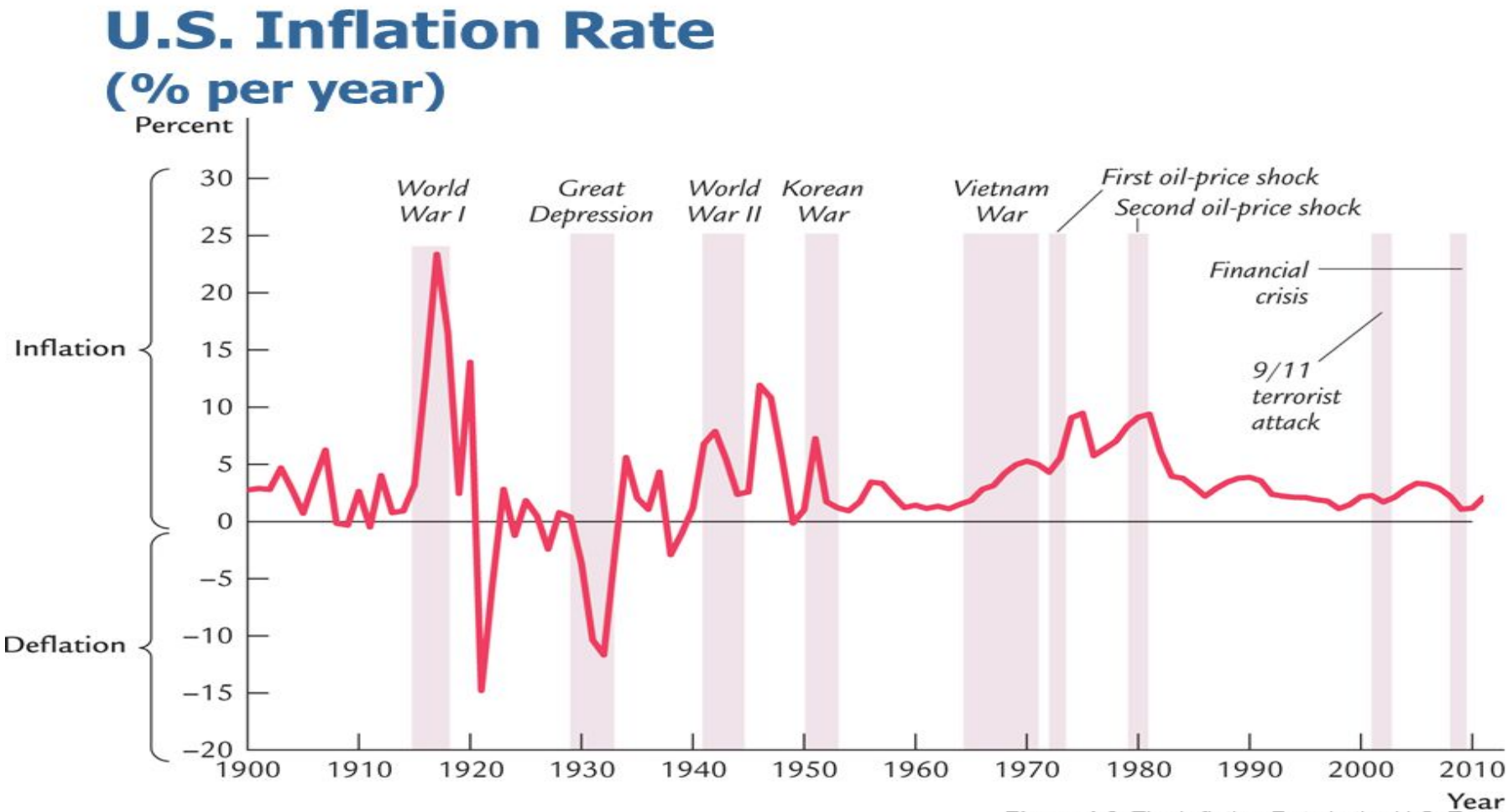
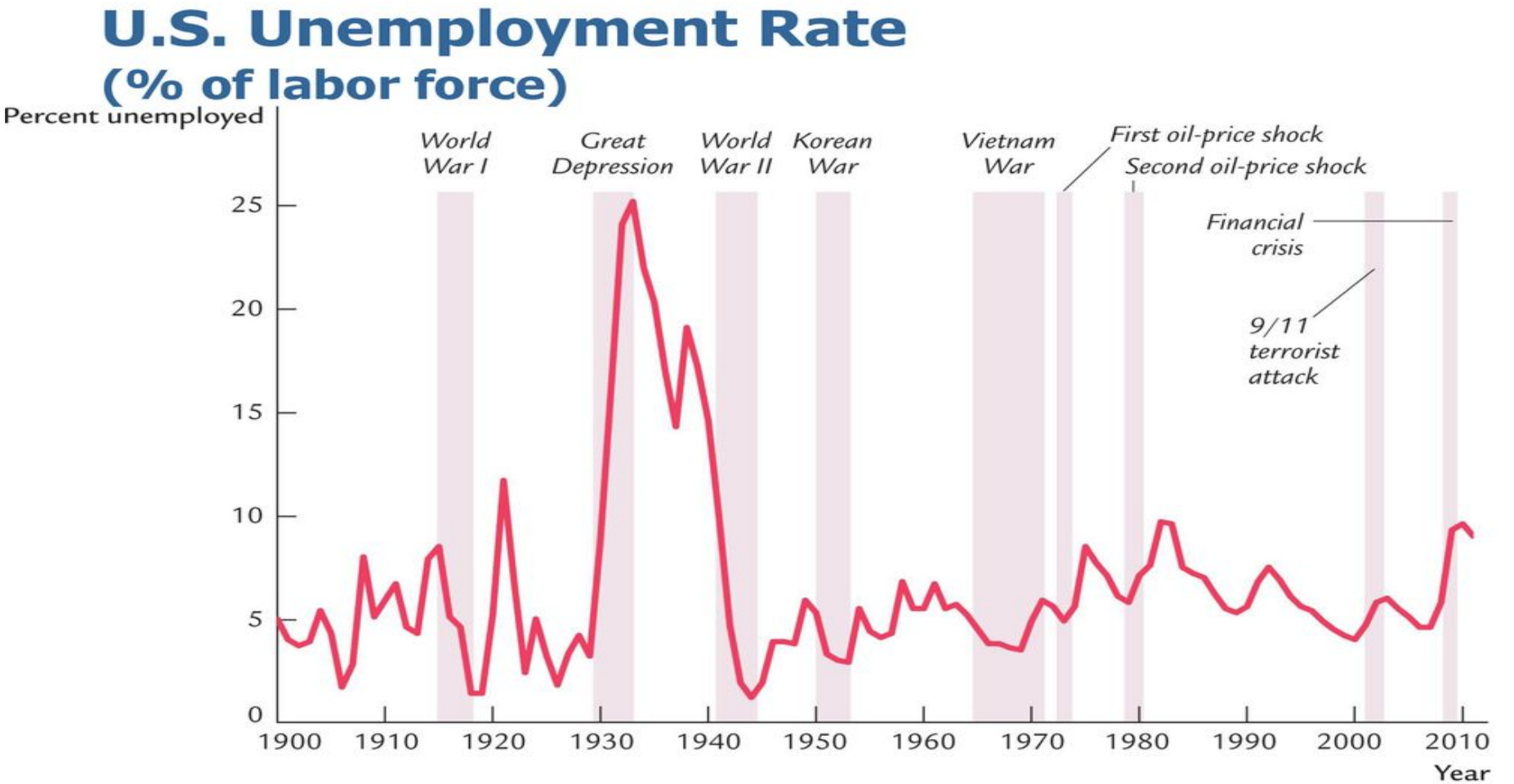


Figure 1.2 The Inflation Rate in the U.S. Economy

The US Economy



What we Observe?

1. Real GDP in the US is increasing over time. In 2000, it was around six times than what it was in 1990.
2. The growth in income allows the US citizen to enjoy a higher standard of living.
3. There are repeated periods during which real GDP falls. Such periods are called recessions if the fall is mild and depressions if the fall is severe
4. Periods of falling prices called deflation.
5. Unemployment is high, when there are recessions and depressions.

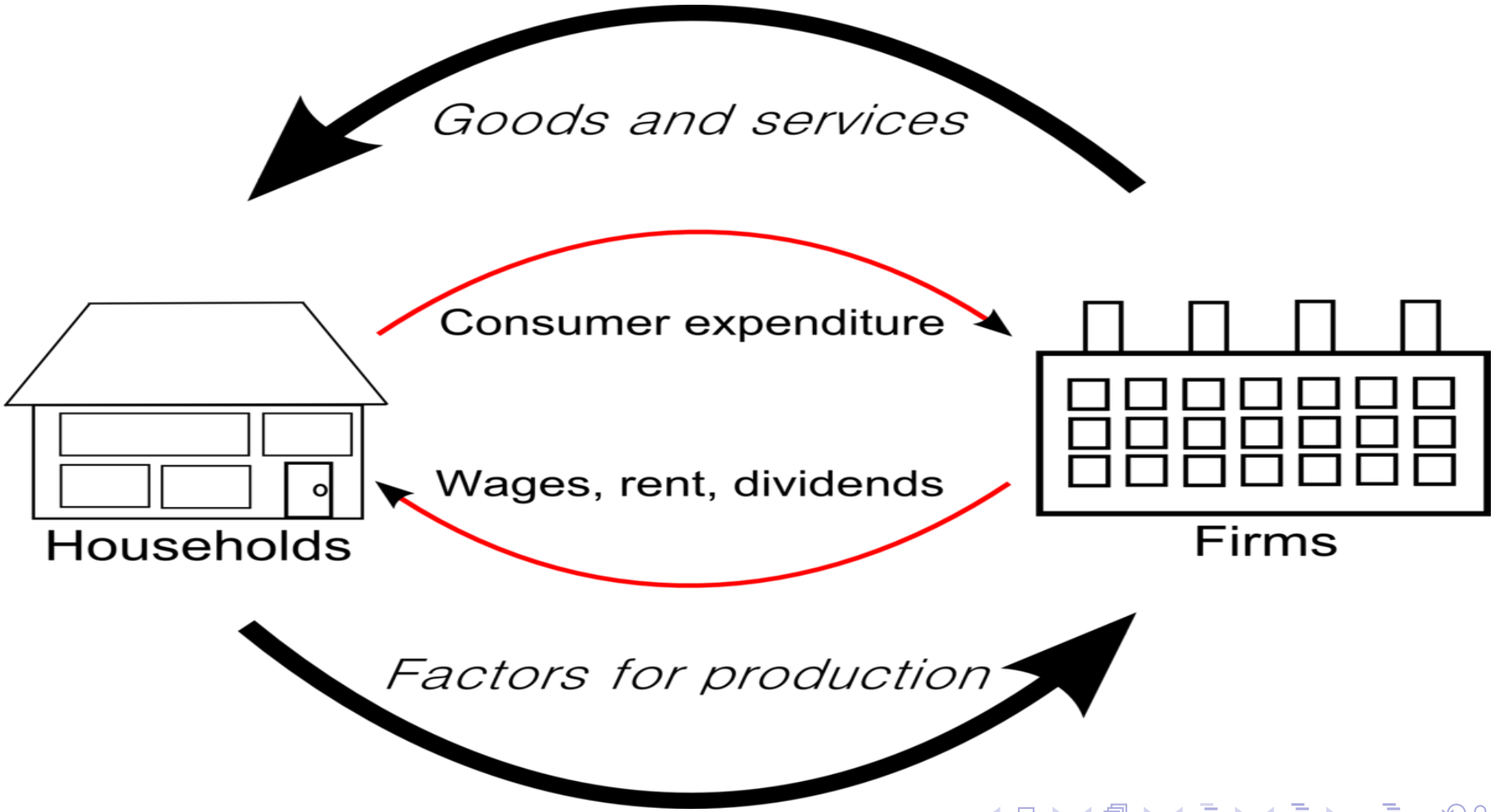
What is Gross Domestic Product?

GDP is the total expenditure on the economy's output of goods and services. Or, it is the total income of everyone in the economy.

How can GDP measure both the economy's income and expenditure on its output?

For the economy as a whole, income must be equal to expenditure. One transaction has a buyer and a seller. When Mr. X paints house for Mr. Y for Rs. 1000, that Rs. 1000 is income for Mr. X and expenditure for Mr. Y

Income, Expenditure and the Circular Flow: The Two Sector Model



Income, Expenditure and the Circular Flow: The Two Sector Model

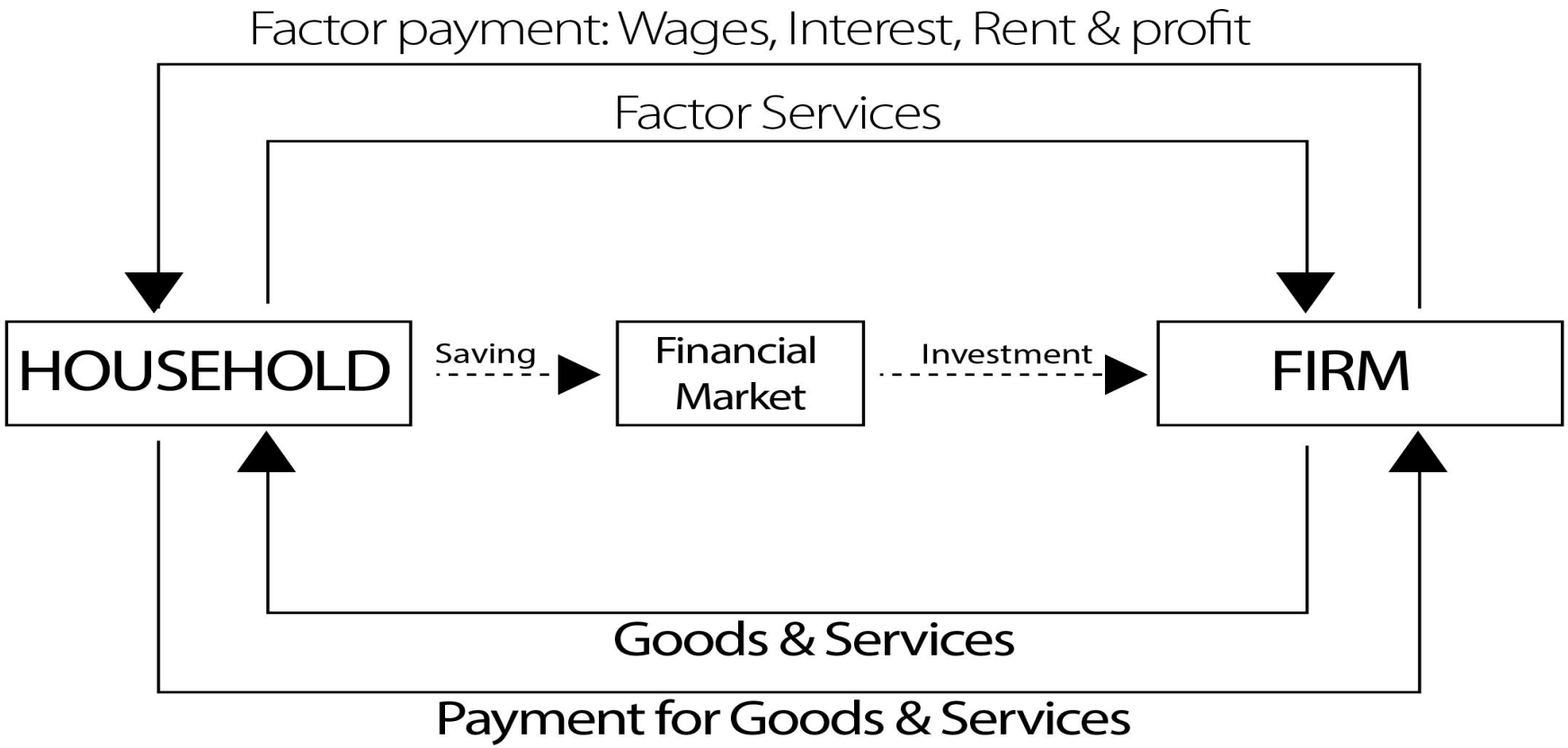
1. Households supply their labor to firms
2. Using that labor, firms produce goods which are sold back to the households
3. The household buy goods from the firms.
4. The firms use some of the revenue from selling goods to pay the wahes to the labourers and the remainder is the profit

The Components of Expenditure

1. Consumption (C):Goods and services bought by housegolds. It is divided into three subcategories: nondurable goods, durable goods and services
2. Investment (I): Business Fixed Investment, residential Fixed Investment and Inventory Investment
3. Government Purchases (G): Military Equipment, Highways. It does not include transfer payments to individuals, such as social securtiy and welfare
4. Net Exports (NX): Exports - Imports

$$Y = C + I + G + NX$$

The Two Sector Model with Financial Sector



$$Y = C + S = C + I; S = I$$

The Two Sector Model with Financial Sector

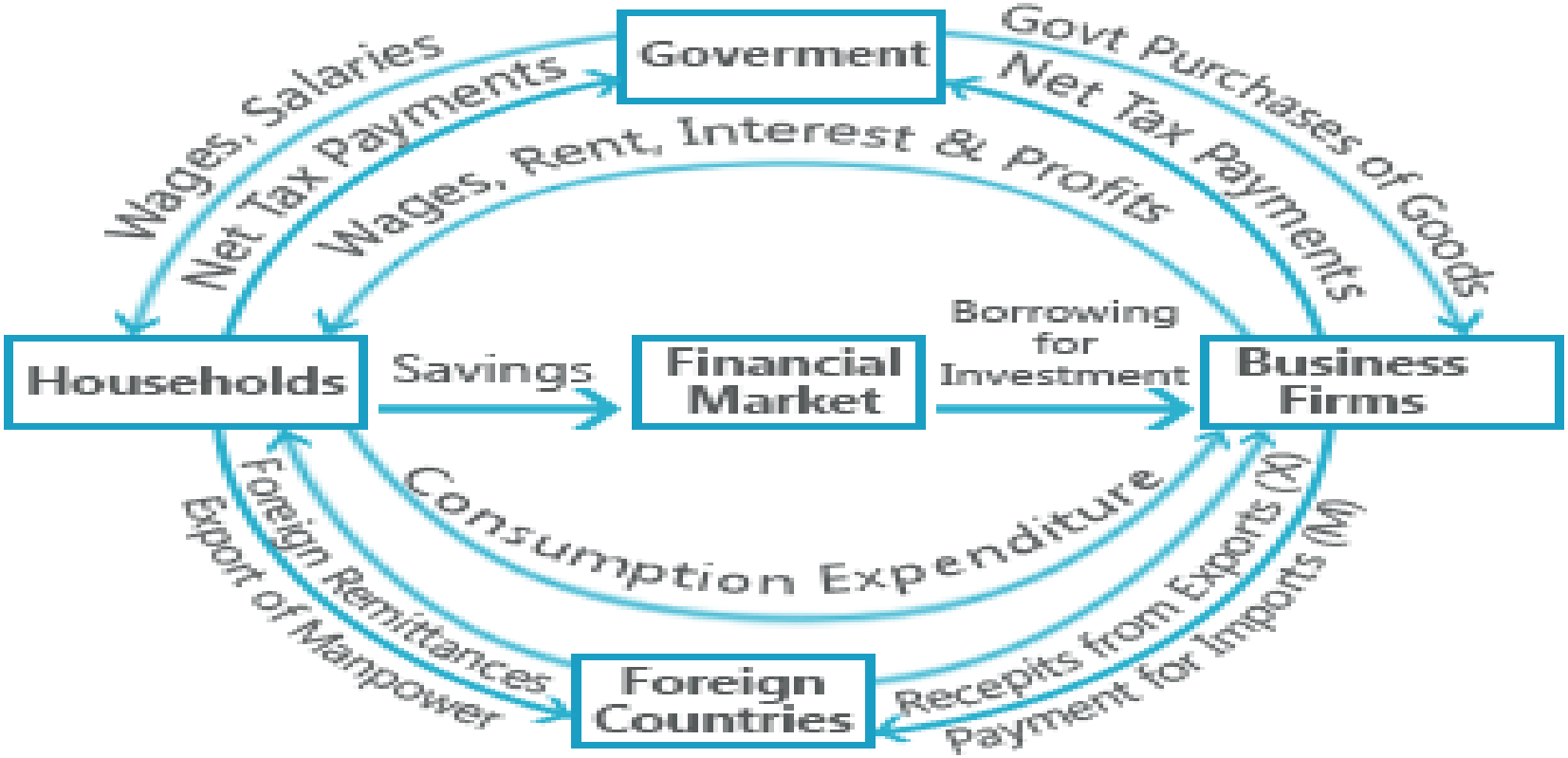
1. The household sector saves. Hence, their expenditure on goods and services are reduced
2. With reduced purchased on goods and services, firms revenue will be less. they would be hiring less number of labors or reduce factor payments
3. In either cases, this will lead to fall of total income in the household sector. Saving reduces flow of income to the business sector. That is why savings are called leakages
4. However, because of financial institutions, the total income would not fall. Households save in bank, and firms take loans from banks for investment
5. Thus, through investment expenditure by borrowing the savings of the households deposited in financial market, are again brought into the expenditure stream and as a result total flow of spending does not decrease

The Two Sector Model with Financial Sector

Investment is injection of some money in circular flow of income.

The withdrawal of money from the income stream by way of saving must equal injection of money by way of investment expenditure. Therefore, planned savings must be equal to planned investment if the constant money income flow in an economy is to be obtained.

The Four Sector Model



Types of Market

1. Goods market
2. Factors market
3. Money market
4. Forex Market

Measures of National Income

1. Gross Domestic Product
2. Gross National Product: GNP = GDP + Net Foreign Factor Income
   - Net Foreign Factor Income = Income earned by domestically owned factors from abroad - Income earned at home foreign owned factors
3. Net Domestic Product
4. Net National Product

Definition of GDP

GDP or gross domestic product is the market value of all final goods and services produced in a country in a given time period.

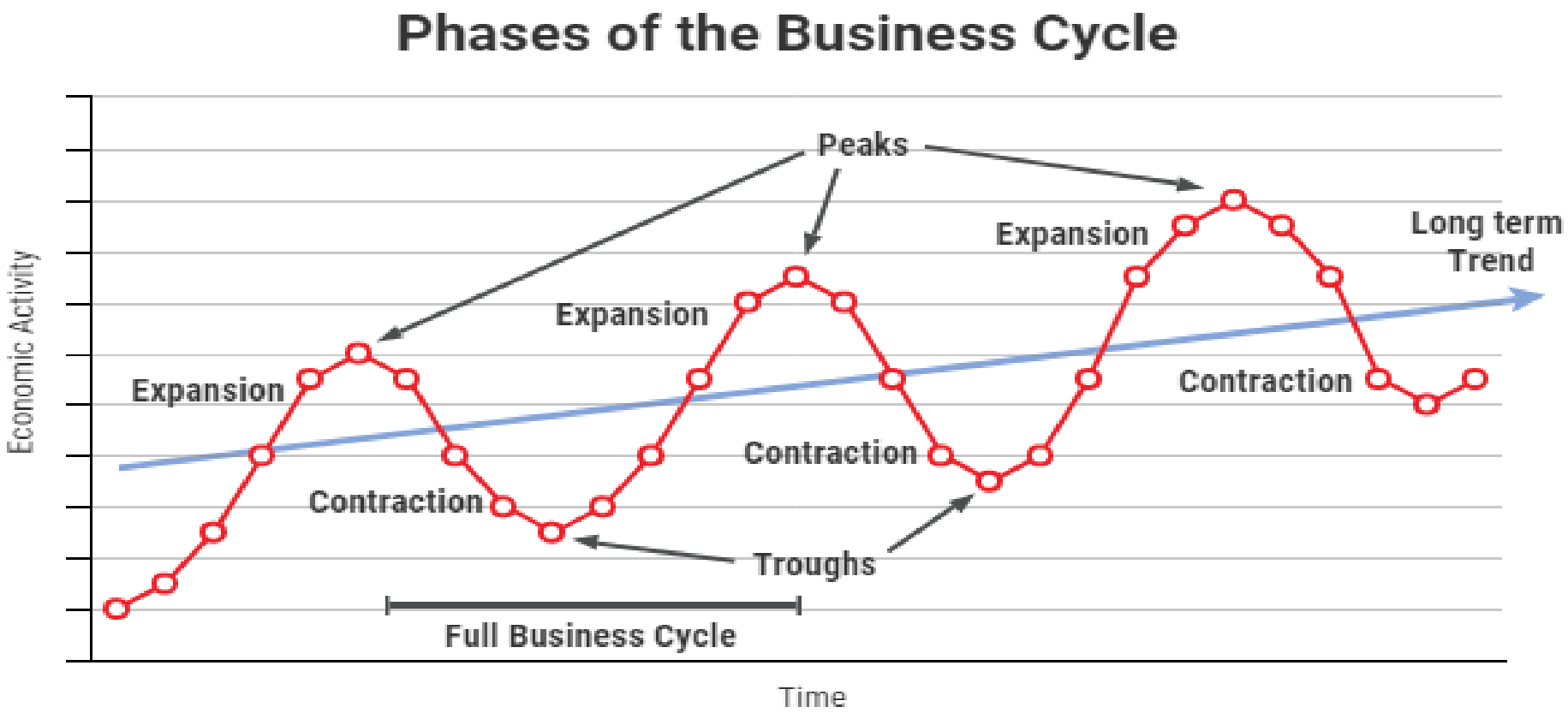
Market Value: Goods and Services at market value of prices.

GDP is the value of the final goods and services produced. A final good (or service) is an item bought by its final user during a specified time period. It does not include intermediate goods.

GDP measures production within a country - domestic production.

GDP measures production during a specific time period, normally a year or a quarter of a year.

The Business Cycle



Inflation

Inflation is quantitative measures, which measures the changes in the price index over two points in time.

There are different methods to compute this price index, one of them is Laspeyres Price Index

$$\text{LPI} = \frac{\sum_{i=1}^{n} P_t{}^{i} \times Q_0{}^{i}}{\sum_{i=1}^{n} P_0{}^{i} \times Q_0{}^{i}} \times 100$$

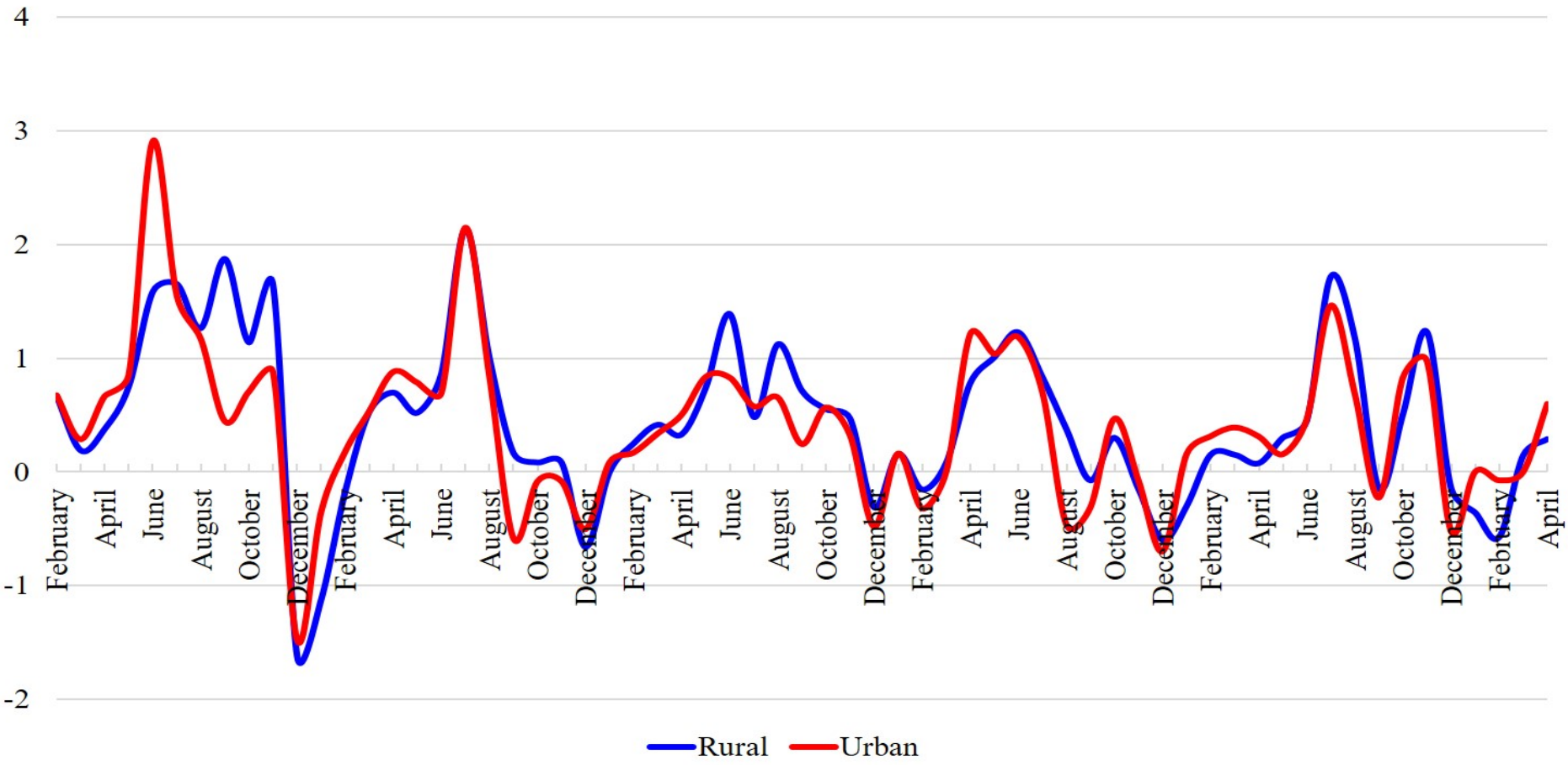
$P_t{}^{i}$: Price at current period of time

$P_0{}^{i}$: Price at base period

$Q_t{}^{i}$: Quantity at current period of time

$Q_0{}^{i}$: Quantity at base period

Inflation based on CPI: 2013 - 2018



Data Source: Open Government Data Platform India

Unemployment

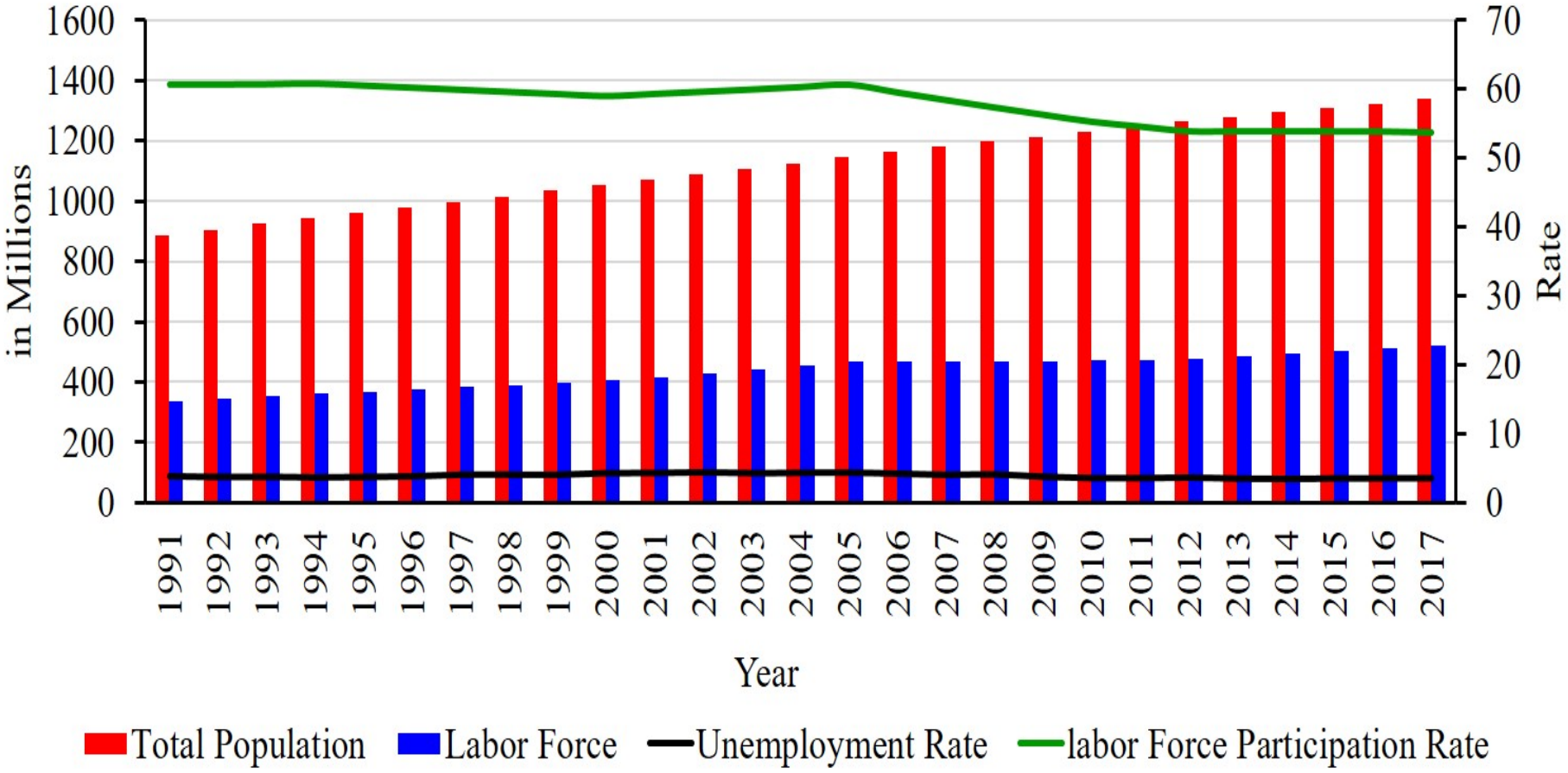
Population = No. of people in labor force + No. of people not in labor force

Labor force = Employed (workforce) + Unemployed

$$\text{Unemployment Rate} = \frac{\text{Unemployed}}{\text{Labor Force}} \times 100$$

$$\text{Labor Force Participation Rate} = \frac{\text{Labor Force}}{\text{Population}} \times 100$$

India's Employment Scenario



Data Source: World Development Indicators, The World Bank (2019).

Monetary Policy

The control over money supply is called monetary policy.

Objectives of Monetary Policy

1. High and Stable Employment
2. Economic Growth
3. Price Stability
4. Financial Stability
5. Stability in Forex Market

Instruments for Monetary Policy

1. Bank Rate of Interest: Commercial Banks approach central bank for loans to add to their reserves. The bank rate is the interst rate charged by the central bank for such loans.

2. Cash Reserve Ratio: It is a portion of deposits (as cash) which banks have to keep/maintain with the central bank.

3. Statutory Liquidity Ratio: Commercial banks are required to invest a portion of their deposits in government securities, gold as a part of their statutory liquidity ratio (SLR) requirements

4. Repo and Reverse Repo Rate: In any shortfall of funds; repo rate is the rate at which central bank lends money to commercial banks. While, the reverse repo rate is the rate at which the central bank borrows money from commercial banks.

Fiscal Policy

Fiscal policies are those policies undertaken by the government that adjust its expenses and revenue to impact or to control a economy.

Instruments for Fiscal Policies

1. Public Revenue: E.g., Fees and Fines, Taxes
2. Public Expenditure
3. Public Borrowing: If government has deficit in revenue (i.e., unable to pay for its expenditure), they borrow money from public by issuing bonds or securities.