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Principles of Macroeconomics – I

Units 1 to 20

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Nature of Course: **DSC – III**
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Course Outline

Unit	Title	Credits	
		L	T
I.	**Introduction to Macroeconomics and National Income Accounting** What is macroeconomics? Macroeconomic issues in an economy. National Income Accounting: Concepts of GDP and National Income; measurement of national income and related aggregates; nominal and real income; limitations of the GDP concept.	10	4
II.	**Classical and Keynesian Theory of Macroeconomics** Classical assumptions, Say's Law of Market, Classical theory of employment, output, prices and interest, Limitations of Classical Theories. Keynesian theory of employment: Determination of effective demand, Comparison and contrast between Classical and Keynesian contribution, Relevance of Keynesian economics to developing countries.	12	4
III.	**Consumption, Saving and Investment Functions** Concepts of MPS, APS, MPC, APC, MPI, API. Keynes Psychological Law of Consumption. Determinants of Consumption. Saving and Investment: Equality between saving and investment. Factors determining Investment. Marginal Efficiency of Capital (MEC), Business expectations and secular stagnation.	11	4
IV.	**Money in a Modern Economy** Concept of money in modern economy; monetary aggregates; demand for money; quantity theory of money; liquidity preference and rate of interest; money supply; credit creation; monetary policy.	11	4

Suggested Readings:

1. Case,Karle.& R.C.Fair,*Principles of Economics*, Pearson Education,Inc.,8th edition,2007.
2. Errol D"Souza, „Macro Economics", Pearson Education 2008.
3. Sikdar,Shoumyen,*Principles ofMacroeconomics*, 2nd Edition,Oxford University Press,India.
4. Eugene Diulio (2004), Macro Economics, Schaum"s Outline Series, Tata McGraw Hill, New Delhi.
5. Branson, W.A., Macroeconomic Theory and Policy, Harper & Row, New York.
6. Shapiro, Edward (1982), Macro Economic Analysis, Galgotia Publications (reprint edition).
7. Gregory Mankiw, „Macro economics" 6th Edn. Tata McGraw Hill.
8. Lipsey R. and A Chrystal, Economics (11th Edition) Oxford University Press New Delhi.

CONTENTS

Unit -1

INTRODUCTION TO MACRO-ECONOMICS

Structure

1.1 INTRODUCTION

Economics is the branch of knowledge that studies individuals' behaviour and activities. In doing so, the discipline focuses on the economic factors that influence behaviour and activities. Specifically, economics studies the behaviour of economic units (like households, and firms). Such a study can be conducted by focusing on the individual's

activity or by considering the aggregate aspects of the activities of all individuals together. The first is the microeconomic study and the second is the macroeconomic study. Specifically, microeconomics studies explain the behaviour of individual economic units, whereas macroeconomics studies predict the behaviour of economic variables in aggregate form, like aggregate consumption, employment, etc. The study of individual decision-makers (household, firm) and their economic choices are the starting blocks of microeconomic enquiry. On the other hand, macroeconomics visualises relationships among aggregate variables and explores the consequences as the aggregate variables interact with each other.

Aggregate activity results from the activities of individual economic units. Then why should we need a separate macroeconomic study when microeconomics attempts to study the behaviour and activities of individual economic units? The reason is that many times, even the best decisions, from the viewpoint of individual economic units, may not result in the best results for society as a whole.

The Swedish economist Axel Leijonhufvud (pronounced as lemonwood) provides another view regarding the distinction between micro and macroeconomics. He argues that the fundamental difference between microeconomics and macroeconomics is that the former primarily studies situations of full resource utilisation, whereas the latter primarily studies situations of underemployment and excess capacity.

1.2 LEARNING OBJECTIVE:

By the end of this unit, you will be able to comprehend the following:

- Know what is macroeconomics
- Difference between macro-economics
- Uses of Macro-Economics
- Limitations of Macro-Economics
- Analyse basic macroeconomic concepts.

1.3 MICRO-ECONOMICS AND MACRO-ECONOMICS

It is widely accepted that the Norwegian economist Ragnar Frisch in 1933 coined the terms microeconomics and macroeconomics. However, the Austrian economist Fritz Machlup argued that the writings of Frisch only have terms like micro dynamic ‘and macro dynamic ‘even though he used them with a meaning almost near to the current meaning and usage. It was after the publication of General Theory by John Maynard Keynes in 1936, that the term macroeconomics became popular and the distinction between micro and macro got attention. Even though Keynes did not use these terms explicitly but referred to macroeconomics as the — theory of output and employment as a whole” in General Theory.

Self-Check Exercise-1

Q1. Who coined the terms microeconomics and macroeconomics?

1.4 DEFINITION OF MACROECONOMICS

The word ‘macro’ originates from the Greek term ‘MAKROS,’ meaning large. Macroeconomics examines the economy, focusing on overall aspects such as total production, savings, investment, and consumption. It studies national income, output, employment, and the general price level, often called ‘Aggregate Economics.’ Rather than analyzing individual firms or households, macroeconomics considers the collective behavior of all economic entities. It emphasizes averages and aggregates rather than specific units within the system.

Prof. Boulding defines macroeconomics as a discipline focusing on overall economic measures rather than individual components. He explains that it deals with total income instead of personal earnings, the general price level rather than specific prices, and national output rather than individual production levels.

Self-Check Exercise-1.2

Q1. Define Macroeconomics.

1.5 Scope of Macroeconomics

The scope of macroeconomics covers the following key areas:

i) **National Income Analysis:** This involves understanding national income, its components, various methods of calculation, and the role of social accounting.

ii) **Employment Theory:** This area examines employment and unemployment issues, focusing on effective demand, aggregate demand and supply, total consumption, savings, and investment.

iii) **Monetary Theory:** The study of money, its demand and supply, and their impact on employment levels. It also examines the functions of banks and financial institutions in managing economic activities.

iv) **Price Level Analysis:** Macroeconomics explores inflation and deflation, examining their economic causes and effects.

v) **Theory of Economic Growth:** Macroeconomics also studies problems concerning economic growth or increases in per capita real income and the standard of living, as well as governments' fiscal and monetary policies.

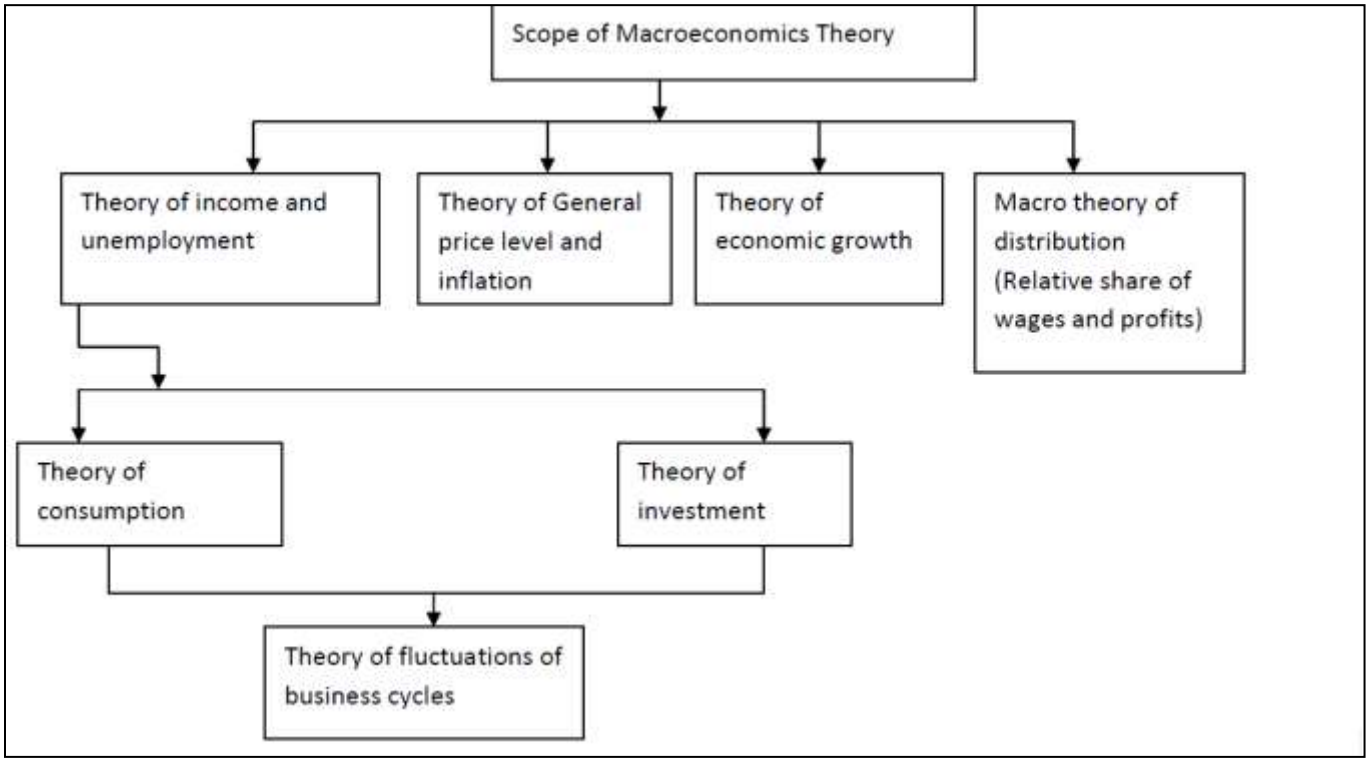
vi) **Theory of International Trade:** It also studies the principles of determining between different countries. Policies of free trade and protection, studies of its quota and foreign aid fall within the purview of macroeconomics.

vii) **Macro Theory of Distribution:** It studies the macro theory of distribution, which explains how the share of different factors of production is determined in the national income.

viii) **Theory of Trade Cycles**: This theory examines variations in employment, spending patterns, and overall price levels. It also explores how these economic fluctuations can be managed.

The different components of macroeconomic theory are illustrated in the following diagram.

Figure 1.1 Scope of Macro Economic Theory



Self-Check Exercise-3

Q1. What is the scope of macroeconomics?

1.6. USES OF MACROECONOMICS

i) **Helpful in understanding the functioning of an economy:** it is only through macroeconomic analysis that we can have an idea of an economy's aggregate output, income, consumption, saving, employment and the like.

ii) **Helpful in the formulation and implementation of economic policies:** macroeconomics is indispensable in the modern set-up. Laissez-faire policy is no longer a policy anywhere, it has become defunct now, and 'Maximum Social Welfare' is the sole objective of modern governments.

iii) **Study of Economic Development:** Macroeconomics is of special importance for capital-poor countries in understanding their basic problems and in suggesting various ways and means to reach the destination of economic development.

iv) **Study of National Income:** Macroeconomics has highlighted the significance of national and social accounting, which is essential for formulating economic policies and plans. Gross National Product (GNP) serves as a valuable tool for economists to assess economic performance and track growth patterns over time. It also provides insights into the contributions of different sectors to national income and helps analyze economic trends within a specific period.

Self-Check Exercise-4

Q1. How does macroeconomic study help in economic decision-making?

1.7 LIMITATIONS OF MACROECONOMICS

Macroeconomics has some limitations too. These are given below:

i) **Dependence on individual units:** It is understood that macroeconomics focuses on aggregates, which represent the combined total of individual units. But the results of these aggregates are sometimes different from the individual behaviour. This is also called 'Macroeconomic paradoxes or Fallacies of composition'. For example, saving may be a virtue for an individual but becomes a vice for an economy as a whole. If a particular person withdraws his total money from the bank, it hardly makes any difference, but if there is a 'Run on Banks' in general, the total banking system would collapse.

ii) **Heterogeneous Units**: Macroeconomics studies different units of goods as common. Different goods have different measures. Measuring all goods using different units is impractical, and a single standard measure for all goods is not feasible.

iii) **Misleading Aggregates:** Analyzing aggregates can sometimes be misleading. For instance, a stable national income does not necessarily indicate that individual incomes have remained unchanged. An increase in some individuals' earnings may balance out a decline in others' incomes, resulting in a constant national income.

Self-Check Exercise-1.5

Q1. What are the limitations of macroeconomics?

1.8 DIFFERENCE BETWEEN MICROECONOMICS AND MACROECONOMICS

The difference between micro and macroeconomics often resulted in intense debate among economists. Both attempt to study aspects of economic activity but from different viewpoints. Once Kenneth J Arrow remarked it as a major scandal that the neo-classical microeconomic price theory cannot explain macroeconomic phenomena like unemployment (especially the crisis of the 1930s). At the same time, economists like Robert Lucas and Thomas Sargent argued that Keynesian economics is fundamentally flawed as many of the Keynesian macroeconomic ideas do not have micro foundations (explanations). The absence of micro foundations does not imply that Keynesian macroeconomic concepts cannot be interpreted through a microeconomic perspective. The main differences between Microeconomics and Macroeconomics are the following:

1. **The importance of the letters 'I' and 'A', for aggregates is significant**: Microeconomics deals with the economic behaviour of mortal individuals, whereas, Macroeconomics gives a 'worm's eye view' or the 'microscopic view' of some specific component of the economy, whereas, Macroeconomics gives a 'bird's eye view' or the macroscopic view of the economy.
2. **Difference in the Degree of Aggregation:** Microeconomics studies the individual units of the economy like a firm. On the contrary, Macroeconomics deals with aggregate like national income and total saving. Henceforth, microeconomics studies the tiny segments of the economy. That is why the micro method is known as the 'Method of Slicing'. Macroeconomics examines the broader aspects of the economic system, which is why it is referred to as the 'Method of Lumping.'
3. **Fundamental Difference:** Prof. G. Thimma named Microeconomics as price theory and Macroeconomics as income theory.
4. **Difference in Methods of Study:** In Microeconomics, the assumption of 'other things being equal' or 'ceteris paribus' and the assumption of 'full employment' etc. are presumed, whereas these assumptions have no relevance under Macroeconomies.
5. **Difference in Subject Matter:** Microeconomics focuses on aspects such as price determination, consumer equilibrium, and economic welfare. In contrast, macroeconomics examines topics like full employment, national income, overall price levels, business cycles, and economic growth.
6. **Partial and General Equilibrium Analysis:** The microeconomic method of study is known as the 'Partial equilibrium analysis' and the

macroeconomic technique is called 'General Equilibrium Analysis' because it deals with the aggregate of economic analysis

7. **Mortal and Immortal Subjects:** Microeconomics deals with individuals and individuals are mortal. Man dies after passing some lifetime in the world. Therefore, a tool of the study of microeconomics i.e., man is mortal on the contrary, Macroeconomics is concerned with the aggregate. It studies the problems of the whole economy. The tool of its study is society. Society never ends. man may come and man may go but the society remains forever. So, Macroeconomics studies the immortal society
8. **Metaphor of Forest:** Professor Boulding illustrated the distinction between these two forms of economic analysis using a forest metaphor. He said, "Just as the forest consists of different trees, the society is also a group of individuals. The difference between the individual and the society is similar to that between a tree and a forest."
9. **Paradoxes:** At times, contradictions arise between micro and macroeconomic activities. An action that benefits an individual may have negative consequences for the overall economy. In other words, what is advantageous at the individual level may not always be beneficial when applied to the economy as a whole.
10. **Study of Price and Income Determination:** As against price under Microeconomics, income occupies the pivotal place in the study of macroeconomics. Thus, macroeconomics is called 'income theory' as its analysis of income levels. 'Employment theory' because it probes movements in employment and Monetary theory' for money plays an important role in it.

Self-Check Exercise-6

Q1. Distinguish clearly the terms micro and macroeconomics with examples.

1.9 MACRO-ECONOMIC CONCEPTS

1.9.1 Exogenous and Endogenous Variables

Endogenous variables are those whose values are determined within the framework of a given model, while exogenous variables derive their values from external factors beyond the model's structure. In simple terms, an endogenous variable is explained by the model, while an exogenous variable's value is not derived from the model itself.

For example, consider the equation:

$$C = \alpha + \beta.Y + U$$

Here, **C** (consumption expenditure) is an endogenous variable since the model determines its value. On the other hand, **Y** (monthly family

income) is an exogenous variable because its value is obtained externally, such as through survey data, rather than being generated by the model.

1.9.2 Independent and Dependent Variables

An independent variable is one that undergoes an initial change, while a dependent variable adjusts in response to changes in the independent variable. Alternatively, the variable upon which the researcher introduces manipulation is called the independent variable and the variable observed for the impact of this initial manipulation is called the dependent variable. Concerning the model mentioned above, Y is the independent variable and C is the dependent variable. The factors that cause changes in the independent variable are not considered at all. In econometrics, the terms exogenous and endogenous variables are used interchangeably for independent and dependent variables.

1.9.3 Ex-ante and Ex-post

The terms ex-ante and ex-post originate from Latin, meaning "before the event" and "after the event," respectively. These concepts were introduced into economic theory by the Stockholm School in the 1920s and 1930s. The term ex-post was first introduced by Erik Lindahl in 1924, while a more detailed discussion on both terms was provided by Nobel laureate Gunnar Myrdal in his 1927 thesis on expectations and price changes.

Myrdal's analysis emphasized the distinction between anticipated and actual economic changes, highlighting the role of uncertainty in economic predictions. Later, another Nobel laureate, Bertil Ohlin, helped popularize these terms through his work on savings and investment within the Stockholm School of Economics.

In macroeconomics, these terms play a significant role in analyzing discrepancies between predicted and actual economic variables due to uncertainty. Such divergences are considered important factors in understanding employment levels and overall economic dynamics.

1.9.4 Identities and Equations

Identities

Identities are mathematical statements or equations that are true in definitional form. Whatever the value of the unknown quantities or variables, an identity is considered true so long as the definitional meaning is true. Identities are represented with a triple bar while equations are represented with an equality sign. Consider the simple macroeconomic model explained earlier.

$$Y = C + I + G + (X-M)$$

This model becomes a true representation of the economy because of its definitional correctness. As such it is also called the national income identity and is represented as:

$$Y \equiv C + I + G + (X-M)$$

The actual numerical values of the variables on the right-hand side of an identity may not always match those on the left-hand side exactly, leading to minor discrepancies. However, by definition, both sides are considered equal, which is why it is termed an identity. A widely recognized macroeconomic identity is the quantity equation of money, where the relationship holds true due to the way the variables are defined within the equation.

M.V. = P.T.

where M = Money V = Velocity P = Price T = Transactions

Equations

In contrast, equations are mathematical expressions that highlight the equality between two sides. An equation holds true only for specific values of the variables involved. Unlike identities, variables cannot take any values to keep the equation true. The values of these variables are found out by solving the equation. The unknown quantities or variables are represented by the last letters of the alphabet like w, x, y and z. Consider the following equation.

28 = 2 +Z+10

Note that the equation is true only for a particular value of 'Z'.

Self-Check Exercise-1.7

Q1. What do you understand Dependent and Independent variables?

Q2. Differentiate Between identities and equations.

Q3. Explain Ex-ante and Ex-post variables.

1.10 SUMMARY

Microeconomics studies the economic behaviour of individual economic entities and individual economic variables. Macroeconomics focuses on the overall economic system by examining aggregate variables, which is why it is also referred to as aggregative economics. In this unit, we have also discussed the scope of economics, its limitations, and its uses. In this chapter, we have also discussed the different concepts of macroeconomics.

1.11 GLOSSARY

- **Macroeconomics:** Macroeconomics focuses on the study of aggregate measures rather than individual units. It examines overall national income instead of personal earnings, the general price level

instead of specific prices, and total national output rather than individual production.

- **Independent Variable:** The values that can be changed in a given model or equation. They provide the "input" which is modified by the model to change the "output."
- **Dependent Variable:** The values that result from the independent variables.
- **Ex-ante Variable:** The term *ex-post* originates from Latin and translates to "after the fact." It refers to the analysis of past data, commonly used to estimate the likelihood of a loss based on historical returns. In contrast, *ex-ante* means "before the event" and is used to predict future outcomes.
- **Ex-post Variable:** A term that refers to future events, such as future returns or prospects of a company. Using ex-ante analysis helps to give an idea of future movements in price or the future impact of a newly implemented policy.
- **Identities:** Identities are mathematical statements or equations that are true in definitional form. Whatever the value of the unknown quantities or variables, an identity is considered true so long as the definitional meaning is accurate. Identities are represented with a triple bar while equations are represented with an equality sign.
- **Equations:** An equation is a mathematical expression that establishes equality between two statements. It holds true only for specific values of the variables involved. Unlike identities, which remain valid for all possible values, equations require solving to determine the appropriate variable values.

1.12 ANSWERS TO SELF-CHECK EXERCISES

Self-Check Exercise-1.1

Answer 1. Refer to Section 1.3.

Self-Check Exercise-1.2

Answer 1. Refer to Section 1.4.

Self-Check Exercise-1.3

Answer 1. Refer to Section 1.5.

Self-Check Exercise-1.4

Answer 1. Refer to Section 1.6.

Self-Check Exercise-1.5

Answer 1. Refer to Section 1.7.

Self-Check Exercise-1.6

Answer 1. Refer to Section 1.8.

Self-Check Exercise-1.7

Answer 1. Refer to Section 1.9.2.

Answer 2. Refer to Section 1.9.4.

Answer 2. Refer to Section 1.9.3.

1.13 REFERENCES/SUGGESTED READINGS

1. Branson, W. A. (2005). *Macroeconomic theory and policy*. Harper & Row.
2. Diulio, E. (2004). *Macroeconomics*. Schaum's Outline Series, Tata McGraw-Hill.
3. Dwivedi, D. N. (2018). *Macroeconomics: Theory and policy*. Tata McGraw-Hill.
4. Gupta, R., & Rana, A. (1977). *Keynes and post-Keynesian economics*. Kalyani Publications.
5. Mankiw, N. G. (2008). *Macroeconomics* (6th ed.). Tata McGraw-Hill.
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1.14 TERMINAL QUESTIONS

Q1. What do you understand by macroeconomics? How does it differ from microeconomics? What are the uses and limitations of macroeconomics?

Q2. Write a note on Exogenous and endogenous variables.

UNIT-2

NATIONAL INCOME: BASIC CONCEPTS

STRUCTURE

2.1 INTRODUCTION

National income refers to the overall monetary worth of all economic activities carried out within a country. It is a key macroeconomic indicator that influences aggregate demand, business conditions, and economic growth. The distribution of national income shapes consumption patterns and business prospects, making it crucial for economic forecasting.

In a closed economy, national income includes only domestic economic activities, whereas in an open economy, it accounts for net foreign transactions (exports minus imports). Economic activities generate goods and services with market value, such as production by firms, government enterprises, and financial institutions. In contrast, non-economic activities—such as household chores, social services, and voluntary work—do not contribute to national income.

National income can also be measured through money flows, encompassing factor payments like wages, interest, rent, and profits. National income at factor cost is derived by accounting for indirect taxes and subsidies. Unlike private income, national income excludes items like social security benefits but includes employer contributions and public enterprise profits. Private income can be adjusted to estimate national income accurately.

2.2 LEARNING OBJECTIVES

By the end of this unit, you will be able to:

- Understand the concept and significance of national income.
- Identify different aggregates of national income.
- Explain various approaches to measuring national income.
- Discuss the methods used in India for national income estimation.

2.3 DEFINITION OF NATIONAL INCOME

National income represents the aggregate value of all goods and services generated within a country over a defined time frame, usually a year. This timeframe is considered appropriate for economic assessment. The term "national product" is often used interchangeably with national income.

1. Alfred Marshall, in his book *Principles of Economics* (1949), defines national income as “The labour and capital of a country, acting on its natural resources, produce annually a certain net aggregate of commodities, material and immaterial, including services of all kinds.....and net income due on account of foreign investments must

be added in. This is the true net National income or Revenue of the country or the national dividend."

2. **Irving Fisher** defined national income as "The national dividend or income consists solely of services as received by the ultimate consumers, whether from their material or from human environments. Thus, a piano or an overcoat made for me this year is not a part of this year's income, but an addition to capital. Only the services rendered to me during this year by these things are income."
3. **The Central Statistical Organization** defines National income as "National Income is the sum of factor income earned by the normal residents of a country in the form of wages, rent, interest and profit in an accounting year."
4. **J. M. Keynes**, a famous economist defined national income as follows. "National Income is the monetary value of all goods and services produced in a country during a year"

Self-Check Exercise-1

Q1. Define National Income.

2.4 NATIONAL INCOME: BASIC CONCEPTS

2.4.1. Consumption Goods: Consumption refers to the use of goods and services by individuals or government entities to satisfy personal or collective needs. These goods are directly utilized without undergoing further transformation in the production process. Consumer goods, often termed final goods, are intended for direct use by households. Examples include essentials like bread, milk, tea, and coffee, which are consumed once (single-use consumer goods). However, items such as furniture, machines, and clothing, which provide prolonged utility, fall under durable consumption goods. In essence, consumer goods represent the final stage of production, ready for end users.

2.4.2. Capital Goods: Capital goods are assets used in the production of other goods rather than being consumed directly. These include machinery, equipment, and buildings that support manufacturing and service industries. Unlike consumer goods, capital goods are not exhausted within a single production cycle; they remain in use for an extended period. Often, capital goods undergo upgrades or enhancements to improve efficiency and longevity. Since these goods facilitate further production, they are also referred to as producer goods.

2.4.3. Final Goods: Final goods are those that reach the end consumer without requiring further modification. These goods cater to either consumption or investment needs. For example, a household purchasing furniture for personal use treats it as a final good, whereas a business acquiring the same item for office use considers it a producer good.

Similarly, flour bought by a family for home consumption is a final good, but when used by a baker in production, it becomes a producer good.

2.4.4. **Intermediate Goods:** Intermediate goods are those utilized in the production of other goods rather than being consumed directly. These goods serve as inputs in manufacturing and may be partially finished products. Industries purchase intermediate goods either for resale or further processing. Examples include raw materials and semi-finished products, such as raw cotton used to make yarn. When this yarn is then supplied to a textile mill for fabric production, it becomes an intermediate good for the textile manufacturer.

2.4.5 Stock: Stock refers to the total value of goods and services available at a specific point in time. It represents an accumulated quantity that can increase through inflows or decrease due to outflows. Stocks are measured at a particular moment, such as the population count at a given year. For instance, India's population was recorded as 102 billion in the 2001 Census, compared to 84.6 billion in 1991. The change in figures between these two census years represents the effect of population growth over a decade.

2.4.6 Flow: Flow refers to changes in stock over a period. It accounts for inflows (additions) and outflows (reductions) that occur within a given timeframe. Unlike stock, which is measured at a single moment, flow is assessed over intervals. An example is the population increase between 1991 and 2001, which resulted from births occurring over ten years. In essence, stock represents a static measure, while flow is a dynamic concept capturing ongoing changes.

2.4.7 Depreciation: Depreciation refers to the decline in the value of capital goods over time due to continuous use, obsolescence, or natural wear and tear. Capital goods, such as machinery, buildings, and equipment, are used repeatedly in production processes. However, their efficiency and worth decrease over time. This reduction in value, which results from usage and the passage of time, is known as depreciation.

Depreciation refers to the reduction in the value of an asset over a defined period. It can also be described as the decline in an asset's economic usefulness throughout its operational lifespan.
The main causes of depreciation include:

- **Wear and tear** – Continuous usage in the production of goods and services leads to deterioration.
- **Passage of time** – The value of an asset decreases over time, leading to a difference between its original and current worth.
- **Obsolescence** – The introduction of newer technologies or products can render an asset outdated.

Depreciation is considered a non-cash expense, recorded as a provision to account for the asset's declining value over time. It is allocated

annually from profits to ensure that adequate funds are available for maintenance, repairs, or replacement.

2.4.8 Gross Investment: Gross investment refers to the total increase in capital stock within an economy without accounting for depreciation. It includes assets such as machinery, tools, equipment, buildings, office spaces, warehouses, and infrastructure. However, not all capital goods produced within a year add to the existing capital stock. A substantial portion is used to maintain or replace worn-out assets from the current stock of capital goods, which implies that depreciation is included in gross investment.

To determine net investment, depreciation is subtracted from gross investment:

Net Investment = Gross Investment – Depreciation

2.4.9 Domestic Territory: In everyday terms, a country's domestic territory refers to its political boundaries. However, in national accounting, the concept extends beyond mere political borders. The United Nations defines economic territory as the geographical area under a government's administration where people, goods, and capital move freely. The key criterion for defining economic territory is this freedom of circulation. Certain areas, such as foreign embassies within a country's borders, are not considered part of its economic territory because they are not under its administrative control. It is important to note that the income generated within a country's domestic territory in a given year is referred to as domestic income. The term economic territory is often used interchangeably with domestic territory.

2.4.10 A Resident

National income is often described as the total factor income earned by the normal residents of a country within a year. The term normal resident holds specific significance in national accounting. A resident is an individual or institution that typically resides in a country and has its economic center of interest there. A person is considered a normal resident if they meet two main conditions:

1. They reside in the country for at least one year.
2. They participate in economic activities such as earning, spending, or accumulating wealth within the country.

It is crucial to understand that national income accounts for the earnings of only normal residents within a given year.

Self-Check Exercise-2

Q1. What do you mean by consumption and capital goods?

Q2. Define

1) Final Goods
2) Intermediate Goods

Q3. What do you mean by depreciation?

Q3. Define domestic territory.

2.5 NATIONAL INCOME AND RELATED AGGREGATES

National income can be analyzed as the total of various economic flows. One of the most comprehensive measures used for this purpose is Gross National Product (GNP) at market prices. Understanding this measure requires attention to key terms: gross, national, and market prices. Each of these terms serves a specific role in valuation. Alternative classifications include net, domestic, and factor cost, which adjust the measurement based on different considerations.

2.5.1 Gross and Net Concept

The term gross signifies that depreciation, or the loss in value of capital assets, has not been subtracted from the total. In contrast, **net** means that depreciation has already been accounted for. The distinction between a **gross** and **net** measure lies in whether depreciation is deducted. Mathematically, this relationship is expressed as:

GNP at market price/factor cost = NNP at market price/factor cost + depreciation.

This concept is fundamental in national income accounting, as it helps distinguish between total output before and after accounting for capital consumption.

2.5.2 National and Domestic Concepts

The term national refers to the total income earned by normal residents of a country through their participation in global production during a given year. It includes all factor incomes residents generate, regardless of whether their productive activities occur within the country or abroad. On the other hand, domestic represents the total income or output produced within the country's geographical boundaries, also known as domestic territory. This measure is called the domestic product. The key difference between national and domestic aggregates lies in their reference points: national aggregates consider residents, while domestic aggregates focus on the production location.

The relationship between these concepts is expressed as:

GNP at market price/factor cost = GDP at market price/factor cost + Net factor income from abroad NNP at market price/factor cost = NDP at market price/factor cost + Net factor income from abroad

Net factor income from abroad = Factor income received from abroad - Factor income paid abroad.

2.5.3 Market Prices and Factor Costs

When the national product is valued at market prices, it reflects the actual amount paid by the final buyers. In contrast, valuation at factor cost represents the total earnings of production factors for their role in generating output.

The relationship between these measures is expressed as:

$GNP_{MP} = GNP_{FC}$ + indirect taxes- Subsidies.

$NNP_{MP} = NNP_{FC}$ + indirect taxes- Subsidies.

Where MP = Market Price and FC = Factor Cost

And vice versa

	Category A	Category B
Type 1	GNP at market price	GDP at market price
	NNP at market price	NDP at market price
Type 2	GNP at factor cost	GDP at factor cost
	NNP at factor cost	NDP at factor cost

Key distinctions:

- Category A vs. Category B: The difference between these aggregates is net factor income from abroad.
- Type 1 vs. Type 2: The difference here arises from indirect taxes minus subsidies.
- Within each type and category: The distinction is due to depreciation.

2.5.4 Gross National Product and Gross Domestic Product

In some cases, it is essential to measure the total income generated within a country's geographical boundaries, regardless of whether it is earned by its residents or foreign entities. This measure is referred to as Gross Domestic Product (GDP) and is calculated as:

GDP = GNP - Net factor income from abroad

Where,

Net factor income from abroad = Factor income received from abroad - Factor income paid abroad.

For instance, if in 1986 the Gross National Product (GNP) was ₹8,00,000 million, and the income received from abroad was ₹60,000 million while payments abroad amounted to ₹70,000 million, then GDP for that year would be:

GDP = (Rs 8,00,000 - 70,000 + 60,000) million = Rs 7,90,000 million

GNP as the Sum of Final Expenditures

The total expenditure on final goods and services within an economy can be grouped into the following categories:

- **Personal Consumption Expenditure (C):** The total spending on durable goods, non-durable goods, and services for household consumption.
- **Gross Private Investment (I_g):** This includes both the replacement of depreciated capital goods and new investments.
- **Government Expenditure (G):** The total spending by the government on goods and services, including capital investments.
- **Net Exports (X – M):** The balance between a country's export earnings and its expenditure on imported goods and services.

Thus, Gross National Product (GNP) is the sum of these four components:

$$\mathbf{GNP = C + Ig + G + (X – M)}$$

2.5.5 GNP as the Total of Factor Incomes

The national product serves as an indicator of a country's overall economic activity, regardless of whether production occurs within its borders or overseas. To determine Gross National Product (GNP) at factor cost, we adjust for government interventions in the form of indirect taxes (such as excise duty and sales tax) and subsidies. This adjustment ensures that the measure reflects the actual earnings received by the factors of production. While indirect taxes represent government claims on income, subsidies contribute to factor earnings, making them an essential component of this calculation.

$GNP_{FC} = GNP_{MP}$ – Indirect taxes + Subsidies

2.5.6 Net National Product

Net National Product (NNP) is a key measure of national income, differing from Gross National Product (GNP) primarily in one aspect. While GNP accounts for the total value of final goods and services, including consumption, gross investment, government expenditure, and net exports, NNP adjusts for **depreciation**—the wear and tear of capital assets such as buildings and equipment.

The relationship between GNP and NNP can be expressed as:

$$\mathbf{GNP = NNP + Depreciation}$$

NNP accounts for **net private investment**, whereas GNP considers **gross private domestic investment**. Since assets naturally depreciate over time, the actual net contribution to production is derived by subtracting depreciation from the total output. The resulting figure, when valued at **current market prices**, represents NNP at market prices—indicating the

net monetary worth of final goods and services produced within a given year.

2.5.7 NNP at Factor Cost (or National Income)

The production of goods and services involves various factors of production, and **National Income (NNP at factor cost)** represents the total earnings of these factors. It is derived using the following formula:

National Income (NI) = GNP – Depreciation – Indirect Taxes + Subsidies

Subsidies provide additional income to factors of production, so they are included, whereas indirect taxes are deducted because they do not contribute to factor earnings.

2.5.8 Personal Income

While national income reflects the total earnings of factors of production for their role in current output, it does not equate to the actual income received by individuals. Personal income is determined by adjusting national income to exclude earnings that are not received and include incomes that are received but not earned in the current period.

The formula is:

Personal Income = NNP at factor cost - Undistributed profits - Corporate taxes + Transfer payments

2.5.9 Disposable Income

Disposable income refers to the portion of an individual's total earnings that remains available for spending and saving after deducting direct taxes. It is derived from personal income by subtracting the amount paid in direct taxes.

Disposable Income = Personal Income - Personal taxes

2.5.10 Real Income

Monetary valuation of goods and services at current prices may not accurately reflect the actual economic condition. Real income represents national income adjusted for price changes, using the price level of a selected base year as a reference.

2.5.11 Per-capita Income

Per capita income is obtained by dividing the total national income by the country's population.

Per Capita Income = National Income/Population

Self-Check Exercise-3

Q1. Distinguish between Gross Domestic Product (GDP) and Gross National Product (GNP).

Q2. Distinguish between Market Price and Factor Price.

Q3. Write short notes on:

i) Gross Domestic Product
ii) Personal Income
iii) Gross Domestic Product at Factor cost

2.5 SUMMARY

This unit covered fundamental concepts related to National Income. It represents the total value of goods and services produced within a country over a specific period. Gross National Product (GNP) accounts for this value along with net income from abroad. By adjusting for net indirect taxes and subsidies, we obtain GNP at factor cost. Net National Product (NNP) results from subtracting depreciation from GNP. National Income at Factor Cost (NIFC) reflects the earnings of production factors—land, labor, capital, and entrepreneurship—calculated by deducting indirect taxes and adding subsidies to NNP. Personal Income, which refers to the total earnings received by individuals or households, is derived by adjusting National Income for social security contributions, corporate taxes, undistributed corporate profits, and transfer payments.

2.6 GLOSSARY

- **Consumption Goods:** Goods or services used directly by households or government to satisfy needs.
- **Capital Goods:** Goods used to produce other goods, such as machinery, buildings, and equipment.
- **Final Goods:** Finished products meant for consumption or investment.
- **Intermediate Goods:** Goods used as inputs in production, such as raw materials or partially finished products.
- **Stock:** The value of goods and services at a specific point in time.
- **Flow:** The change in stock over a period of time**.**
- **Gross Investment:** Total additions to capital stock, without accounting for depreciation.
- **Depreciation:** The reduction in an asset’s value over time due to usage or obsolescence.
- **Gross National Product (GNP):** Total value of final goods and services produced by a country’s residents.
- **Gross National Income (GNI):** Total income from production activities within an economy in a given period.
- **GNP at Market Prices:** Market value of total final products before depreciation.

- **Personal Consumption Expenditure:** Spending on durable and non-durable goods and services.
- **Gross Private Investment:** Spending on replacing and expanding capital goods.
- **Government Expenditure:** Government spending on consumption and capital goods.
- **Net Exports:** Difference between exports and imports of a country.
- **Disposable Income:** Income left with individuals after direct taxes.

2.7 ANSWERS TO SELF-CHECK EXERCISES

Self-Check Exercise-2.1

Answer 1. Refer to Section 2.3.

Self-Check Exercise-2.2

Answer 1. Refer to Sections 2.4.1 & 2.4.2.

Answer 2. Refer to Sections 2.4.3 & 2.4.4.

Answer 3. Refer to Section 2.4.7.

Answer 4. Refer to Section 2.4.9.

Self-Check Exercise-2.3

Answer 1. Refer to Section 2.5.4.

Answer 2. Refer to Section 2.5.3.

Answer 3. Refer to Section 2.5.

2.8 REFERENCES/SUGGESTED READING

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2.9 TERMINAL QUESTIONS

Q1. What do you understand by National Income? Define National As defined by Keynes.

Q2. Explain the concepts of a) GNP b) NNP c) GDP d) Disposable income.

UNIT-3

MEASUREMENT OF NATIONAL INCOME-I

STRUCTURE

3.1 INTRODUCTION

National income represents the total monetary value of all goods and services produced within a country over a specific period. It can be measured through income, output, or expenditure methods. Key indicators include Gross National Product (GNP), Gross Domestic Product (GDP), and Net National Product (NNP).

3.2 LEARNING OBJECTIVES

After completing this unit, you will be able to:

- Describe various approaches to measuring national income.

- Explain the expenditure, value-added, and income methods of national income calculation.
- Discuss the significance and challenges of national income estimation.

3.3 METHODS OF MEASURING NATIONAL INCOME

National income is a key measure of a nation's economic activity, representing the total value of goods and services generated within a given timeframe. National income measurement provides insights into economic performance and the economy's health, guiding policymakers in formulating strategies for sustainable growth and development. Therefore, understanding each method of national income is essential. National income is measured using three main approaches: the Production Method, Income Method, and Expenditure Method. Each method provides a different perspective on economic activity, which will be explored in the following sections.

Self-Check Exercise-1

Q1. What are the primary methods of measurement of national income?

3.4 INCOME METHOD OR FACTOR INCOME

The production process is an ongoing activity where goods and services are created using various factors of production such as land, capital, and entrepreneurship. These factors cooperate in the production process because they receive earnings in cash or in kind which will satisfy wants. The producers engage these factors because they have the capacity to produce tangible goods and services. The producers are, therefore, under an obligation to make payment for factor services. The income received by various factors of production during the production process is known as factor income.

From the producer’s perspective, it is referred to as 'income paid,' while for the factors of production, it is 'income received.' National income can be measured by summing either the income paid by producers or the income received by factors, known as the 'income-paid-out' and 'income-received' variants, respectively. National income, whether measured by the income-paid-out variant or by the income-received variant must give us identical results. Countries adopt either of the two variants to calculate national income as a total of factor income, based on the availability of relevant data. At times, income paid and income received measures are used simultaneously, as in France, to compute the national income. In most of countries, however, the income-paid-out approach is extensively used because of the easy availability of data relating to it.

3.4.1 Classification of Factor Income

The income received by factors from businesses, the government, or other institutions can be categorized based on the economic sector in

which the activities occur. The most comprehensive classification consists of the following five types of income:

(i) Compensation of employees,

(ii) Interest,

(iii) Rent,

(iv) Profits and Dividends, and

(v) Mixed income of self-employed.

We may adopt a less comprehensive but still effective classification of factor income into three broad categories, viz.,

(i) Wage Income,

(ii) Non-wage Income, and

(iii) Other incomes.

(i) Wage Income: Wage income is the earnings received by employees, both in cash and kind, provided they are regular residents of the country. Wage income must be computed before payment of taxes and deductions of social security contributions. Factors of production work for private enterprises, government and sometimes they work for themselves (self-employed). The total wages and salaries earned by factors over a year contribute to the national income. Data for this calculation is gathered from government budget reports, payroll tax records, and sector-wise employment details from both public and private organizations.

However, at times, aggregate wage income statistics are inadequate or available for certain years only. In such cases, it is necessary to conduct special surveys to collect wage income data. Not all factor units are included in the data collection process. Suppose that we have to estimate the earnings of the workers employed in the cotton textile industry in India. We will pick up a few workers on at random basis representing all categories in an industrial unit. Then we will find out the average income of these representative workers by dividing their gross income by their number. This average income, then, will be multiplied by the total number of - workers engaged in this industrial unit to arrive at the total income of all the workers in this unit.

Similarly, the wage income of workers employed in other cotton textile units is computed. The sum of the wage income of workers in all the units will provide us with data relating to income paid to workers in the cotton textile industry. A similar method may be employed to find out the wage income of workers working in other sectors.

'We have to follow a different method to estimate the compensation paid in kind to domestic and farm workers, restaurant, and industrial employees. The value of board or lodging is computed at their cost to the

employers or at the prices at which these facilities would be available to the employees elsewhere.

Another type of wage income is 'supplementary labour income,' which includes benefits such as provident fund, pension, gratuity, and other social security provisions. Income arising out of supplementary earnings is ascertained from the sample accounts of the enterprises administrating welfare programmes. Annual surveys and other reports also furnish information relating to supplementary earnings

(ii) **Non-Wage Income**: Non-wage income consists of payments made to factors of production, including interest, rent, distributed profits, and dividends. We would like to discuss in brief the different sources of non-wages income which are as follows:

(a) **Interest:** Interest is the earnings received by individuals and non-profit institutions for providing capital to enterprises. It also covers returns from life insurance policies, bank deposits, and government bonds. Normally, the interest accruing to households is not -shown in the national income because no relevant information is available on this count. In such cases, the interest payments to households appear in business profit as a factor share.

Interest income can be assessed using income tax records, as done in the United States, or through surveys analyzing the financial activities of business enterprises.

(b) Rent: Income from rent may be defined as a capital share derived solely from the ownership of land and buildings. Rental income includes net rent accruing to households and private non-profit making institutions. It does not include rent on the ownership of farms and owner-occupied business buildings. It is so because it is reflected in the profits of the firms and business enterprises. Information on rent's contribution to national income is gathered through specialized surveys or tax records.

(c) Profits and Dividends: Corporate profits include dividends and undistributed profits.

Dividends are the income paid by the enterprises to households and non-profit making organisations as a share of profits. Data relating to the share of dividends in the national income may be computed from the reports of corporate income taxes or reports of special taxes on income from stock and other securities.

Undistributed profits are the sums set aside by firms for future tax payments. It is obtained after the payment of dividends, interest, transfers and direct taxes. Figures relating to undistributed profits may be obtained from the corporate income tax returns or through special sample surveys.

(c) Mixed Incomes of the Self-employed: Mixed incomes of the; self-employed are considered as income from work. It is true that the entire income a self-employed person receives cannot be attributed to his

effort alone. Any production activity requires the services of other factors in addition to human effort to produce goods and services. In most cases, the producer supplies his own land and capital instead of borrowing their services from the market. His income, therefore, includes interest for the capital and rent for the land he has supplied.

If he were to provide these factors to others he would receive interest and rent. But in practice, it is difficult to draw a dividing line between his labour, land and capital. They are lumped together.

The entire: income of the self-employed is regarded as the income from work.

(iii) Other incomes: Other incomes include the surplus of public enterprises, taxes, and net income from foreign sources. Public enterprises, owned by the government, generate profits that are not distributed among shareholders but contribute to national income. Similarly, the government does not earn taxes but collects them. These taxes are the incomes of factor inputs which the government has collected.

If tax revenue is utilized to pay wages and salaries for producing goods and services, the government sector may not seem to create additional income. This is because the incomes of non-government employees were already counted and taxes are a part of their income. If the same money is paid to government employees, it would appear that it should not be called as income. This is not correct. The total earnings of non-government employees, before tax deductions, represent their contribution to the production of goods and services. Likewise, the earnings of government employees reflect their economic contribution and should be counted in national income. Additionally, the net income from abroad, calculated as the difference between a nation's export earnings and import payments, is also included in national income. To sum up, national income as a sum of factor incomes or factor costs can be calculated by estimating the values of wage income, non-wage income and other incomes by the various methods and sources, discussed above in the text.

3.4.2 Difficulties in Allocation of Factor Income

Factors of production which assist in the production process to produce goods and services receive income for their factor services. However, difficulties arise in the allocation of factor income both art the payable and on the receivable side. We would like to discuss some of the more important difficulties, which are as follows:

(i) Classification of income. The first difficulty arises in classifying the type of payment or receipts. There is not much confusion or disagreement regarding the classification of factor income into two broad

categories, viz., wage and non-wage income. But, what constitutes wage and non-wage income is a matter of dispute.

(ii) Income of the members of armed forces. The earnings of armed forces personnel are typically excluded from labor income, but benefits provided in kind are considered in national income estimates. A challenge in valuation arises in determining whether boarding and lodging should be recorded at employer cost or at market prices the personnel would otherwise pay.

(iii) Allocation of mixed income. Difficulties arise in the allocation of mixed-income. Income generated from farms and agricultural enterprises is counted as factor income. However, earnings derived from farm ownership, buildings, and financial assets are excluded. These types of income are usually categorized separately under rent and interest in national income accounting.

(iv) Allocation of dividend. Allocation of dividends also creates difficulties. Dividends paid to households, government, and non-profit making organisations by corporations, limited companies, etc. are included in the factor shares. But, inter-corporate dividends are not considered as a part of national income.

(v) Computation of undistributed profits. Computation of undistributed profits is again a difficult task. The shareholders collectively own the corporations in which they hold shares. Therefore, allocation of the factor income accrual in respect of undistributed corporate profits to corporations as such virtually amounts to allocating this factor income accrual to shareholders collectively. This implies that shareholders have the right to the entire remaining income of corporations, not just the portion distributed as dividends.

(vi) Income of Self-employed. There is some amount of uncertainty as to when exactly the income of self-employed becomes payable. The choice rests with the person. He may consider it payable as and when income is earned, or he may defer it till the time of actual withdrawal.

(vii) Income-expenditure surplus. At times consumers as suppliers of factor services have to overspend their incomes. In fact, to the extent that their borrowing exceeds their lending, consumers, unlike producers have nothing to show for the surplus of borrowed funds. This dis-saving reduces their 'net worth' and thereby their claim to a share in total factor income.

(viii) Change ill inventories. Changes in inventories also create problems in national income computation. When the inventories are valued on a 'first in first out' basis, their book prices may be higher or lower than the actual cost entering into the value of production.

In summary, calculating national income using the income method may seem straightforward, as it involves estimating the factor income

generated during production. However, in practice, this approach encounters several challenges, some of which can be highly complex. As a result, economists have raised concerns about its practical effectiveness.

Self-Check Exercise-3.2

Q1. Discuss the income method of measurement of national income.

Q2. What are the difficulties in the allocation of factor income?

3.5 PRODUCT METHOD OR VALUE-ADDED IN PRODUCTION PROCESS

In the process of production, enterprises, public and private, produce certain goods and services with the help of the various factors of production. These goods may be consumer goods like cloth, footwear; sugar, milk, grains, etc., or capital goods like cloth, footwear, sugar, milk, grains, etc., capital goods like factory buildings, machinery, tools, equipments, rail-roads, etc. Similarly, services include the services of doctors, teachers, musicians, advocates, government servants, banking and insurance, etc. The total value of goods and services generated within a country over a year constitutes the gross domestic product. However, aggregating all goods and services directly is challenging due to the use of different measurement units such as grams, liters, quintals, and meters. The satisfaction or utility gained from services is even more challenging to determine, as it is inherently subjective. To overcome this challenge, economists use money as a common unit to measure the value of goods and services. The total monetary worth of all goods and services produced within a year is referred to as the gross domestic product at market prices. It is worthwhile here to mention three stages through which the national income accounting process has to move. These three stages include: (i) estimating the gross value of domestic output in the various sectors of the economy, ii) determining the cost of materials used and services rendered by other sectors and the depreciation of plant and machinery, and(iii)deducting these cost and depreciation from gross value to derive net value of the domestic product. This approach is also referred to as the 'census of output method' or the 'value-added method' for calculating national income.

3.5.1 Classification of Producing Sectors

In the estimation of national income according to -the census of output method or value-added method, the economy is classified into various sectors where the income originates. Economists have different opinions about the number of sectors or divisions among which the industries should be classified. However, the most common classification divides the producing units into the following fourteen categories:

(i) Agriculture, ii) Mining, (iii) Fishing, (iv) Construction, (v) Manufacturing, (vi) Trade, (vii) Transportation, communications, and other public utilities, (viii) Finance, (ix) Ownership of dwellings and other real

estate, (x) Service industries, trade and arts, (xi) Professions, (xii) Domestics, (xiii) Public Administration and (xiv) Private non-profit making organizations.

The output of goods and services flowing from each branch of production is the sum of the outputs of all the separate producing units in that branch. The total output is evaluated at the market, prices. The value so computed is called 'gross value of domestic product'.

3.5.2 Valuation of Gross Product

The gross value of the output in a particular sector is estimated either by computing data relating to output in that sector and then multiplying it by an appropriate price, or by collecting information about the gross receipts of enterprises from the sale of their produce and changes in the values of their inventories in a year's time. Product data may be collected by conducting sample surveys. Difficulties of valuation appear especially in the case of transport, communications, services of dwellings, public administration, etc. It is because they do not produce any tangible things. This is why the census of income method is used to assess the contribution of services to national income.

3.5.3 Intermediate Consumption and Value Added

Calculating national income based on the valuation of gross output across different sectors may lead to inaccuracies. Some items are recorded multiple times in output data, which results in an overestimation of the national product. For example, if Industry A produces pulp and sells it to Industry B producing paper for Rs. 1,000, Industry B sells paper to the Publishing Industry C for Rs. 1,200 and Industry C sells books made of this paper for Rs. 1,500 to book-sellers. In such a case the gross value of output will be Rs.1, 000 + Rs. 1,200 + Rs. l, 500 = Rs.3, 700. However careful analysis of the production process will reveal that this much income has not been generated in the economy. Pulp, which is the original raw material, in this case; has been added three times to the national produce. We should not include a material or product at all the stages of manufacturing; if we want to have correct estimates of national income.

To avoid duplicity in counting, we must make allowance for intermediate consumption. The gross value of the product should be adjusted by deducting the costs of materials, services, and taxes to avoid overestimation. For example, if are estimating the value of food grains, we must deduct from the gross value the cost incurred on seeds, fertilizers, irrigation, etc. Similarly, if we are calculating the value of industrial output, we must deduct from the gross value of output the cost of raw material, fuel, electricity, power, etc. Likewise, in estimating the value of buildings, we must deduct from the gross value the cost of building materials. In all other cases where it is not feasible to ascertain the real cost of the intermediate materials, a certain proportion or percentage of cost should be deducted from the gross value of the produce.

Difficulties of various kinds appear in making allowance for intermediate consumption.

Sufficient data is not available regarding the value of intermediate materials. Challenges emerge, particularly with small manufacturers who lack proper records of their input usage. The most complex issue in estimating the gross value of output occurs when producers keep a portion of their production for personal consumption. For example, suppose a cultivator produces 10, quintals of wheat. He retains 2 quintals of wheat to meet the food requirements of his family and sells the rest for Rs. 800 (price being Rs. 100 per quintal). It means that the national income has. been underestimated by Rs. 200 because of intermediate consumption. We may find a number of such cases relating to small producers, who retain a sizable proportion of the total produce for self-consumption and thus create conditions for the underestimation of national income.

3.5.4 Net Value Added

For an accurate assessment of national income using the output method, the concept of 'net value added' is highly beneficial. In this method of valuation of a product, duplication of counting can be avoided. The term 'value added' implies that only the value added by each industry to the -raw materials or other goods and services that it bought from other industries, before passing 0n the products to the next stage be included for the purpose of national income--estimation. In this method, the intermediate final total, double counting is automatically overruled. We may explain the value-added technique as follows:

Table 7.1: Estimation 'of National Income by Value Added

Stage	Industry	Selling price	Cost price	Value Added (Rs.)
First	A	60	0	60
Second	B	90	60	30
Third	C	100	90	10
Total		250	150	100

In Table 7.1, Industry A sells wood to Industry for Rs. 60At the second level of production Industry B that is a manufacturer of chairs sells chairs to Industry C for Rs. 90. In the third stage, Industry C. which is a dealer in furniture sells chairs to consumers for Rs. 100. Now if we go by gross value, then the total value of chairs would be Rs. 250. But, in reality, the economy is getting chairs worth Rs. 100 (the product's final value). The mystery could be resolved through the value-added method Industry A did not use any intermediate input and sold wood for Rs. 60 Hence, the value added by Industry A is Rs. 60. Industry B purchased raw material in the form of wood for Rs. 60 and sold it for Rs.90 after transforming it into chairs. So the value added by industry B is Rs. 30. Finally. Industry C purchased chairs for Rs. 90 and sold them to

consumers for Rs. 100. It means that the value added by Industry C is only Rs. 10. Therefore, the value added at the three stages of production is Rs. 1100.

Illustration: Suppose only the following transactions take place in an economy:

(i) Industry A imports goods worth Rs. 100. It sells goods worth Rs. 400 to industry B, 'goods worth Rs. 200 to industry C, and goods worth Rs. 1,000 for private consumption.

(ii) Industry B sells goods worth Rs. 500 to Industry C and goods worth Rs. 800 for private consumption.

(iii) Industry C sells goods worth Rs. 600 to private consumption and exports goods, valued at Rs. 500

(iv) Depreciation cost during the year amounts to Rs. 100,

(v) Government realises taxes of the value of Rs. 100. Calculate the following through the net value added method from the data given above: (a) GNPMP, (b) GNPFC, (c) NNPMP, and (d) NNPFC.

(A) GNPMP = Sum of net value added by all the industries

(i) value-added by industry A.

= Sale of goods to Industry B

+ Sale of goods to industry C

− Value of imports

Sale of goods to consumers = Rs. 400 + Rs. 200

+ Rs. 1,000 − Rs. 100

= Rs. 1,590.

(ii) Value-added by industry B

= Sale of goods to industry C

+ Sale of goods to consumers.

− Purchase of goods from industry A

= Rs. 500+Rs. 800 − Rs. 400

= Rs. 900.

(iii) Value-added by industry C

= Sale of goods to consumers

+ Exports − (purchase of goods from industry A+ purchase of goods from industry B)

= Rs. 600+Rs. 500-Rs. 200-Rs. 500

Rs 400

Gross National Product at market prices or GNPMP equals

Rs. 1,500+Rs. 900+Rs. 400

=Rs. 2,800

Gross National Product at factor cost or G NPFC equals

GNPMP − Indirect taxes + Subsidies

= Rs. 2,800 − Rs. 100 + Rs. 50

= Rs. 2,750.

NNP_{MP} equals

GNPMP − Depreciation

= Rs. 2,800 − Rs. 100

= Rs. 2,700.

Net National Product at factor cost or NNPFC equals

NNPMP - Indirect taxes + Subsidies

= Rs. 2,700-Rs. 1O0 + Rs. 50

= 2,650.

3.5.5 Provision for Depreciation

The contribution made at various stages of production does not accurately reflect the actual value of the domestic product. While producing goods and services, machines, plants, equipment, etc., get worn out and need replacement after some time. A portion of capital is reserved as a depreciation allowance. By subtracting the depreciation cost from the final value added to a product, we obtain its actual value, which is then included in the national income.

Self-Check Exercise-3

Q1. Discuss the product method of measurement of national income.

Q2. What do you mean by net value added?

3.6 FINAL EXPENDITURE METHOD

The final expenditure method, also referred to as the 'consumption and investment method,' is used to measure national income. This approach requires gathering data on consumption and investment, specifically the community's expenditure on final consumption. National income can be allocated in two different ways. It can either be consumed by households, firms and government or may be used to create assets, i.e., investment; in brief, Y=C+I, where Y is national income, C is consumption expenditure, and I is investment expenditure.

(I) A country's consumption expenditures are categorized into two components: (A) private consumption expenditures and (B) government consumption expenditures.

(A) Private consumption expenditure consists of (a) durable consumer goods like furniture, clothes, shoes, washing machines, and TV sets. etc., (b) non-durables like food, drinks, tobacco, toothpaste, etc., and (c) services like hotels, restaurants, educational institutions, hospitals, postal services, transport services, etc. While computing private consumption expenditure for the purposes of measuring national) income, we have to exclude the expenditure of foreign visitors and include in it the expenditures of nationals abroad. Consumption expenditure is determined by summing up the monetary outlays made by various consumers on goods and services. Figures relating to consumption expenditure may be collected from retail trade activities taking place in a year's time. However, many commodities and services do not enter into the monetary sector and, therefore, remain excluded, from the national income.

(B) Government consumption expenditure includes employee compensation and net purchases from businesses and foreign entities. However, it is important to exclude transfer payments to residents and foreign recipients from government expenditure calculations. It is so because transfer payments do not fall in the purview of the production process, they are simply transfers of purchasing power from one hand to another. Government consumption expenditure also covers spending on public services such as healthcare, parks, transportation, communication, and educational institutions. Figures relating to government consumption expenditure may be collected from the State budgets In the case of smaller government units; it may be collected by conducting sample surveys.

(C) Investment expenditure. Disposition of income may also take the form of investment expenditure. The use of the term 'investment' in the national income accounts has a different meaning to that of its generalized meaning. For example, you may consider your purchase of a share of D.C.M. Company as an investment. However, from the nation's point of view, it is not an investment but simply a transfer of purchasing power or ownership of money title. Investment refers to that part of current output which takes the form of additions to or replacement of real productive assets. Suppose in 1987 the total value of assets in the Indian economy was Rs. 3,000 crores, and in 1988 the net assets were valued at Rs. 3,200 crores. It means that the net value of investment during 1987-88 is Rs. 200 crores. In brief:

Investment = Present Value of Assets − Value of Assets in the previous year.

To attain the net value of investment we have to deduct the cost of depreciation from the gross investment. The GNP accounts classify investment into three main categories.

(i) Business fixed investment. Includes business purchases of durable capital assets like machinery, factory buildings, stores, etc.

(ii) Residential construction. It consists of both single-family dwellings for occupancy or for rental purposes.

(iii) Change in business inventories. It is that part of output that is absorbed by business firms as an increase in their stocks of finished goods, goods in process, and raw materials.

Expenditure on investment may be calculated by 'commodity flow method' and 'capital expenditure method'. In the commodity flow approach, the net addition from private construction, including residential and commercial buildings, new infrastructure for transportation and communication, and the net growth in livestock and other non-manufactured inventories, is incorporated into the total value of manufactured products. Conversely, the capital expenditure approach relies on data gathered through surveys on capital goods purchases, tax records, and related financial information.

Self-Check Exercise-3.4

Q1. Discuss the expenditure method of measurement of national income.

3.7 SUMMARY

National income can be measured through three different yet interrelated approaches: the net product method, the factor-income method, and the expenditure method. The income method involves calculating the total earnings, both in cash and kind, obtained from providing all factors of production within a specific time period. The production method determines national income by summing up the value of all goods and services produced across various sectors of the economy during a given year. The expenditure method, on the other hand, measures national income by adding up consumer spending, government expenditure on goods and services, and net investment in capital goods. When accurately computed, all three approaches should yield the same national income figure.

3.8 Glossary

- **Output or Value-Added Approach:** This method calculates the total value of final goods and services by summing outputs at different production stages while avoiding double counting. Only final goods are considered to prevent overestimation of GNP.

- **Expenditure Approach:** Measures national income by summing expenditures on final goods and services by households, firms, and the government. It accounts for:

  C = Private Consumption Expenditure

  I = Investment Expenditure

  G = Government Consumption Expenditure

  X - M = Net Exports (Exports - Imports)

  Formula: GNP at market prices = C + I + G + (X - M).

  To derive GNP, Net Factor Income from Abroad (NFIA) is added to GDP.

  NFIA = Income earned by locals abroad – Income paid to foreigners domestically.

  GNP = GDP + NFIA.

- **Income Approach:** Estimates national income based on earnings from factors of production—land, labour, capital, and entrepreneurship. It includes:

  Wages (labour)

  Interest (capital)

  Rent (land)

  Profit (entrepreneurship), further divided into corporate tax, dividends, and retained earnings.

  Formula: National Income = Wages + Interest + Rent + Profit.

3.9. ANSWERS TO SELF-CHECK EXERCISES

Self-Check Exercise-1

Answer 1. Refer to Section 3.3.

Self-Check Exercise-2

Answer 1. Refer to Section 3.4

Answer 2. Refer to Section 3.4.2.

Self-Check Exercise-3

Answer 1. Refer to Section 3.5.

Answer 2. Refer to Section 3.5.4.

Self-Check Exercise-4

Answer 1. Refer to Section 3.6.

3.10 REFERENCES/SUGGESTED READINGS

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3.11 TERMINAL QUESTIONS

Q1. What are the methods of measuring national income? Explain in detail the two methods of measuring National income.

UNIT-4

MEASUREMENT OF NATIONAL INCOME-II

STRUCTURE

4.1 INTRODUCTION

The estimation of national income plays a vital role in economic analysis. It provides a broad measure of a country's economic performance by accounting for the total value of goods and services produced within a specific period, usually a year. This assessment helps in evaluating the overall economic condition of a nation. The previous unit introduced fundamental concepts related to national income measurement. In this unit, we will explore more advanced aspects, including different methods of measurement, associated challenges, and other key concepts.

4.2 LEARNING OBJECTIVES

After going through this unit, you will be able to

- Discuss the measurement of national income in India

- Explain the difficulties faced in the measurement of National Income
- Describes the uses of National Income
- State the formula for Measurement of National Income
- Explain the Private, Personal & Personal Disposable income

4.3 MEASUREMENT OF NATIONAL INCOME IN INDIA

The systematic estimation of national income in India began in 1949. Before this, several attempts were made by individuals and institutions to estimate national income. The earliest known estimate was prepared by Dadabhai Naoroji in 1867-68. Over time, economists and government agencies attempted various assessments, but these differed in scope, methodology, and conceptual framework, making comparisons difficult. Additionally, most early estimates were limited to a single year, with only a few covering a span of three to four years. This inconsistency made it challenging to track economic performance over time.

To address these issues, the government established the National Income Committee (NIC) in 1949, chaired by P. C. Mahalanobis, with Dr. D. R. Gadgil and V. K. R. V. Rao as members. The committee not only identified the gaps in the statistical system but also recommended improvements in data collection. Based on its suggestions, the Directorate of National Sample Survey was set up to gather additional data essential for national income estimation. The NIC estimated national income for the period 1948-49 to 1950-52 and provided a methodology that remained in use until 1967.

In 1967, the responsibility for national income estimation was transferred to the Central Statistical Organization (CSO), which initially followed the NIC's methodology. However, with better data availability, the CSO refined its methods, particularly in the classification of industries. The national income estimates are published in the CSO's report titled Estimates of National Income.

Methodology

At present, the CSO employs the output method and income method for national income estimation. The output method is applied to agriculture and manufacturing sectors, where the value-added approach is used. The income method is used for service sectors such as trade, transport, commerce, and government services. In the earlier national income series (1950-51 to 1966-67), the CSO classified income into 13 sectors. However, in the revised series, the economy is categorized into 15 sectors for a more detailed analysis:

i) Agriculture

ii) Forestry and logging

iii) Fishing

iv) Mining and quarrying
v) Large-scale manufacturing
vi) Small-scale manufacturing
vii) Construction
viii) Electricity, gas, and water supply
ix) Transport and communication
x) Real estate and dwellings
xi) Public administration and defense
xii) Other services
xiii) External transactions

National income is computed at both constant prices and current prices to reflect real and nominal economic growth.

Self-Check Exercise-4.1

Q1. Write a short note on the measurement of national income in India.

4.4 Difficulties in the Measurement of National Income

Accurately estimating national income is a complex process, often accompanied by various challenges that make the measurement difficult. These difficulties may be classified into two categories: (i) Conceptual difficulties or Theoretical difficulties, and (ii) Practical difficulties. While the theoretical difficulties a year in almost all countries the practical difficulties are generally witnessed in the underdeveloped countries.

4.4.1 Conceptual difficulties

These difficulties relate to the various concepts of national income. Some of the important conceptual difficulties are as follows:

i) **Determination of intermediate and final goods:** The national income of a country consists of only final goods and services. Final goods refer to those goods which are readily available for consumption. Final goods are required for their own sake. While estimating the national income, it is always not possible to make a clear distinction between intermediate goods and final goods. For example, the cotton used at a surgical Clinic is the final product for a doctor, but if the same cotton is used by the cotton milt to manufacture cloth, it will be treated as an intermediate product.

   To stretch this example further, if this cloth manufactured by Delhi Cloth Mills is used by Wings or Liberty Company to manufacture ready-made garments, this cloth will be regarded as an intermediate product.

ii) **Services without remuneration:** In our daily life we observe a father teaching his son, a mother taking care of her child, a housewife looking after the household affairs, and so on. No factor payment is made for these services, and therefore, they do not form part of the national income. But if the same services are provided by a tutor, a babysitter and a housemaid, respectively, factor payments shall have to be made. So, in the changed circumstance the same services will be included in the national income.

iii) **Transfer payments**: Transfer payments are payments received without the recipient providing any economic service or productive activity in return. Pocket allowance given to a son, by his father, or the pension paid by the government to retired employees, are a few examples of transfer payments. Transfer payments are the sources of income for households and business firms, but these do not form part of the national income.

iv) **Pricing of products:** Determining the value of final products for national income estimation is a challenging task. Since prices fluctuate frequently—monthly, weekly, or even daily—selecting the appropriate price to assess the monetary value of these products becomes a complex decision. Besides, we find different types of prices existing in the market, e.g., wholesale price, retail price, etc. Choosing the appropriate price to determine the monetary value of products is a challenging task.

v) **Income of the foreign companies:** There is ongoing debate about whether the earnings of foreign firms should be included in national income. A common approach is to include the portion of income retained within the country while excluding the amount remitted abroad.

4.4.2 Practical difficulties

Various practical challenges emerge in estimating national income. The most significant difficulties include:

(1) Non-monetised sector: A large part of the underdeveloped countries consists of the non-monetised sector. The Non-Monetised sector refers to that part of the economy where exchange transactions are not performed in money; in other words, a barter system of exchange prevails in the non-monetised sector. Goods that do not enter the monetary sector are thus excluded from national income.

(2) Lack of occupational specialisation: This refers to a situation where a person engages in multiple economic activities simultaneously, resulting in multiple sources of income at the same time. For example, a teacher teaches in the school and takes private tuition in extra time, or a farm labourer works on the farm, works in a factory in the off-season, and so on. In such cases, identifying an

individual's primary source of earnings becomes challenging. Without sufficient information about income sources, a significant portion may go unaccounted for in national income estimates.

(3) **Non-availability of reliable data**: This challenge is more prevalent in underdeveloped countries, where a large portion of the population is illiterate. Due to a lack of awareness about the significance of income data and the inability to keep proper records, accurate estimation becomes difficult. Sometimes, the producers, to evade income tax, deliberately distort information relating to their incomes. Sometimes, the enumerators do not possess the requisite knowledge of collecting, classifying and analysing the data. Enumerators and investigators vitiate investigations by using their personal biases and prejudices. National income estimation based upon inadequate and inaccurate statistics need not be dependable.

(4) **Goods for self-consumption**: Producers of final goods often keep a portion of their output for personal use. For instance, a farmer may set aside part of the harvest for their own consumption, or a weaver might retain some of the fabric they produce for personal use. Goods which, are retained by the producer for personal consumption do not fetch, money price, and are thus excluded from the national income.

(5) **Double counting**: In national income estimation, certain goods and services may be counted multiple times. Distinguishing between intermediate and final goods is not always straightforward, leading to potential inaccuracies. Likewise, durable goods like buildings, furniture, machines, etc., should form part of a year's national income or should be continuously included in the national income till these are finally consumed. We 'can further take the example of goods and services which satisfy communal wants. The government constructs roads, parks, hospitals, bridges, etc., for the welfare of the masses, but different people derive different utilities from these services. How to make allowance for such services in the NI is again a difficult problem.

Thus, almost all countries of the world, irrespective of their economic and social structure, face innumerable difficulties in estimating national income. Though it is impossible to remove all these difficulties completely, countries can work hard to develop a well-knit system of income-expenditure data to make the national income estimates more dependable.

Self-Check Exercise-4.2

Q1. Describe the double counting problem in the measurement of national income.

Q2. Discuss the various difficulties in the measurement of the national income of a country.

4.5 Uses of National Income Estimates

i) **Economic Record:** National income estimates provide a comprehensive record of a country's transactions, showing how income is generated, distributed, and spent.

ii) **Policy Formulation:** These estimates help governments design economic policies for stability, resource allocation, and balanced growth.

iii) **Economic Analysis:** National income data reveal relationships between key economic activities like consumption, investment, and price levels.

iv) **Business Cycles Study:** They assist in analyzing economic fluctuations and trends.

v) **Structural Insights:** They help understand changes in assets, commodity prices, and economic structure.

vi) **Sectoral Interdependence:** National income estimates highlight the connections between different economic sectors.

vii) **Policy Decision-Making:** Past records guide domestic and international economic decisions.

viii) **Comparative Analysis:** They enable comparisons of economic performance across time and countries.

ix) **Future Forecasting:** These estimates assist in predicting economic changes and trends.

x) **Economic Progress Measurement:** They serve as indicators of national growth and welfare.

xi) **GNP as an Indicator:** Gross National Product (GNP) reflects overall economic performance and growth.

xii) **Sectoral Contributions:** National income helps analyze the contribution of different sectors to the economy.

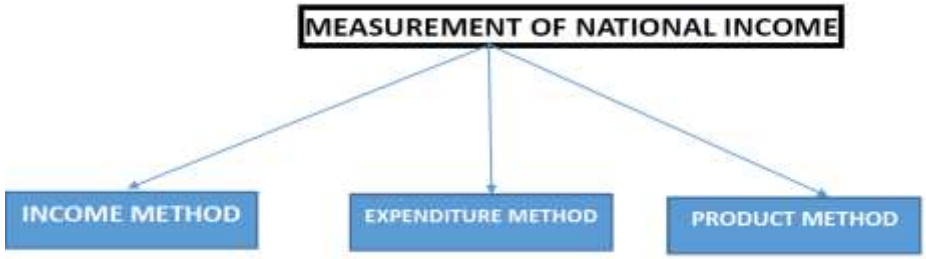
xiii) **Standard of Living:** Per capita income derived from national income estimates indicates living standards.

xiv) **International Contributions:** They determine a country's financial contributions to global organizations like the UN, IMF, and World Bank.

Self-Check Exercise-4.3

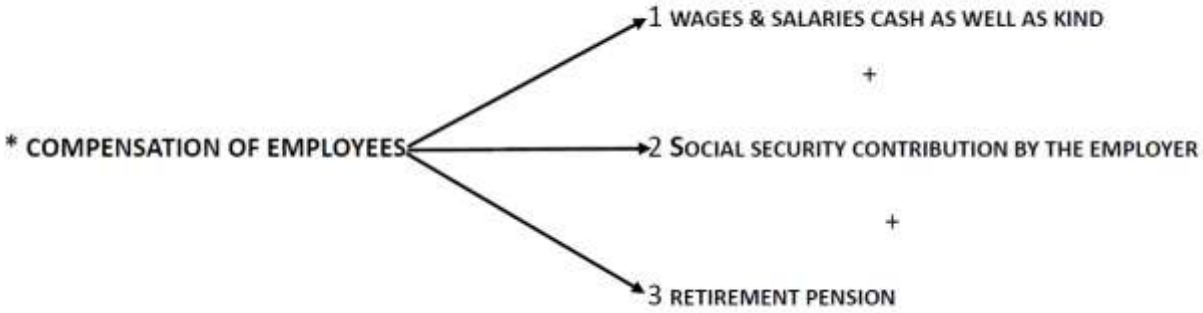
Q1. What are the uses of national income estimates?

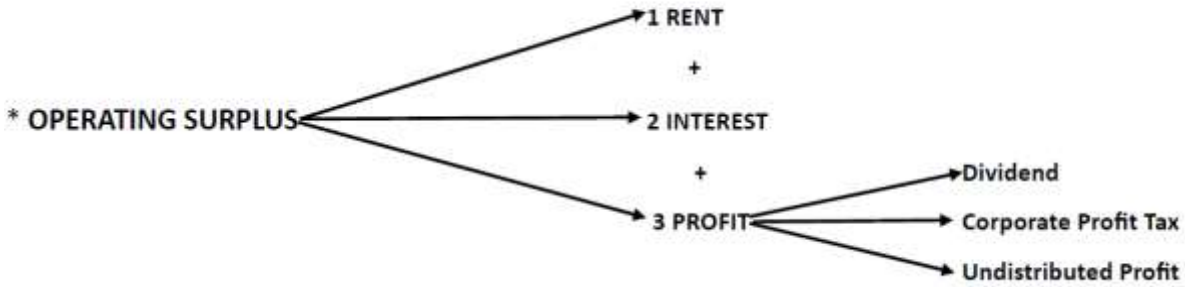
4.6 Formulas Related to Measurement of National Income



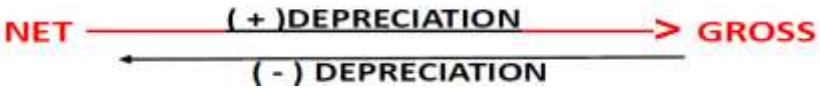
1. INCOME METHOD:

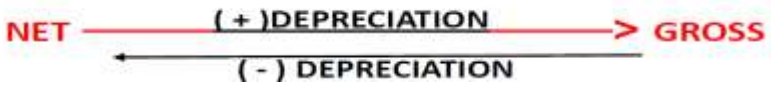
Net Domestic Product At Factor Cost = Compensation Of Employees + Operating Surplus + Mixed Income of Self-employed





CONVERSIONS





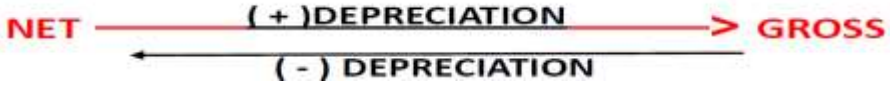
- **Net Indirect Tax = Indirect Tax – Subsidies**
- **Net Factor Income from Abroad = Factor Income from abroad – Factor Income To abroad**

2. EXPENDITURE METHOD

Gross Domestic Product at Market Price = Private Final Consumption Expenditure + Govt. Final Consumption Expenditure + Gross Domestic Capital Formation + Net Exports

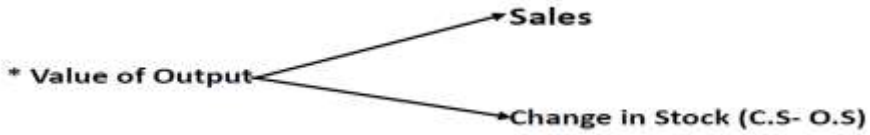
- Gross Domestic Capital Formation = Gross Domestic Fixed Formation + Change in Stock
- Net Exports = Exports – Imports

CONVERSIONS



3. PRODUCT METHOD OR VALUE-ADDED METHOD

GDP_{MP} = Value of Output – intermediate consumption



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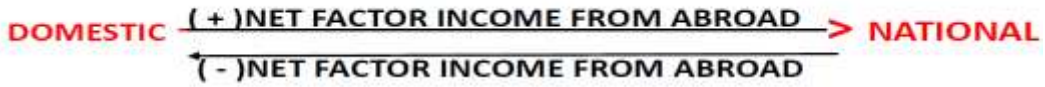

Self-Check Exercise-4.4

Q1. Discuss the various methods of measurement of national income.

Q2. Critically examine the income method of measurement of national income.

4.7 FORMULAS RELATED TO PRIVATE, PERSONAL & PERSONAL DISPOSABLE INCOME

i) **Factor Income from Net Domestic Product (NDP) in the Private Sector** = NDP at Factor Cost – Income from Property & Entrepreneurship of Government Enterprises – Savings of Non-Departmental Enterprises

ii) **Private Income** = Factor Income from NDP in the Private Sector + Net Factor Income from Abroad + Current Transfers from Government + Current Transfers from Abroad + Interest on National Debt

iii) **Personal Income** = Private Income – Corporate Profit Tax – Retained Earnings of Corporations

iv) **Personal Disposable Income** = Personal Income – Direct Taxes – Other Fees & Fines Paid by Households

Note: These income measures are interrelated, as each builds upon the previous one.

Self-Check Exercise-4.5

Q1. Write the formula for Private Disposable Income.

Q2. Write the formula for Personal Income.

4.8 SUMMARY

In summary, this unit provided a comprehensive understanding of national income measurement, its challenges, and its significance. We discussed the methods used to measure national income in India and the difficulties encountered, both conceptual and practical. The unit also highlighted the various uses of national income estimates in economic analysis and policy formulation. Additionally, we explored key formulas related to national income, private income, personal income, and personal disposable income, illustrating their interconnections. Through self-check exercises, learners were encouraged to reinforce their understanding of

these concepts. Overall, this unit emphasized the importance of accurate national income estimation in evaluating economic performance and guiding policy decisions.

4.9 GLOSSARY

- **Factor Income from Net Domestic Product (NDP) in the Private Sector:** Calculated as NDP at factor cost minus property and entrepreneurial income of government departmental enterprises, minus savings of non-departmental enterprises.
- **Private Income:** Derived by adding net factor income from abroad, government transfer payments, transfers from the rest of the world, and interest on national debt to the factor income from NDP in the private sector.
- **Personal Income:** Obtained by subtracting corporate profit tax and undistributed profits from private income.
- **Personal Disposable Income:** Determined by deducting direct personal taxes and miscellaneous household fees and fines from personal income.

4.10 ANSWERS TO SELF-CHECK EXERCISES

Self-Check Exercise-4.1

Answer to Q1. Refer to Section 4.3

Self-Check Exercise-4.2

Answer to Q1. Refer to Section 4.4.

Answer to Q2. Refer to Section 4.4.

Self-Check Exercise-4.3

Answer to Q1. Refer to Section 4.5

Self-Check Exercise-4.4

Answer to Q1. Refer to Section 4.6.

Answer to Q2. Refer to Section 4.6.

Self-Check Exercise-4.5

Answer to Q2. Refer to Section 4.7.

Answer to Q2. Refer to Section 4.7.

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4.12 TERMINAL QUESTIONS

Q1. What is the significance of national income statistics? What are the problems militating against it? Suggest some solutions that can be offered.

Q2. Discuss the methods of measurement of national income. What are the difficulties in the measurement of national income?

UNIT-5

CLASSICAL THEORIES-I

STRUCTURE

5.1 INTRODUCTION

The concept of "classical economics" was initially introduced by Karl Marx to describe the economic theories of David Ricardo, James Mill, and

their predecessors. Over time, its scope expanded to include economists who followed Ricardo's principles. Classical economics emerged during the eighteenth and nineteenth centuries, focusing on how markets function and contribute to economic growth. This school of thought emphasized economic liberty, advocating for policies such as laissez-faire and free competition. Prominent figures associated with classical economics include Adam Smith, David Ricardo, Thomas Malthus, John Stuart Mill, and J. B. Say.

5.2 LEARNING OBJECTIVES

After going through this unit, you will be able to

- State the Say's Law of Market
- Explain the assumptions of the classical economist
- Differentiate between real wages and money wages
- Critically examine the Classical theory of interest
- Explain the Classical view of the Labour Market

5.2 THE CLASSICAL THEORY

The core idea of classical economic theory is that markets have self-regulating mechanisms. Classical economists argue that an economy naturally tends toward its optimal level of real GDP or output when resources are fully utilized. Although temporary fluctuations may lead the economy to deviate from this level, built-in market forces help restore balance. This perspective is founded on two key principles: Say's Law and the flexibility of prices, wages, and interest rates. According to classical macroeconomics, individuals and businesses operate in pursuit of their own interests, and price and wage adjustments occur swiftly to maintain equilibrium in a free-market system. Notable contributors to this school of thought include Adam Smith, David Ricardo, John Stuart Mill, and Jean-Baptiste Say.

Self-Check Exercise-1

Q1. What do you mean by a self-adjustment mechanism?

Q2. Write a short note on the classical theory of macroeconomics.

5.3 ASSUMPTIONS OF THE CLASSICAL ECONOMISTS

Classical economic theory is based on several key assumptions about market behavior and competition:

i) **Freedom of Market Entry and Exit:** There are no barriers preventing new businesses from entering or existing ones from leaving the market.

ii) **Price and Wage Flexibility:** Wages and prices can move both upward and downward in response to changes in supply and demand.

iii) **Lack of Market Power:** No individual buyer or seller has enough influence to control prices or wages in the industry.

iv) **Price-Taking Behavior:** All economic agents accept market prices rather than setting them.

v) **Competitive Markets:** Since markets are competitive, any imbalances are temporary.

vi) **Self-Correcting Prices:** If a particular industry faces excess demand, prices will increase until supply matches demand, restoring equilibrium.

vii) **Wage Flexibility:** If there is an oversupply of workers, wages decrease until the labor market stabilizes. Conversely, if there is a labor shortage, wages rise as businesses compete for workers.

viii) **Full Employment Assumption:** The economy operates at full employment in the long run.

ix) **Perfect Information:** Economic decision-makers have access to all relevant information to make optimal choices.

Due to these assumptions, the classical economic model suggests that the economy functions at full employment in the long run. Short-term unemployment may occur, but it is temporary since wage adjustments restore equilibrium. If labor supply exceeds demand, wages decrease, encouraging businesses to hire more workers. If there is a labor shortage, wages rise as firms compete for employees. The classical model emphasizes that any disruptions to long-term equilibrium are corrected through price and wage flexibility, ensuring that supply and demand remain balanced over time.

Self-Check Exercise-2

Q1. What are the assumptions of the classical theory of macroeconomics?

5.4 SAY'S LAW OF MARKETS

Jean-Baptiste Say (1767–1832) was a significant contributor to economic thought, advocating Adam Smith's principles of competition, economic freedom, and minimal government intervention. Say emphasized the primacy of production in driving consumption, asserting that an individual's ability to demand goods and services depends on the income generated through their own productive activities. Essentially, a person's purchasing power arises from their role in the production process. Incomes earned from producing goods and services are ultimately spent on acquiring other goods and services, leading to the conclusion that demand originates from supply.

Say's Law, often summarized as "supply creates its own demand," suggests that the economy does not suffer from general overproduction because the total value of goods produced corresponds to the income

distributed, which is then used to purchase goods. The law implies that when goods are produced, they inherently generate the purchasing power needed to buy them. This idea was widely accepted throughout the 19th century and became a cornerstone of classical economic thought. Say argued that aggregate supply and aggregate demand are inherently balanced, as one person's supply is another's demand. Therefore, in a well-functioning market, excess supply over demand is not a persistent issue.

In a barter economy, Say's Law is easily understood—people produce goods to exchange for other goods of equivalent value. This logic extends to a modern monetary economy, where the income generated from production provides the means to purchase the goods produced. The circular flow of income model illustrates this relationship, as earnings from production translate into spending on goods and services.

Saving-Investment Balance

A potential challenge to Say's Law arises when individuals choose to save a portion of their income rather than spending it. If savings reduce overall consumption, production may exceed demand, leading to unsold goods, declining prices, reduced production, and rising unemployment. However, classical economists countered this concern by asserting that savings are not idle; rather, they are invested by businesses. Investment spending replaces the consumption shortfall, maintaining economic stability.

Role of the Money Market

Classical economists also highlighted the role of financial markets in ensuring that savings are effectively converted into investments. They argued that the interest rate, determined by the supply of and demand for capital, plays a crucial role in balancing savings and investment. If savings exceed investment, interest rates fall, making borrowing more attractive and stimulating investment until equilibrium is restored. Conversely, if investment surpasses savings, interest rates rise, encouraging more saving and moderating investment.

Say further explained that while an economy may experience short-term imbalances in specific goods, these are temporary. Some goods may be overproduced while others are underproduced, but market forces naturally correct these mismatches through price and production adjustments. Overproduction, according to Say, is not a systemic issue but rather a temporary misallocation of resources.

Savings, in Say's view, contribute to economic growth by financing the production of capital goods. As long as savings are reinvested productively, there is no overall shortfall in demand. He regarded money as a medium of exchange rather than a store of value, arguing that monetary mechanisms facilitate the conversion of supply into demand.

Furthermore, he believed that interest rates function as the price of credit, helping regulate the balance between savings and investment.

5.4.1 Assumptions of the Say's Law of Market:

The classical economic framework operates under the following key assumptions:

i) **Perfect Competition:** Markets function under perfect competition, in which no individual buyer or seller has the power to influence prices.

ii) **Price and Wage Flexibility:** The prices of goods and wages adjust freely in response to market conditions, ensuring equilibrium between supply and demand.

iii) **Rational Self-Interest:** Economic agents act in their own self-interest—businesses focus on profit maximization, while households seek to enhance their economic well-being.

iv) **Minimal Government Intervention:** The market operates without the need for direct government intervention, relying on its internal mechanisms to achieve balance.

Say's Law asserts that in a market-driven economy, goods and services are produced for exchange, meaning that the overall supply of goods and services will be met by corresponding demand within a given period. This implies that widespread overproduction, or a "general glut," is unlikely, as imbalances in one sector tend to be offset by shortages in another.

However, some neoclassical economists interpret Say's Law as an indication that the economy naturally maintains full employment. According to this perspective, prolonged periods of excess supply and high unemployment should not occur. This view was challenged by Keynesian economists, particularly during the Great Depression. In his work *The General Theory of Employment, Interest, and Money*, John Maynard Keynes argued that recessions could arise due to insufficient aggregate demand, contradicting the classical belief in self-correcting markets.

5.4.2 Propositions and Implications of the Law

1. **Full Employment in the Economy:** The principle is founded on the idea that the economy achieves full employment. As production increases, more factors of production are engaged until every resource is fully utilized, leading to an optimal production level.
2. **Optimal Use of Resources:** When full employment is reached, previously idle resources are put to work, thereby boosting production and generating additional income.

3. **Perfect Competition:** Say's Law assumes that both labor and product markets operate under conditions of perfect competition. This includes:

- **Market Size:** The market is expansive enough to generate sufficient demand for goods, influenced by the interplay of supply and demand for various inputs.
- **Automatic Adjustment Mechanism:** Market imbalances are seen as temporary. For example, in the capital market, interest rates adjust to equalize savings and investment, while in the labor market, wages adjust to balance the supply and demand for labor.
- **Neutral Role of Money:** Although the law is rooted in a barter system where goods are exchanged directly, it is assumed that money plays a neutral role and does not interfere with the production process.

4. **Laissez-Faire Policy:** The model presupposes a closed capitalist economy that adheres to a laissez-faire approach, meaning minimal government intervention. This non-interference is crucial for the market's self-regulating, full-employment equilibrium.
5. **Saving as a Social Virtue:** The idea is that all income generated from production is ultimately spent on goods and services. Moreover, any savings are immediately reinvested in further production, underscoring saving as a beneficial social behavior.

5.4.3 Criticism of Say's Law

1. **Supply Does Not Always Generate Demand:** Say's Law suggests that production automatically creates demand for goods. However, in modern economies, demand does not necessarily rise in proportion to production. Additionally, people are not restricted to consuming only domestically produced goods, making the assumption unrealistic.
2. **Automatic Self-Adjustment is Unrealistic:** According to Say, market forces naturally ensure full employment in the long run. However, Keynes challenged this notion, famously stating, *"In the long run, we are all dead."* He argued that economic adjustments do not happen automatically and that unemployment can only be addressed through increased investment.
3. **Money Plays a Crucial Role:** Say's Law largely ignores the significance of money, treating it as neutral in economic activities. In contrast, Keynes emphasized its importance as a medium of exchange. He argued that people hold money for various reasons, such as saving for emergencies or business investments, making it an integral part of economic decision-making.
4. **Possibility of Overproduction:** Say believed that supply creates its own demand, ruling out the occurrence of general overproduction.

Keynes opposed this view, arguing that not all income earned by production factors is spent—some portion is saved. Since savings are not always invested, this imbalance can result in overproduction and unemployment.

5. **Prevalence of Underemployment:** Keynes considered full employment an exception rather than the norm, particularly in capitalist economies. He pointed out that supply often exceeds demand, leading to situations where workers are willing to accept lower wages but still struggle to find employment.
6. **Need for Government Intervention:** Say's Law assumes a free-market system with minimal government interference. However, Keynes argued that state intervention is essential, especially during periods of economic downturns like the Great Depression. He advocated for fiscal and monetary policies to regulate supply and demand and prevent prolonged recessions.

Self-Check Exercise-5.3

Q1. Critically examine Say's law of market.

Q2. What are the assumptions of Say's law of market? What are the implications of Say's law?

5.5 MONEY WAGES AND REAL WAGES

Money wages, also known as nominal wages, refer to the earnings received by a worker in monetary terms over a specific period. It represents the total sum of money paid as wages without considering inflation or changes in purchasing power.

On the other hand, real wages indicate the purchasing power of money wages after adjusting for inflation. Real wages provide a more accurate measure of a worker's earnings by reflecting the actual quantity of goods and services that can be purchased. The relationship between money wages and real wages is expressed as:

Wage = Money Wage / General Price Level

Self-Check Exercise-5.4

Q1. What do you mean by money wages?

Q2. What is the difference between money wages and real wages?

5.6 WAGE-PRICE FLEXIBILITY

Classical economists generally operated under the assumption of full employment. Their belief in the automatic restoration of full employment was rooted in the idea that both wages and prices are flexible. They argued that unemployment results from excessively high wages, and the solution lies in wage reduction.

According to classical theory, the primary factor determining employment levels is the wage rate. In a market-driven economy, the forces of supply and demand regulate wage rates, preventing long-term unemployment. If unemployment arises, wages naturally decline until labour supply matches demand, restoring full employment.

A.C. Pigou was a key proponent of the idea that lowering wages leads to full employment. He suggested that in a competitive economy, reduced wages lower production costs, causing a decrease in product prices. As prices fall, consumer demand rises, leading to higher sales and increased employment. The classical perspective assumes that money wages and real wages move in direct proportion. Thus, when money wages decline, real wages follow suit, reducing unemployment and ensuring full employment.

Self-Check Exercise-5

Q1. Define wage-price flexibility.

5.7 THE CLASSICAL VIEW OF THE LABOUR MARKET

Classical economists viewed the labour market as functioning similarly to the goods market, where prices adjust to balance supply and demand. In this framework, an increase in labour demand leads to higher wages, encouraging more individuals to work and increasing the total quantity of labour supplied. Conversely, a decline in labour demand results in lower wages, reducing both the supply of labour and employment levels.

From the classical perspective, firms demand less labour at higher wages, whereas workers are willing to supply more labour when wages rise. Higher wages attract individuals who were previously outside the workforce, while lower wages discourage participation. According to this view, unemployment is considered voluntary, as workers choose to exit the labour market when wages decline during economic downturns.

5.7.1 Wage-Price Flexibility and Full-Employment

Classical economists argued that full employment is a natural state in an economy. They believed that production levels are influenced not only by aggregate demand but also by price adjustments. Even if savings increase and aggregate spending decreases, they asserted that unemployment and overproduction would not persist. Instead, price fluctuations would compensate for any shortfall in demand. When individuals save more and reduce their expenditures, prices would decline accordingly. Lower prices, in turn, would stimulate demand, ensuring that all produced goods are sold. As long as the decline in prices matches the reduction in aggregate spending, overall output, income, and employment levels would remain stable. Classical economists maintained that a free-market system naturally adjusts in this way.

In response to falling demand, producers would lower prices to prevent excess inventory accumulation. According to classical logic, this process would not reduce production or employment but merely adjust prices. However, businesses facing lower product prices would also need to reduce input costs, including wages. In this scenario, all willing workers would find employment at the prevailing wage rate. Those who refuse lower wages and remain unemployed were considered voluntarily unemployed rather than truly jobless. From the classical viewpoint, involuntary unemployment is not a feature of a free-market economy. During the Great Depression (1929–1933), economist A.C. Pigou suggested reducing wages to combat mass unemployment. He argued that government policies and trade unions were artificially keeping wages high, preventing labour markets from adjusting freely. By lowering wages, he believed that employment would rise. However, this perspective was challenged by John Maynard Keynes, who introduced a new framework for understanding income and employment. Keynes' ideas fundamentally reshaped economic thought, leading to what is now known as the Keynesian revolution.

5.7.2 Keynes's Criticism of the Classical View

John Maynard Keynes challenged the classical belief that lowering money wages would automatically restore full employment. He argued that the key to reducing unemployment was increasing effective demand. According to Keynes, a general wage reduction across the economy would not boost employment; rather, it would have the opposite effect.

When wages decline, workers experience a drop in their income, leading to reduced purchasing power. As a result, their demand for goods and services decreases. This decline in consumer spending lowers overall expenditure, which in turn reduces effective demand and ultimately leads to a further contraction in employment.

Self-Check Exercise-6

Q1. Write a short note on

a) Wage-price flexibility

b) Full employment

Q2. Critically examine the classical theory of macroeconomics.

5.8 CLASSICAL THEORY OF INTEREST

The classical theory of interest explains the interest rate as the factor that balances savings and investment. In this framework, investment represents the demand for funds, while savings signify their supply. The interest rate, determined by the interaction of these two forces, acts as the price of investible resources.

5.8.1 Criticism of the Classical Theory of Interest

i) The theory assumes that the demand for capital and the impact of interest rates on savings from a fixed income level remain constant. However, this suggests a direct relationship between the interest rate and income, which may not always hold true.

ii) If factors such as the interest rate, capital demand, and the responsiveness of savings to interest rate changes remain unchanged, then income itself would become the primary variable aligning savings with investment.

iii) The classical approach suggests that any shift in the demand for capital or both demand and supply curves results in a new equilibrium interest rate at the point of intersection. However, critics argue that this assumption is flawed. The idea that these curves move independently without influencing income contradicts the reality that such shifts often alter income levels, making the theory inconsistent.

Self-Check Exercise-5.7

Q1. Critically examine the classical theory of interest.

5.9 SUMMARY

This unit explored the perspectives of classical economists. According to classical macroeconomic theory, individuals and businesses act in their self-interest, and wages and prices adjust rapidly to maintain equilibrium in a free-market economy. The classical model, associated with economists such as Adam Smith, David Ricardo, John Stuart Mill, and Jean-Baptiste Say, is based on key assumptions such as full employment, free market entry and exit, price-taking behavior, competitive markets, and flexible wages and prices.

Additionally, this unit covered key classical theories, including Say's Law of Markets, the Classical View of the Labour Market, and the Classical Theory of Interest. The next chapter will examine the Classical Theory of Employment and Output Determination.

5.10 GLOSSARY

- **Rate of Interest:** In classical economic theory, the rate of interest is the factor that balances savings and investment.
- **Money Wages:** The total earnings received by an individual in monetary terms over a specific period.
- **Real Wages:** The purchasing power of wages, measured in terms of the goods and services that can be bought.

$$\text{Real Wage} = \text{Money Wage} / \text{General Price Level}$$

- **Say's Law**: The principle that production generates its own demand.

5.11 ANSWERS TO SELF-CHECK EXERCISES

Self-Check Exercise-5.1

Answer to Q1. Refer to Section 5.2.

Answer to Q2. Refer to Section 5.2.

Self-Check Exercise-5.2

Answer to Q1. Refer to Section 5.3.

Self-Check Exercise-5.3

Answer to Q1. Refer to Section 5.4.

Answer to Q2. Refer to Sections 5.4.2 & 5.4.3.

Self-Check Exercise-5.4

Answer to Q1. Refer to Section 5.5.

Answer to Q2. Refer to Section 5.5.

Self-Check Exercise-5.5

Answer to Q1. Refer to Section 5.6.

Self-Check Exercise-5.6

Answer to Q1. Refer to Section 5.7.

Answer to Q2. Refer to Section 5.7.

Self-Check Exercise-5.7

Answer to Q1. Refer to Section 5.8.

5.12 REFERENCES/SUGGESTED READINGS

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5.13 TERMINAL QUESTIONS

Q1. Critically examine the Say's law of Market?

Q2. Give the Classical View of Labour Market?

UNIT-6

CLASSICAL THEORIES-II

(CLASSICAL THEORY OF EMPLOYMENT AND OUTPUT DETERMINATION)

STRUCTURE

6.1 INTRODUCTION

This unit provides a brief overview of the Classical perspective on full employment and the determination of employment and output. Classical economic thought, represented by economists such as Adam Smith, David Ricardo, John Stuart Mill, Alfred Marshall, and Arthur Pigou, is based on the idea that the economy is self-regulating. According to classical economists, the economy naturally tends toward a state where all available resources are fully utilized, achieving what is known as the natural level of real GDP.

Although fluctuations may cause temporary deviations from this level, market mechanisms facilitate a return to equilibrium. This belief is grounded in two key principles: Say's Law, which suggests that supply creates its own demand, and the assumption that wages, prices, and interest rates adjust flexibly to restore balance in the economy.

6.2 LEARNING OBJECTIVES

By the end of this unit, you will be able to

- Understand the classical view of full employment
- Explain the Relationship between Employment and Output
- Explain the Classical Theory of Employment

6.3 CLASSICAL ASSUMPTIONS

Classical economic theory is built on several key assumptions:

i) The economy operates under conditions of full employment.

ii) Both product and labor markets function under perfect competition.

iii) The economy follows a closed, laissez-faire system with minimal government intervention.

iv) Production inherently generates its own demand, aligning with Say's Law.

v) Wages and prices adjust freely to ensure market equilibrium.

vi) The money supply remains constant.

vii) Money serves solely as a medium of exchange without influencing real economic variables.

Self-Check Exercise-1

Q1. What are the assumptions of classical economics?

6.4 CLASSICAL VIEW OF FULL EMPLOYMENT

Full employment refers to an economic state where nearly all individuals willing and able to work at prevailing wage rates are employed. It is commonly described as a situation with no involuntary unemployment. However, economists acknowledge that absolute zero unemployment is

unrealistic due to factors such as labor mobility constraints and seasonal fluctuations in employment. Even in a state of full employment, some level of unemployment persists, primarily due to frictions in the labor market. These include temporary job transitions and sectoral imbalances in workforce demand. Classical economists argue that as long as unemployment in certain industries is balanced by labor shortages elsewhere, the economy can still be considered at full employment.

Economist William Beveridge suggested that an unemployment rate of around 3% could be seen as full employment, though other economists have proposed figures ranging from 2% to 13%, depending on various economic conditions. A more refined definition suggests that full employment exists when only frictional unemployment—caused by workers transitioning between jobs—is present, while structural inefficiencies in the labor market are minimized. In this view, full employment means that all individuals willing to work at the current wage rate can find jobs, ensuring labor market equilibrium.

Self-Check Exercise-2

Q1. Write a short note on the classical view of Full Employment.

6.5 THE RELATIONSHIP BETWEEN EMPLOYMENT AND OUTPUT

According to classical economic theory, real output remains unaffected by changes in the money supply. Instead, output is determined by the factors of production within an economy. A core concept of the classical model is the short-run production function, which illustrates the highest possible output a firm can generate based on the available inputs.

In the classical framework, full employment equilibrium accounts for both frictional and voluntary unemployment but does not acknowledge the existence of involuntary unemployment. In the short run, an increase in production primarily depends on the expansion of factor inputs such as labor (N), capital (K), and land (L), represented by the production function:

$Q = f(N, K, L)$

Depending on the variations in these inputs, output may increase proportionally, at a higher rate, or at a diminishing rate. However, in the short term, overall economic output is primarily influenced by labor input, while capital and natural resources remain constant.

Self-Check Exercise-3

Q1. Examine the relation between employment and output under classical macroeconomic theory.

6.5 THE CLASSICAL THEORY OF EMPLOYMENT (DETERMINATION OF THE LEVEL OF EMPLOYMENT AND OUTPUT)

Classical economists maintained that in a competitive market system with flexible wages and prices, the economy would always achieve full employment. They argued that market forces naturally adjust to ensure that the demand for labor matches its supply. According to the classical framework, employment and income levels are primarily determined within the labor market. Lower wages lead to higher employment, which is why the labor demand curve slopes downward. Conversely, the labor supply curve slopes upward, as higher wages encourage more individuals to participate in the workforce.

In the diagram (Figure 6.1), the equilibrium wage level (W_0) is established where labor demand and supply intersect, leading to employment at level L_0. The lower section of the diagram illustrates the relationship between total output and the amount of labor employed. It represents the short-run production function, which is mathematically expressed as Q = f(K, L), where Q represents output, K is the fixed capital, and L denotes the variable labor input. The output level Q_0 is attained with L_0 units of labor. Classical economists considered this equilibrium employment level as full employment, implying that persistent unemployment was not possible under normal economic conditions. Any unemployment present at wage W_0 was attributed to market frictions or structural rigidities rather than a deficiency in demand

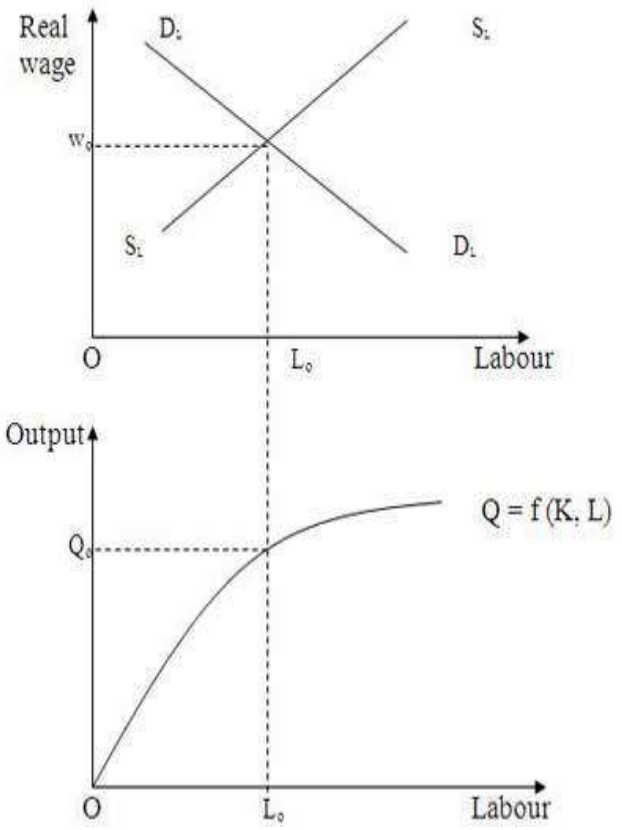


Figure 6.1: Determination of Employment

Classical thought asserted that overall demand in the economy would always be sufficient to absorb total production. This idea was rooted in Say's Law, which suggests that supply generates its own demand. Essentially, the act of producing goods and services results in income generation equivalent to the value of output.

However, Say's Law does not account for the possibility that some portion of income may be saved rather than spent on consumption. If households save a fraction of their earnings, total consumption demand might fall below the level of output, leading to unsold goods, declining prices, production cuts, unemployment, and lower incomes. Despite this, classical economists dismissed such concerns, asserting that all savings would eventually be channeled into investment. They believed that investment spending would compensate for any reduction in consumption, ensuring that national income and employment levels remained stable.

Another key argument put forth by classical economists was that the financial system, particularly the money market, played a crucial role in maintaining equilibrium. They stated that the rate of interest adjusts to balance savings and investment, thereby securing full employment. Interest rates, according to this view, are determined by the interaction between the demand for capital (investment) and the supply of capital (savings). If savings exceed investment, interest rates will decline, encouraging more investment until equilibrium is restored. Likewise, if investment surpasses savings, interest rates will rise, prompting an increase in savings until balance is achieved.

6.5.1 Price Flexibility:

Classical economists argued that even if the interest rate did not successfully balance savings and investment, any decline in overall spending would be offset by a proportional decrease in the price level. For example, if Rs 100 can purchase two shirts at a price of Rs 50 each, the same two shirts could still be bought for Rs 50 if the price per shirt drops to Rs 25. Therefore, even if households save more than firms invest, the subsequent reduction in expenditure would not necessarily cause a fall in real output, income, or employment—provided that product prices decline in the same proportion.

6.5.2 Wage Flexibility:

According to classical economists, a drop in product demand would lower the demand for labor, leading to unemployment. However, they believed that wages would also decrease, and competition among job seekers would compel them to accept lower wages rather than remain unemployed. This adjustment would continue until wages reached a level that restored equilibrium in the labor market. Consequently, in the classical framework, involuntary unemployment was considered an impossibility.

Self-Check Exercise-6.4

Q1. Define

a) Wage flexibility

b) Price flexibility

6.6 THE CLASSICAL THEORY OF FULL EMPLOYMENT

The classical theory primarily focuses on the concept of full employment, presenting a model where equilibrium is naturally maintained at this level. According to this theory, the equilibrium levels of total output and employment are determined by the aggregate production function, alongside the interaction of labor demand and supply. The production function establishes a direct relationship between output and employment, implying that an increase in output corresponds to a rise in employment.

Mathematically, the aggregate production function can be expressed as:

$$Q = f(N, \bar{K}, \bar{T})$$

where **Q** represents total output, **N** denotes employment, while **K** and **T** stand for the fixed stock of capital and the state of technology, respectively.

The demand for labor is derived from the production function. As employment rises, total output also increases, but the marginal physical product of labor (MPL) begins to decline. Since MPL represents the additional output generated by employing one more worker, the demand curve for labor slopes downward. A profit-maximizing firm will continue to hire laborers until the real wage paid equals the MPL, ensuring that labor is employed efficiently. This condition can be expressed as:

$W/P = MP_L$

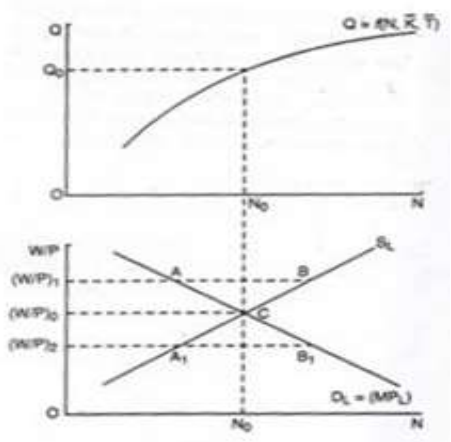
Since the demand for labor depends on MPL, which declines as employment increases, and given that the real wage (W/P) must equal MPL, the labor demand function is inversely related to real wages:

$D_L = f(W/P)$

On the supply side, working involves effort, fatigue, and the loss of leisure time. This sacrifice, often referred to as the marginal disutility of labor, means that workers require additional real wages to be incentivized to supply more labor. Thus, the supply of labor hours increases as real wages rise, demonstrating a positive relationship between labor supply and real wages.

$S_L = g(W/P)$

Figure 6.2 Determinations of Employment and Output



Given the labor demand and supply functions, equilibrium employment is determined when labor demand equals labor supply at the equilibrium real wage rate (W/P)0. If the real wage rate rises above this equilibrium level, say (W/P)1, the labor supply will exceed demand, creating unemployment. In response, unemployed workers may accept lower wages to secure jobs, leading to a decline in real wages. This adjustment reduces the unemployment gap, gradually restoring equilibrium at the full employment level N0.

Conversely, if the real wage rate falls below equilibrium, such as at (W/P)2, employers will seek to hire more workers. However, since lower wages increase the disutility of labor, workers may be unwilling to accept jobs at this rate. As a result, firms will be compelled to raise wages to attract more employees. Eventually, equilibrium is re-established at N0. At (W/P)1, the unemployment gap, represented by AB, diminishes as workers compete for available jobs, pushing wages toward (W/P)0. Conversely, at (W/P)2, the excess demand for labor, denoted by A1B1, causes wages to rise until they align with (W/P)0.

The equilibrium employment level N0 corresponds to full employment, meaning that all individuals willing and able to work at (W/P)0 have been absorbed, except for a small fraction of frictionally unemployed workers. At this wage rate, if some individuals choose not to work, it implies voluntary withdrawal from the labor market. In classical economic theory, any deviations from full employment are automatically corrected over time through wage flexibility. Assuming a stable price level, wage rate adjustments ensure that employment returns to its natural level, minimizing both unemployment and excess labor demand.

6.6.1 Classical System without Saving and Investment

The classical framework of full employment equilibrium is maintained through adjustments in the labor market, goods market, and money market. In the goods market, the aggregate production function defines the relationship between output levels and labor inputs, assuming a fixed stock of capital and a constant production technique in the short run. Employment levels are determined by the interaction of labor demand and supply, and in classical theory, this equilibrium is always aligned with full employment.

The money market plays a key role in determining the price level. In this model, the money supply governs price level fluctuations independently of labor inputs and output levels. The interdependence of these markets forms the foundation of the classical economic system in the absence of saving and investment. The functional relationships governing these market interactions are outlined as follows:

$$
\begin{aligned}
Q &= f(N, \bar{K}, \bar{T}) && \text{(i)} \\
DL &= f(S/P) && \ldots\text{(ii)} \\
SL &= f(W/P) && \ldots\text{(iii)} \\
MV &= PQ && \ldots\text{(iv)}
\end{aligned}
$$

The classical model of full employment equilibrium, excluding saving and investment, is illustrated in Figure 6.3.

In part (iii) of Figure 6.3, the money supply function (MV) is depicted as a rectangular hyperbola, adhering to the quantity theory equation MV = PQ. This function establishes a relationship between output and price levels. Given that output remains fixed at Q0 (as assumed), a single corresponding price level, P0, is determined.

Part (iv) of the figure represents price-wage adjustments, where (W/P)0 denotes the equilibrium real wage line. This line shows various combinations of money wages and price levels that maintain a constant real wage rate. At equilibrium, the price level P0 and the real wage rate together determine a unique money wage rate, W0.

In part (i), the production function illustrates the relationship between output and labor input, assuming a constant stock of capital and fixed production techniques. According to this function, output level Q0 is associated with employment level N0.

Part (ii) of the figure demonstrates how labor market equilibrium is achieved. The interaction between the labor demand and labor supply functions results in full employment at N0, with the equilibrium real wage rate at (W/P)0.

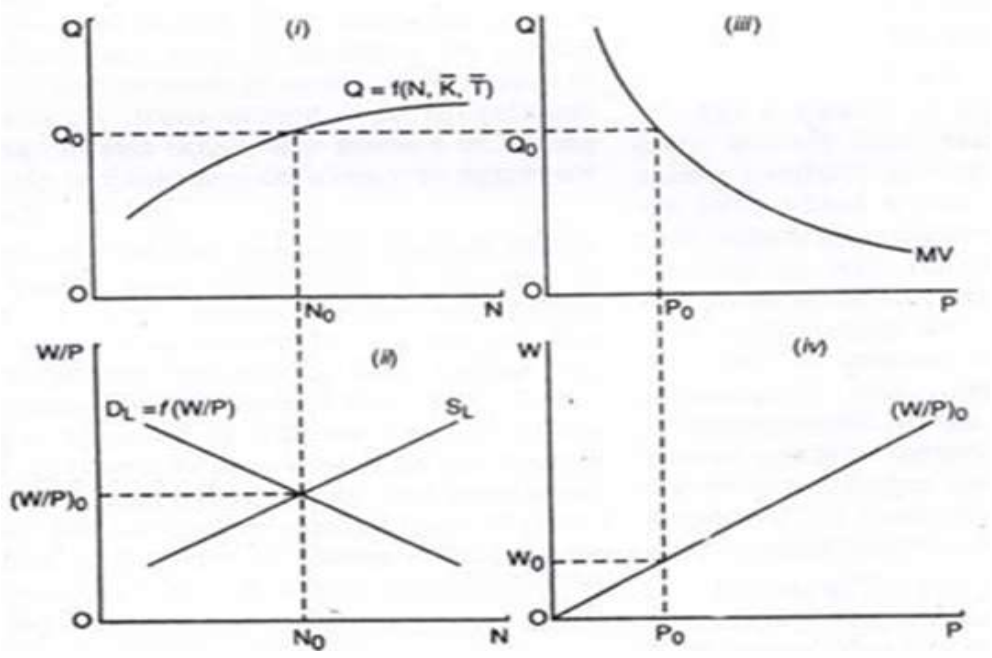


Figure 6.3 Classical System without Saving and Investment

6.6.2 Classical System with Saving and Investment

The earlier discussion of the classical model was simplified as it did not account for the roles of saving and investment. In reality, not all income is allocated to consumption; a portion is set aside as savings. If planned investment does not match the amount saved, Say's Law would not hold. However, classical economists proposed a mechanism to ensure that savings and investment remain balanced: the interest rate.

According to classical theory, savings increase with a rise in interest rates, while investment declines. The interest rate adjusts dynamically to align planned savings with planned investment. To simplify this explanation, we assume that the investment curve is elastic, meaning investment levels respond significantly to changes in interest rates. As a result, even small fluctuations in interest rates can maintain equilibrium between savings and investment.

Previously, the classical analysis assumed that all income was spent on consumption, leaving no room for savings. However, savings present a challenge to Say's Law. Classical economists acknowledged that savings exist but viewed them as funds that would automatically be redirected toward investment in capital goods. This perspective suggested that savings would not lead to a reduction in total spending.

The key concept in this classical framework is the self-regulating nature of the interest rate, which ensures that all savings are converted into investment. The model assumes that both saving and investment are functions of the interest rate—saving increases with higher interest rates, whereas investment declines. Through changes in interest rates, savings and investment are brought into balance. Therefore, in the classical model, the following relationships must be considered:

$S = f(r)$ (Saving function)

$I = f(r)$ (Investment function)

$S = I$ (Equilibrium in the capital market)

A key aspect of the relationship between saving and investment in the classical model is their high sensitivity to interest rate changes. Even minor fluctuations in interest rates can lead to adjustments in both saving and investment levels.

If savings exceed investment, a decline in the interest rate helps restore balance. Conversely, when investment surpasses savings, an increase in the interest rate brings them back into equilibrium. The assumption underlying this adjustment mechanism is that the economy always has ample opportunities for new investment. Without such opportunities, any surplus savings at full employment would disrupt Say's Law and potentially lead to prolonged economic stagnation.

The classical framework of full employment, incorporating saving and investment, can be analyzed using the following set of equations:

$$
\begin{aligned}
Q &= f(N, \bar{K}, \bar{T}) && \ldots \text{(i)} \\
DL &= f(S/P) && \ldots \text{(ii)} \\
SL &= f(W/P) && \ldots \text{(iii)} \\
MV &= PQ && \ldots \text{(iv)} \\
S &= f(r) && \ldots \text{(v)} \\
I &= f(r) && \ldots \text{(vi)} \\
S &= I && \ldots \text{(vii)}
\end{aligned}
$$

Beyond the four equations (i) to (iv) used to examine the classical system without saving and investment, an additional set of equations (v) to (vii) is introduced to incorporate the relationship between saving, investment, and the interest rate. These two sets should be analyzed separately, as the interest rate and the distribution of output between consumption and investment goods appear to function independently of the factors that determine national output, money supply, wages, and price levels. However, it is essential to explore how imbalances between saving and investment (S-I inequalities) affect employment levels.

6.6.3 Excess of Saving over Investment:

When planned savings (ex-ante S) surpass planned investment (ex-ante I) at full employment, it indicates that total spending on consumption and investment goods is insufficient to match overall output. Given a fixed money supply, the surplus output can only be sold if prices decrease. A decline in price levels, assuming stable money wages, results in an increase in real wages. This rise in real wages leads to an excess supply of labour, surpassing its demand, ultimately causing unemployment and a reduction in total output.

The adjustment mechanism is triggered through interest rate flexibility. A lower interest rate discourages savings while boosting consumption spending. Simultaneously, lower interest rates incentivize investment, leading to higher overall expenditure. With a fixed money supply, an increase in total spending raises the demand for money, driving up prices and reducing real wages. This adjustment helps shrink the excess labour supply in the market. Consequently, the reduction in interest rates, restoring equilibrium in the capital market, also facilitates a return to full employment in the labour market.

6.6.4 Excess of Investment over Saving

When planned investment (ex-ante I) surpasses planned savings (ex-ante S) at the existing interest rate, it signifies that total spending exceeds the current level of output. This excess demand leads to a rise in the general price level. As prices increase, real wages decline, creating

excess demand for labour in the market. However, this imbalance is eventually corrected through an increase in interest rates, which triggers adjustments in the money market.

Thus, the flexibility of interest rates ensures that full employment is maintained in the economy. The classical framework assumes an inherent self-regulating mechanism, where wage and interest rate adjustments help steer the economy back to full employment whenever deviations occur.

Self-Check Exercise-6.5

Q1. Critically examine the classical theory of full employment.

Q2. Discuss classical theory without saving and investment.

6.7 WAGE-PRICE FLEXIBILITY AND FULL-EMPLOYMENT

Classical economists supported the assumption of full employment using another fundamental argument. They believed that the level of production supplied by firms is influenced not only by total demand or expenditure but also by price movements. Even if the interest rate fails to immediately balance saving and investment, leading to a shortfall in aggregate spending, they argued that this would not result in general overproduction or unemployment. Their reasoning was that price adjustments would compensate for any decline in expenditure.

When people choose to save more, their reduced spending affects product prices. As aggregate demand decreases, product prices also fall, increasing the quantity demanded. Consequently, all goods produced would be sold, though at lower prices. Thus, classical economists maintained that, despite lower aggregate demand due to increased savings, real output, income, and employment levels would remain stable—provided that price reductions match the decline in spending.

They viewed a free-market capitalist system as naturally self-adjusting. Competitive pressures among sellers, in response to reduced demand, would drive prices down, preventing excess stock accumulation. According to classical logic, a rise in savings leads to price reductions rather than declines in production and employment. However, this raises the question of how much price reduction businesses can sustain. To maintain profitability, firms would also need to lower the wages of workers. As wages fall, all willing workers would find employment. Those unwilling to accept lower wages would remain unemployed, but classical economists labeled this as voluntary unemployment rather than real unemployment. From their perspective, involuntary unemployment could not exist in a truly free-market system, as all individuals willing to work at market-determined wages would find jobs.

During the Great Depression of 1929–1933, neoclassical economist Arthur Pigou proposed wage cuts as a solution to widespread unemployment. He argued that government intervention and trade union policies were artificially keeping wages high, preventing the natural

functioning of the economy. According to Pigou, reducing wages would increase labour demand, ensuring full employment. However, it was during this period that John Maynard Keynes critically challenged classical economic thought. Keynes introduced a new perspective on income and employment determination in developed capitalist economies, fundamentally reshaping economic theory and sparking what is often referred to as a revolutionary shift in economic thought.

Flexible interest rates, wages, and prices

Classical economists argue that when savings increase, the interest rate will decline, encouraging investors to utilize more of the available savings. The interest rate will continue to drop—illustrated by the shift from i to i′ in Figure 1—until the total savings supplied aligns with the total investment demand. This mechanism ensures that an increase in savings translates into higher investment spending, leading the economy back to its natural level of real GDP. The classical theory emphasizes that flexible interest rates, along with wage and price adjustments, act as self-correcting forces that maintain economic equilibrium. The responsiveness of interest rates keeps the financial market in balance, preventing real GDP from dipping below its natural level. Similarly, the adaptability of wage rates ensures continuous equilibrium in the labour market. If the labour supply surpasses the demand for workers, wages will decrease, ensuring full employment.

According to classical thought, unemployment in the labour or resource markets is voluntary. Those who remain unemployed do so because they are unwilling to accept lower wages. Classical economists assert that, in a competitive market, firms would be ready to hire workers at lower wage rates. They maintained that real factors of production, coupled with unrestricted market operations, contribute to national prosperity. In essence, classical economics:

a) Emphasized real economic factors over monetary influences in determining key economic outcomes such as output and employment. Money was viewed primarily as a medium of exchange rather than a driver of economic expansion.

b) Advocated for the self-regulating nature of markets in sustaining employment and output levels. The government's role was limited to essential public infrastructure such as roads, canals, and ensuring competition in markets.

In classical theory, economic models incorporate two types of variables: endogenous (determined within the system, such as capital, labour, wages, and prices) and exogenous (external factors like technological advancements and population growth). In the classical framework, exogenous factors primarily affect supply rather than demand. For instance, technological progress influences the marginal productivity of labour, while population fluctuations alter labour supply. Demand, in

this context, is not viewed as an issue, as classical economists uphold Say's Law—asserting that supply inherently generates its own demand, preventing aggregate demand shortfalls.

The classical model considers the real wage rate (W/P) as a crucial determinant. The impact of changes in money wages and price levels on output is examined through their effect on real wages. When either nominal wages (W) or prices (P) fluctuate, real wages shift accordingly, influencing labour demand and supply. Firms determine the optimal labour quantity by ensuring that:

$$W = MPN \times P$$

where the money wage equals the marginal productivity of labour (MPN) multiplied by the price of goods and services.

If prices rise, labour demand increases as real wages fall, shifting the labour demand curve to the right. Conversely, a decline in prices reduces labour demand, shifting the curve to the left. Since labour demand depends solely on real wages, a proportional rise in both W and P leaves labour demand unchanged. Firms competing for workers may raise money wages, forcing others to either follow suit or exit the industry. However, higher wages necessitate price hikes, which, in turn, lower real wages until equilibrium is restored. Ultimately, the classical aggregate supply curve is vertical, indicating that regardless of price fluctuations, money wages adjust to preserve real wages and output at a stable level.

Self-Check Exercise-6.6

Q1. What is the significance of wage-price flexibility in the classical theory?

6.8 KEYNES'S CRITICISM OF CLASSICAL THEORY

J.M. Keynes challenged the classical economic theory on several key points:

1. Keynes argued that savings depend on national income rather than the interest rate. Therefore, the assumption that savings and investment automatically balance through interest rate adjustments does not hold. As a result, Say's Law, which claims that supply creates its own demand, is not valid in all cases.
2. The labour market, according to Keynes, does not function as perfectly as classical economists assumed. Trade unions, government-imposed minimum wages, and other institutional factors prevent wages from being fully flexible. In particular, wages are more resistant to downward adjustments than upward ones. Consequently, if savings exceed investment, the resulting drop in demand will lead to reduced production and employment rather than just a decline in wages.

3. Keynes further contended that even in an economy where wages and prices could adjust freely, market forces alone would not necessarily guarantee full employment. Unlike classical economists, who believed in the economy's self-correcting mechanisms, Keynes emphasized the possibility of persistent unemployment and the need for government intervention to stabilize demand and employment levels.

Self-Check Exercise-6.7

Q1. Critically examine the classical theory.

6.9 SUMMARY

In classical economic theory, the level of output is determined solely by supply-side factors, with demand playing no significant role. Elements such as money supply, government expenditure, and investment demand are categorized as demand-side factors, which, according to the classical model, do not influence output. However, supply-side influences, including technological advancements, lower raw material costs, and capital accumulation, can impact equilibrium output. The classical model is fundamentally driven by supply factors, shaping both real output and employment levels. The aggregate supply curve remains vertical due to key assumptions about the labour market, including (i) fully flexible wages and prices, (ii) perfect information availability, and (iii) the presence of perfectly competitive markets.

6.10 GLOSSARY

- **Ex-ante:** Ex-post translated from Latin means "after the fact". The use of historical returns has traditionally been the most common way to predict the probability of incurring a loss on any given day. Ex-post is the opposite of ex-ante, which means "before the event".
- **Ex-post:** A term that refers to future events, such as future returns or prospects of a company. Using ex-ante analysis helps to give an idea of future movements in price or the future impact of a newly implemented policy.
- **Saving:** The gap between earnings and spending within a given time frame.
- **Market:** A place or institution where buyers and sellers come together and exchange factor inputs or final goods and services. A market is one of several types of economic rationing systems.
- **Investment:** Changes to the existing capital stock or business inventories.
- **Natural rate of employment:** That rate of unemployment where there is neither upward nor downward pressure on prices.
- **Employment:** A measure of those individuals in the labour force working, at least one hour per week, for pay.

6.11 ANSWER TO SELF-CHECK EXERCISES

Self-Check Exercise-1

Answer to Q1. Refer to Section 6.2.

Self-Check Exercise-2

Answer to Q1. Refer to Section 6.3.

Self-Check Exercise-3

Answer to Q1. Refer to Section 6.4.

Self-Check Exercise-4

Answer to Q1. Refer to Sections 6.5.1 & 6.5.2.

Self-Check Exercise-5

Answer to Q1. Refer to Section 6.6.

Answer to Q2. Refer to Section 6.6.1.

Self-Check Exercise-6

Answer to Q1. Refer to Section 6.7.

Self-Check Exercise-7

Answer to Q1. Refer to Section 6.8.

6.12 REFERENCES/SUGGESTED READINGS

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6.13 TERMINAL QUESTIONS

Q1. Critically examine the Classical Theory of Employment (Determination of the Level of Employment and Output).

Q2. Give the Classical views on Wage-Price Flexibility and Full-Employment.

UNIT-7

CLASSICAL THEORY OF INTEREST

STRUCTURE

7.1. INTRODUCTION

In the previous chapter, we explored how employment and output are determined within the framework of classical economic theory. Now, shifting our focus, this unit examines how interest rates and prices are determined according to classical economists. The classical school of thought assumes that an economy operates under full or near-full employment conditions. This assumption is rooted in Say's Law of Markets, formulated by the French economist J.B. Say. The law states that "supply creates its own demand," meaning that any increase in production, driven by the economy's productive capacity or fixed capital stock, will be matched by demand, ensuring that goods produced are sold without issues of insufficient demand.

Since demand shortages are not considered a problem in classical theory, all available resources are assumed to be fully utilized, with no concern about underutilization. Classical economists also argue that income not used for consumption—savings—will ultimately be directed toward investment. This ensures that total savings in the economy translate into investment spending, maintaining the balance where investment equals savings. Since savings, when reinvested, also contribute to demand, the entire income is either spent on consumption or investment, without leakages.

This raises an important question: how does the economy ensure that savings match investment expenditure? According to classical economists, the rate of interest plays a crucial role in maintaining this balance. Changes in interest rates adjust savings and investment levels, leading to equilibrium. Moreover, classical theory asserts that

absolute money prices and wage levels are influenced by the money supply. An increase in money supply leads to a proportional rise in overall price levels and values. In the following sections, we will explore the classical perspectives on interest rates and price determination in greater detail.

7.2. LEARNING OBJECTIVES

After going through this unit, you will be able to understand

- Capital market equilibrium and determination of rate of interest
- Factors affecting rate of interest
- Quantity theory of money and determination of price level

7.3. ASSUMPTIONS OF CLASSICAL THEORY OF INTEREST

The assumptions of the classical theory of interest are following

i) Perfect competition exists in the capital market: This implies that the equilibrium interest rate is established by the interaction of market forces, specifically the forces of demand and supply in a competitive market. As a result, the interest rate remains adjustable and fluctuates based on the prevailing market conditions of demand and supply.

ii) The classical theory assumes full employment of resources.

iii) Economic agents act rationally, i.e., they are motivated by self-interest and want to maximise economic benefit.

iv) The price level is considered stable and does not fluctuate.

v) Money functions solely as a medium of exchange and does not act as a store of value.

Self-Check Exercise-7.1

Q.1 Discuss the assumptions of classical theory of interest.

7.4. CAPITAL MARKET EQUILIBRIUM: DETERMINATION OF INTEREST

As discussed earlier, classical economists argue that changes in the interest rate ensure the balance between savings and investment. In the capital market, the interest rate is established by the interaction between the supply of savings and the demand for investment. When interest rates are low, investment demand increases, whereas higher interest rates lead to reduced investment. Conversely, higher interest rates encourage more savings, while lower rates result in reduced household savings.

Equilibrium in the capital market is achieved at the point where the supply of savings matches the demand for investment. Classical economists assert that fluctuations in the interest rate naturally adjust these two factors until they reach equilibrium. As shown in Figure 1, the equilibrium interest rate (i) is determined at the point where the investment demand curve (II) intersects the savings supply curve (SS).

At a higher interest rate (i), the demand for investment (d') is lower than the available supply of savings (s'). This surplus in savings leads to a decline in the interest rate from (i) to (i'). Conversely, at a lower interest rate (i''), the savings supply (s'') falls short of the investment demand (d''), meaning investment demand exceeds the available savings. As a result, this imbalance causes the interest rate to rise.

The equilibrium interest rate (i) is established where investment demand and savings supply intersect, ensuring that savings (S) equal investment (I). Adjustments in the interest rate facilitate this balance. When savings and investment are equal, total demand for goods and services aligns with total supply, preventing any shortfall in aggregate demand. According to classical theory, this mechanism sustains full employment.

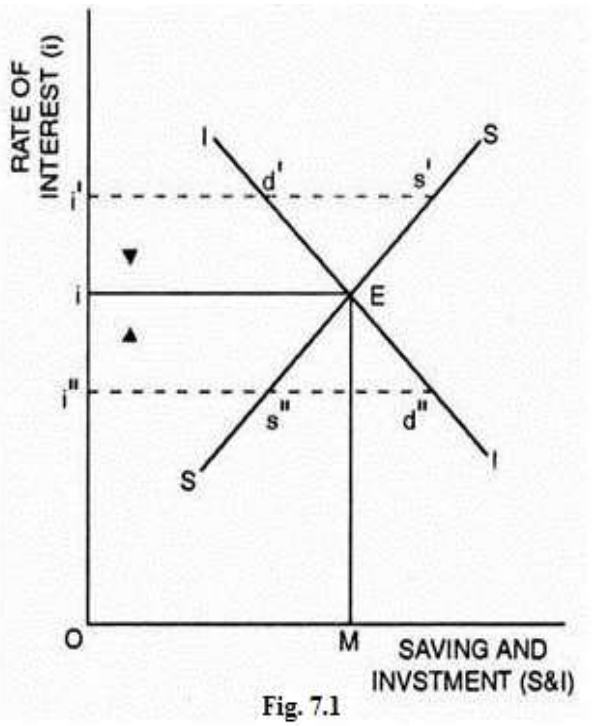

Fig. 7.1

A key question that arises is how capital market equilibrium maintains the equality of savings and investment at full employment. This relationship is best understood through the circular flow of income. Household savings act as a leakage from the income stream, while investment spending serves as an injection. When leakages (savings) match injections (investment), overall expenditure on goods and services equals the full-employment level of output. Consequently, the product market remains stable, and the flow of money continues uninterrupted at full employment.

Self-Check Exercise-7.2

Q1. Define capital market equilibrium.

Q2. How the rate of interest is determined under classical theory?

7.5. QUANTITY THEORY OF MONEY: DETERMINATION OF PRICE LEVEL

In classical economic theory, the quantity of money influences only the price level of output and does not impact real variables such as savings and investment. While changes in the money supply determine the price level, they also affect the real wage rate, which is the ratio of money wages to the price level (W/P). Classical economists argue that when the money supply increases, both money wages and the price level adjust in a way that keeps the real wage rate stable, ensuring that equilibrium in the labor market is automatically maintained.

Additionally, they assert that an increase in the money supply and the resulting price level changes do not disrupt the balance between savings and investment,

preventing any deficiency in aggregate demand. The quantity theory of money suggests that the overall price level in the economy is determined by the supply of money. This theory is commonly represented through Fisher's equation of exchange, which in its income version is expressed as:

$$MV = PY$$

Or

$$P = MV/Y$$

Where

M = Quantity of Money

V = Income velocity of circulation of money

Y = Level of aggregate output (or real income)

P = Price level of goods and services

The income velocity of money refers to the frequency with which a unit of money is used to purchase final goods and services within a given period, typically a year. In classical economic theory, this velocity is considered constant. The aggregate output level is determined by available productive resources, including capital stock, labor supply, and land, while technological advancements are assumed to remain unchanged in the short run.

Classical economists, based on Say's Law and the flexibility of wages and prices, argue that full employment prevails in the economy. Given that all resources are fully utilized, the total output remains fixed at its full-employment level in the short run. Since both the velocity of money (V) and aggregate output (Y) are constant, the price level is primarily influenced by the supply of money. Any increase in the money supply leads to a proportional rise in the price level.

The money supply is determined by the monetary policy set by the government or the central bank. This raises an important question: what factors influence the demand for money? Classical theory views money primarily as a medium of exchange, meaning that the demand for money corresponds to the total value of transactions in the economy, represented as PY, where output (Y) multiplied by the price level (P) reflects the total monetary value of exchanged goods and services.

In equilibrium, the price level is established through the interaction between money supply and money demand.

$$M = M^d$$

Where M stand for money supply and M^d for demand for money.

$$M = PY/V$$

$$P = MV/Y$$

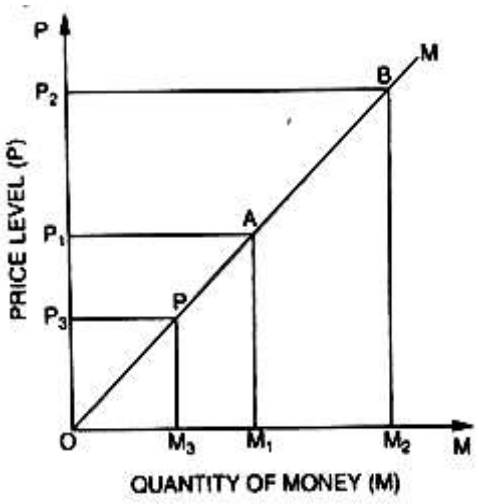

Figure 7.2

Monetary equilibrium in classical theory can be illustrated through a graphical representation. The demand for money, expressed as PY/V, follows an upward-sloping line, indicating that with velocity (V) and output (Y) held constant, money demand rises in direct proportion to the price level. As prices increase, individuals require more money for transactions. If the money supply is M1, equilibrium is established at price level P1, where the demand for money equals its supply. When the money supply expands to M2, individuals initially hold more money than they need at the existing price level.

To adjust, they increase their expenditures on goods and services. This higher spending prompts firms to raise prices, leading to a greater demand for money to facilitate transactions. The graphical representation shows that with an increase in the money supply to M2, a new equilibrium is reached at point B, where the price level has risen to P2. Thus, in classical theory, an increase in money supply results in a proportional increase in the price level.

Self-Check Exercise-3

Q.1. Discuss the income version of the quantity theory of money.

Q.2. Discuss price determination under classical theory.

7.6. SUMMARY

In this unit we discussed determination of price and rate of interest under classical theory. In classical economic theory, the rate of interest plays a crucial role in balancing saving and investment. The interest rate is established in the capital market through the interaction of saving supply and investment demand. Classical economists also subscribe to the quantity theory of money, which posits that the money supply is the primary determinant of the price level in an economy. According to this theory, both the velocity of money (V) and the level of aggregate output (Y) are assumed to be constant, with the price level being directly influenced by the money supply. Any increase in the money supply leads to a proportional rise in the price level.

7.7. GLOSSARY

- **Aggregate Output:** This refers to the total value of goods and services produced within an economy over a specific period. It is often measured as the economy's total productivity or Gross Domestic Product (GDP).
- **Capital Market Equilibrium:** In the capital market, equilibrium occurs when the supply of savings matches the demand for investment, resulting in a stable rate of interest.

- **Interest Rate Determination:** In classical theory, the interest rate is set by the interaction of the supply of and demand for capital.
- **Velocity of Money:** The income velocity of money measures how frequently a single unit of currency is used for transactions, or how many times it circulates within the economy over a given period, such as a year.

7.8. ANSWERS TO SELF-CHECK EXERCISES

Self-Check Exercise-1

Answer to Q1. Please refer to section 7.3.

Self-Check Exercise-2

Answer to Q1. Please refer to section 7.4.

Answer to Q2. Please refer to section 7.4.

Self-Check Exercise-3

Answer to Q1. Please refer to section 7.5.

Answer to Q2. Please refer to section 7.5.

7.9. REFERENCES/SUGGESTED READINGS

1. Ahuja, H. L. (2016). *Macroeconomics: Theory and policy*. S. Chand & Company.
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6. Shapiro, E. (1982). *Macroeconomic analysis*. Galgotia Publications (Reprint ed.).

7.10. TERMINAL QUESTIONS

Q1. Discuss the classical theory of interest. How change in rate of interest brings equality between saving and investment?

Q2. Discuss the price determination under classical theory of macroeconomics.

UNIT-8

KEYNESIAN ECONOMICS-I

STRUCTURE

8.1 INTRODUCTION

The previous unit focused on classical economic theories. This unit explores Keynesian economics, specifically examining the Keynesian theory of income and employment along with its key components. In this unit, we will focus on the Keynesian Theory of Income and Employment, The Principle of Effective Demand, Aggregate Supply Price, Equilibrium Level of Employment, and Criticism of the Theory.

8.2 LEARNING OBJECTIVES

After going through this unit, you will be able to

- Explain the Principle of Effective Demand
- Define the Aggregate Demand Price and Function

- Describe the Aggregate Demand Price and Function
- Explain the Keynesian theory of Income and employment

8.3 THE KEYNESIAN THEORY OF INCOME AND EMPLOYMENT:

8.3.1 Introduction

In his 1936 book, *The General Theory of Employment, Interest, and Money*, J.M. Keynes challenged the classical notion of full employment equilibrium. He examined the actual determinants of income and employment in a modern economy. Keynes argued that an economy can achieve equilibrium at different employment levels, with underemployment being the most common situation.

Keynesian theory is fundamentally demand-driven, emphasizing the role of effective demand in determining income and employment levels. It also explains both inflation and unemployment—where inflation results from excessive demand, and unemployment arises from insufficient demand. Additionally, Keynes' theory integrates monetary and value theories, highlighting the importance of short-run equilibrium in contrast to classical long-run perspectives.

8.3.2 Assumptions of the theory

Keynesian economics is based on several key assumptions, including price rigidity, the role of effective demand, and the factors influencing savings and investment.

1. **Price Rigidity:** Prices do not adjust quickly in the short run, preventing some markets from reaching equilibrium.
2. **Effective Demand:** Consumer spending is determined by actual income rather than full employment or equilibrium income.
3. **Savings and Investment Factors:** Income, expectations, and other factors beyond interest rates influence savings and investment decisions.
4. **Fixed Short-Run Variables:** Keynes assumed that capital stock, population, and technology remain constant in the short run. As a result, income and output levels are determined by employment, which in turn depends on effective demand, driven by overall spending.

Self-Check Exercise-8.1

Q1. Discuss the Keynesian theory of income and employment.

Q2. List the assumptions of Keynesian theory of income and employment.

8.4 THE PRINCIPLE OF EFFECTIVE DEMAND

The principle of effective demand plays a central role in Keynesian employment theory. It represents the total expenditure on consumption

and investment goods. Effective demand determines employment levels in an economy, and a lack of it leads to unemployment. A higher effective demand results in greater employment. The two key components influencing effective demand are the aggregate demand function and the aggregate supply function.

8.4.1 Aggregate Demand Price and Function

The aggregate demand price for a given level of employment refers to the total expected revenue from selling the output produced at that employment level. In other words, it represents the earnings entrepreneurs anticipate from selling goods and services at a specific employment level.

The aggregate demand function outlines the expected revenue from sales at varying employment levels. It is depicted as an upward-sloping curve, indicating that as employment and income rise, the aggregate demand price also increases. However, as income grows, the proportion spent on consumption goods tends to decrease, leading to a diminishing rate of increase in aggregate demand price. Consequently, the aggregate demand curve's slope decreases with rising employment levels. The following diagram illustrates this relationship.

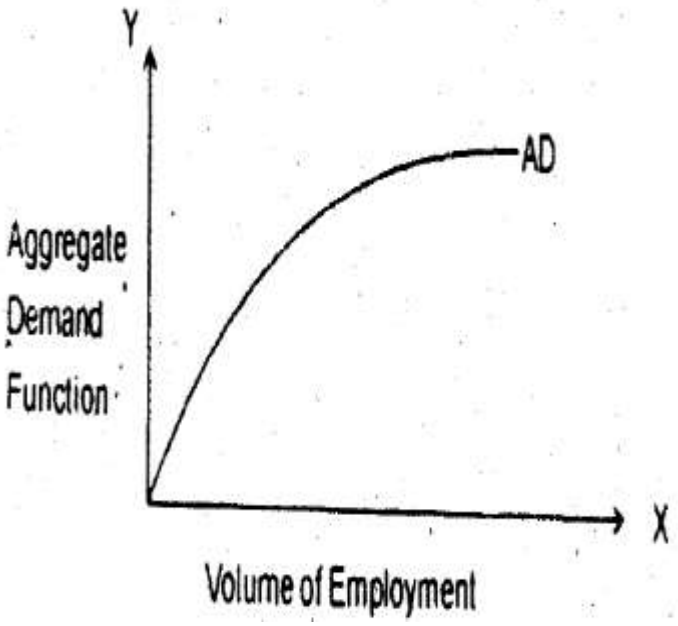


Figure 8.1

Self-Check Exercise-8.2

Q1. Define the principle of effective demand.

Q2. Discuss the aggregate demand price and function.

8.5 AGGREGATE SUPPLY PRICE

In a capitalist economy, the primary objective of entrepreneurs is to maximize profits. To achieve this, producers hire workers while considering the costs involved. Providing employment requires businesses to incur expenses, and they will only continue hiring if their expected revenues meet or exceed these costs. The supply price for a particular quantity of goods is the price at which producers are willing to supply that

amount in the market. If businesses do not receive this minimum required revenue, they will reduce production and employment levels.

The aggregate supply function represents the minimum revenue necessary to encourage entrepreneurs to maintain various levels of employment. It reflects the cost of producing a certain level of output and the minimum earnings required to sustain production. The aggregate supply curve slopes upwards, and its shape is influenced by technological factors and cost variations as employment expands. The diagram below illustrates the aggregate supply function.

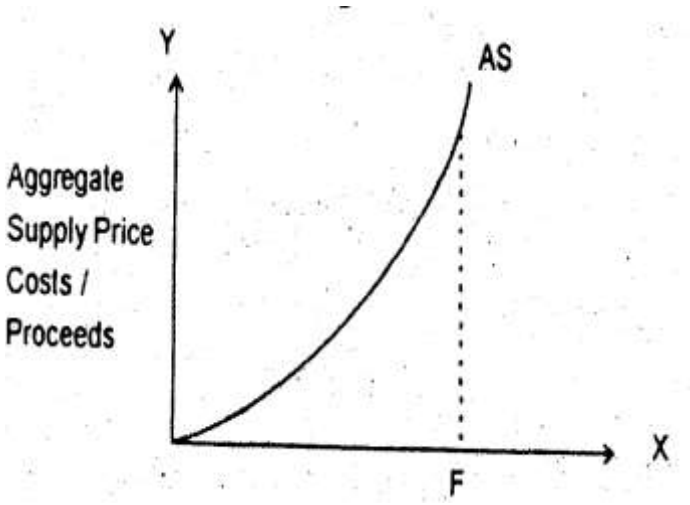


Figure 8.2

Self-Check Exercise-3

Q1. Define aggregate supply price.

8.6 EQUILIBRIUM LEVEL OF EMPLOYMENT

The equilibrium level of income and employment is determined at the point where the aggregate demand function intersects with the aggregate supply function. The aggregate supply schedule reflects the costs incurred at various levels of employment, while the aggregate demand schedule indicates the expected revenue that entrepreneurs anticipate at each level of employment.

As long as expected revenues surpass costs, businesses will continue to expand employment. This process persists until expected revenues equal total costs. At equilibrium, the total sales revenue that entrepreneurs anticipate matches the minimum revenue required to cover production costs.

The intersection point E of the aggregate demand and aggregate supply curves is referred to as the point of effective demand. The corresponding equilibrium employment level is ONF, which does not necessarily indicate full employment. If employment deviates from ON, profit levels will not be maximized. In the diagram, ONF represents full employment since the aggregate supply curve (AS) becomes vertical at this stage. However, the actual employment level (ON) remains below full employment due to insufficient investment demand, which fails to bridge the gap between income and consumption.

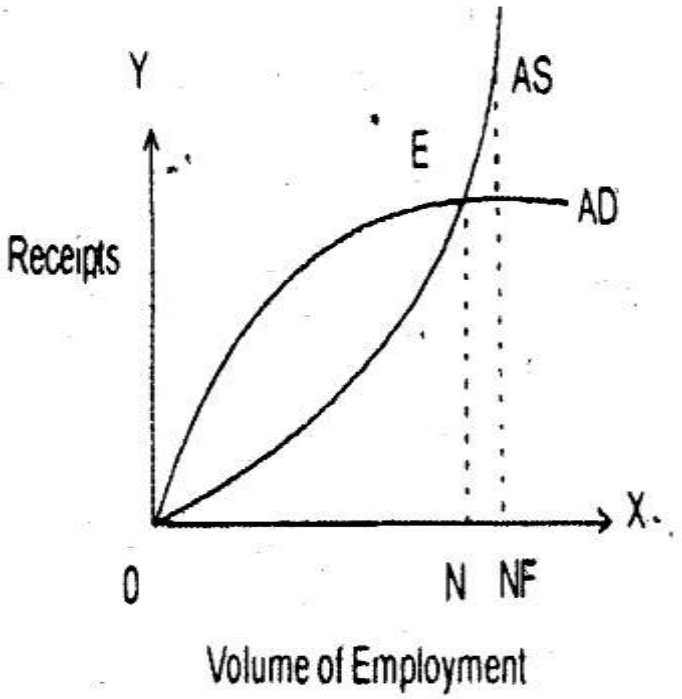


Figure 8.3

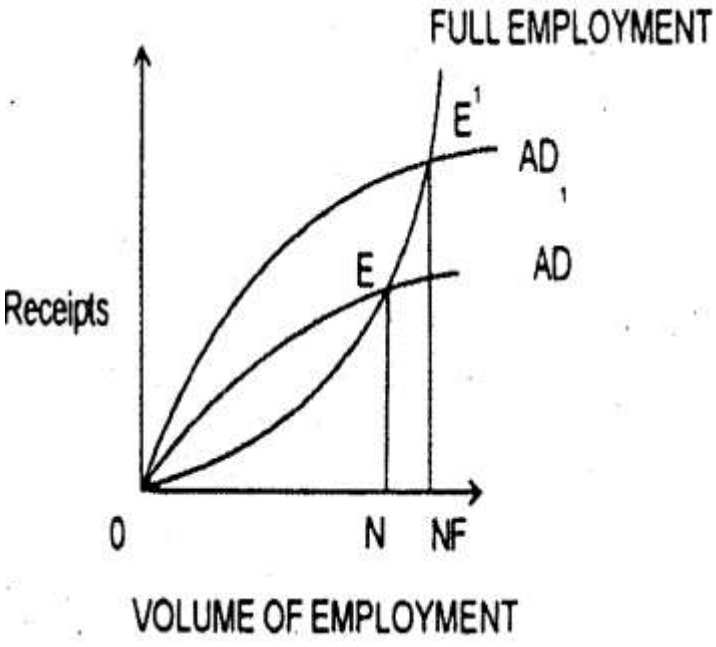
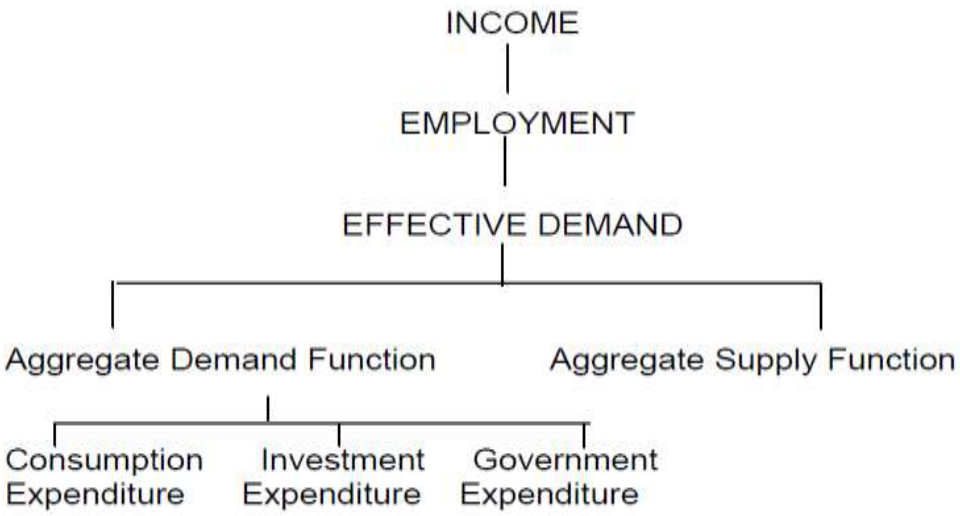


Figure 8.4

To achieve full employment, the level of employment must rise. This can be done either by lowering the aggregate supply curve or by increasing aggregate demand. Enhancing aggregate supply requires an increase in productivity, which is a long-term process. Since Keynesian theory focuses on short-run analysis, increasing aggregate demand is a more feasible solution. A rise in aggregate demand shifts the equilibrium point to E1, representing full employment equilibrium. However, any further expansion of demand beyond E1 may result in inflation.

The chart below provides a summary of Keynesian employment theory.



Self-Check Exercise-8.4

Q1. With the help of a diagram, discuss the equilibrium level of employment under Keynesian theory.

8.7 CRITICISM OF THE KEYNESIAN THEORY

1. **Exclusion of Foreign Trade:** Keynesian theory is based on the assumption of a closed economy, disregarding the influence of foreign trade on employment and income. In reality, most economies engage in international trade, making this assumption unrealistic. Ignoring the impact of global trade on employment is a significant limitation of the theory.
2. **Assumption of Perfect Competition:** The theory assumes a perfectly competitive market structure, which does not align with modern economies where markets are often monopolistic or state-controlled. As a result, its applicability to socialist or centrally planned economies is limited.
3. **Limited Generality:** Although Keynes referred to his theory as a "general theory," it primarily applies to specific conditions such as static economies with perfect competition. It does not adequately address the economic challenges faced by developing nations.
4. **Focus on Cyclical Unemployment:** Keynesian economics primarily addresses unemployment caused by business cycles. However, other types of unemployment, such as structural and frictional unemployment, are not sufficiently covered in his analysis.
5. **Short-Term Focus:** Keynesian theory is centered on short-run economic fluctuations. Keynes famously stated, *"In the long run, we are all dead."* However, economic factors such as capital stock, technological advancements, consumer preferences, and population

size evolve over time. Ignoring these long-term changes makes the theory incomplete for long-term economic planning.

6. **Overemphasis on Expectations:** Keynes placed significant importance on expectations in determining investment and employment. Critics argue that while expectations are important, they are not the sole determinants of economic activity.

Self-Check Exercise-8.5

Q1. Critically examine the Keynesian theory of income and employment.

8.8 SUMMARY

Keynes, in his General Theory, identifies the key determinants of income and employment in a modern economy. He argues that equilibrium can occur at different levels of employment, not necessarily at full employment. In most cases, economies operate under conditions of underemployment equilibrium.

The Keynesian theory primarily focuses on demand, emphasizing *effective demand* as a critical factor in determining income and employment levels. Since Keynesian analysis is short-run oriented, it assumes that factors like capital, population, and technology remain constant. In this framework, income and output depend on employment levels, which in turn are influenced by aggregate spending. Effective demand, reflected in total community spending on consumption and investment, directly impacts employment levels, with unemployment arising from insufficient demand.

Effective demand is determined by two components: the aggregate demand function and the aggregate supply function. The point where these two functions intersect establishes the economy's income and employment levels, referred to as *effective demand*. However, this equilibrium does not necessarily correspond to full employment. To achieve full employment equilibrium, an increase in aggregate demand is necessary. Aggregate demand consists of two key components—consumption expenditure and investment expenditure. Among these, consumption expenditure plays a crucial role, as it depends on income levels and the propensity to consume, represented by the function C = f(Y).

8.9 GLOSSARY

- **Effective Demand:** The level of demand where aggregate demand and aggregate supply are equal, ensuring that entrepreneurs have no incentive to alter output or employment levels.
- **Aggregate Supply Price:** As per Keynes, this refers to the expected proceeds at a given level of employment that make it worthwhile for

entrepreneurs to hire a specific number of workers. It represents the minimum revenue required to sustain production at that level.

- **Aggregate Demand Price:** The anticipated expenditure that entrepreneurs expect to receive when employing a certain number of workers to produce goods and services.
- **Saving:** The portion of income that remains after deducting expenditure within a specific time period.

8.10 Answer to Self-Check Exercises

Self-Check Exercise-8.1

Answer to Q1. Refer to Section 8.3.1.

Answer to Q2. Refer to Section 8.3.2.

Self-Check Exercise-8.2

Answer to Q1. Refer to Section 8.4.

Answer to Q2. Refer to Section 8.4.1.

Self-Check Exercise-8.3

Answer to Q1. Refer to Section 8.5.

Self-Check Exercise-8.4

Answer to Q1. Refer to Section 8.6.

Self-Check Exercise-8.5

Answer to Q1. Refer to Section 8.7.

8.11 References/Suggested Readings

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8.10 TERMINAL QUESTIONS

Q1. Critically examine the Keynesian theory of income and employment.

Q2. Define Keynes's principle of effective demand.

UNIT-9

KEYNESIAN ECONOMICS-II

STRUCTURE

9.1 INTRODUCTION

Should the government influence the economy or stay away from it? Should economic policy be focused on long-term results or short-term problems? These and similar perspectives highlight the distinction between the two primary economic schools of thought: Classical economics and Keynesian economics.

Macroeconomics examines an economy's overall functioning, utilizing two primary approaches to analyze its patterns and impacts. Economists who believe in either of these approaches are at loggerheads about various aspects of how the economy influences people and vice versa. Here, we have tried to draw a brief comparison highlighting the major differences.

9.2. LEARNING OBJECTIVES

After going through this unit, you will be able to

- Explain the classical Contribution
- Explain the Keynesian Contribution
- Compare Classical and Keynesian Economics
- Show the Relevance of Keynesian economics to developing countries.

9.3 DIFFERENCE BETWEEN CLASSICAL AND KEYNESIAN ECONOMICS

1 Keynes refuted Classical economics' claim that the Say's law holds. The strong form of the Say's law stated that the "costs of output are always covered in the

aggregate by the sale-proceeds resulting from demand". Keynes argues that this can only hold true if the individual savings exactly equal the aggregate investment. While Classical economics believes in the theory of the invisible hand, where any imperfections in the economy get corrected automatically, Keynesian economics rubbishes the idea. Keynesian economics does not believe that price adjustments are possible easily and so the self-correcting market mechanism based on flexible prices also obviously doesn't. The Keynesian economists actually explain the determinants of saving, consumption, investment and production differently than the classical economists.

2 Classical economists advocate for minimal or no monetary policy during economic crises, believing that market forces will naturally restore equilibrium. In contrast, Keynesian theorists emphasize the necessity of government intervention through monetary and fiscal policies to stabilize the economy. Classical economists focus on long-term solutions, accepting short-term losses, whereas Keynes prioritized short-run economic stability. He viewed excess savings beyond planned investments as problematic, while Classical economists believed that interest rate adjustments would balance loanable funds. Keynes, however, argued that interest rates do not always respond proportionally to market demand and supply. Despite their differences, both schools acknowledged the impact of future economic expectations, though Keynes supported government intervention, whereas Classical theorists trusted market-driven self-regulation.

9.3.1 Classical Economics Explained

This is considered to be the first school of economic thought. Also, even if it may seem so in this particular article at times, one cannot conclude that Keynesian economics is flawed or classical economics is flawed (there's no absolute right and wrong in economics, different theories are applicable under different economic assumptions).Definition and Groundwork for the Classical Economics Model "By pursuing his own interest, he (man) frequently promotes that (good) of the society more effectually than when he really intends to promote it. I (Adam Smith) have never known much good done by those who affected to trade for the public good." – Adam Smith (1776), An excerpt from 'An Inquiry into The Nature and Causes of The Wealth of Nations'. Adam Smith is the great economist, who is known as the founder of the classical economics school of thought. Though many others (David Ricardo, Thomas Malthus, John Stuart Mill, William Petty, Johann Heinrich Von Thunen, etc.) have come and gone, and added a few things here and there, to the classical theories, we will only be stressing on Adam Smith's version in this article.

The Classical economics theory is based on the premise that free markets can regulate themselves if left alone, free of any human intervention. Adam Smith's book, 'The Wealth of Nations', that started a worldwide Classical wave, stresses on there being an invisible hand (an automatic mechanism) that moves markets towards a natural equilibrium, without the requirement of any intervention at all. In better economic words, the division of labour and the free market will automatically tend toward an equilibrium that advances public interests. Sounds fascinating? Let us see how.

Classical Economics Assumptions

Before working our way towards the working of this model, let us first know and understand the assumptions. The idea, is that like any theory, if the founding assumptions do not hold, the theory based on them is bound to fail. There are three basic assumptions. They are:

Flexible Prices: The concept suggests that the prices of goods, wages, and rents should adjust freely in both directions. However, in reality, prices tend to be more rigid downward due to various market constraints such as labor unions and legal regulations.

Say's Law: This principle states that "supply creates its own demand," implying that total production in an economy generates sufficient income to purchase all the goods produced. However, in modern economies, this assumption often falls short, as demand typically drives production rather than the other way around.

Savings–Investment Equality: This assumption posits that household savings should match capital investment expenditures. In practice, this balance is rarely achieved. Nevertheless, the theory suggests that flexible interest rates should help restore equilibrium when savings and investment diverge.

Classical Economics – The Workings of an Economy

"Civil government, so far it is instituted for the security of property, is in reality instituted for the defense of the rich against the poor, or of those who have some property against those who have none at all." Adam Smith from 'The Wealth of Nations', 1776. All the normal principles of economics apply to classical economics as well. If all the assumptions hold, classical economics works as follows.

Wage Markets: Classical economists argue that unemployment, particularly involuntary unemployment, is unlikely in an economy due to its self-correcting nature. They suggest that when unemployment occurs, it is a temporary imbalance caused by an excess supply of labor at prevailing wage rates. When wages are high, more individuals are willing to work, resulting in surplus labor. In a market with flexible wages, employers lower wages to match labor demand with supply, ultimately restoring equilibrium. This adjustment happens as employers seek to minimize costs by paying lower wages when labor is available at reduced rates.

Commodity Markets: According to classical theory, market equilibrium is maintained through flexible prices. Say's Law suggests that aggregate demand and aggregate supply remain balanced. If supply exceeds demand, the temporary imbalance leads to a reduction in prices, encouraging higher consumption and restoring equilibrium. The price mechanism ensures that goods are eventually sold by adjusting prices based on demand, thereby preventing long-term surpluses or shortages.

Capital Markets: Classical economists believe that capital markets naturally achieve equilibrium without external intervention. If savings surpass investment, interest rates decline, encouraging more investments. Conversely, if investment demand exceeds available savings, interest rates increase, balancing the market. However, a challenge arises when not all income is directed toward consumption, leading to excess savings and reduced effective demand. This decline in spending can trigger a downturn in production, employment, and wages, creating a recessionary cycle. Despite this,

classical theorists maintain that if savings are channeled into productive investments, the economy will eventually return to equilibrium. They argue that government intervention is unnecessary and may even disrupt the natural adjustment process, potentially harming long-term economic stability.

We will contemplate this later, in the comparison of Classical economics and Keynesian economics section. We will move on to the next economic theory, Keynesian economics.

9.3.2 Keynesian Economics Theory Explained

John Maynard Keynes developed a groundbreaking economic theory that challenged classical economic thought. His ideas, presented in *The General Theory of Employment, Interest, and Money* (1936), form the foundation of Keynesian economics. This theory opposes classical economics on multiple fronts and emphasizes the necessity of government intervention in economic affairs.

Defining Keynesian Economics

Keynes famously remarked, *"In the long run, we are all dead,"* criticizing classical economists' focus on long-term market adjustments. Keynesian theory is built on the principle that economic fluctuations cannot be left to market forces alone. Unlike the classical belief in an invisible hand guiding the economy toward equilibrium, Keynesians argue that proactive measures are required to manage economic cycles.

Keynesian economists, including Alvin Hansen, R. Frisch, Jan Tinbergen, and Paul Samuelson, advocate for government involvement in stabilizing the economy. They argue that policies such as increased public spending, tax adjustments, and other fiscal measures are essential for sustaining economic growth and preventing downturns.

Keynesian Economics Assumptions

Like any economic theory, Keynesian economics is built upon several fundamental assumptions that shape its approach to economic policy and analysis. Let's examine them first before we proceed to the application of Keynesian economics in the actual economy.

Rigid or Inflexible Prices:

In reality, prices do not always adjust as smoothly as economic models might suggest. While wage increases are often accepted, wage reductions tend to face resistance. Similarly, producers find it easier to raise prices than to lower them. Various factors, such as long-term wage agreements and supplier contracts, contribute to this rigidity.

Effective Demand:

Keynesian economics challenges Say's Law, which assumes that supply creates its own demand. Instead, it emphasizes the concept of effective demand, which depends on actual household disposable income rather than the theoretical income at full employment. Additionally, Keynesian theory acknowledges that only a portion of household income is allocated to consumption expenditure.

Determinants of Savings and Investment:

Keynesian economics disagrees with the classical view that interest rates drive savings and investment. Instead, it argues that household savings are influenced by disposable income and the desire to plan for the future, while business investments depend primarily on expected profitability rather than prevailing interest rates.

Keynesian Economics

John Maynard Keynes once noted that the challenge is not just to introduce new ideas but to help people move past outdated ones. His economic theories emerged as a response to the Great Depression, offering solutions where classical economics had failed. Keynesian economics provides strategies to mitigate and recover from economic downturns, advocating active policy measures.

Macroeconomic Perspective

Keynesian economists argue that the economy is more than just a sum of individual markets. Unlike classical theory, which assumes markets self-correct, Keynesian theory acknowledges that imbalances can persist for extended periods. Since full employment does not occur automatically, government intervention is necessary to stabilize economic fluctuations and promote growth.

Commodity Markets

A fundamental Keynesian concept involves a 45-degree reference line, representing points where aggregate expenditure equals aggregate production, indicating economic equilibrium. The actual aggregate expenditure curve, which factors in household consumption, investment, and government spending, helps measure effective demand.

When aggregate production surpasses aggregate expenditure, businesses accumulate excess inventory, leading to reduced production. Conversely, when demand exceeds supply, inventory levels drop, prompting businesses to increase production. This inventory adjustment process helps commodity markets move toward equilibrium.

Employment Markets

Economic fluctuations create variations in output levels. A recessionary gap occurs when actual production is below full employment levels, resulting in high unemployment. Conversely, an inflationary gap happens when production exceeds full employment capacity, causing inflationary pressures. Unlike classical economics, which assumes automatic correction, Keynesian theory emphasizes policy intervention to address these issues.

Key policy tools include:

- Interest Rates: Raising interest rates reduces aggregate expenditure, while lowering them encourages spending and investment.
- Economic Expectations: Optimism drives expenditure, whereas pessimism leads to reduced demand.
- Government Policies: Adjustments in taxation and public spending influence economic activity.

Governments use fiscal and monetary policies to manage these variables, helping to stabilize the economy, control unemployment, and curb inflationary pressures.

Self-Learning Exercise-9.1

Q1. What are the views of the Classical Economist?

Q2. What are the views of the Keynesian Economist?

Q3. Distinguish between Classical and Keynesian economics.

9.4 KEYNESIAN THEORY AND UNDERDEVELOPED COUNTRIES

John Maynard Keynes developed his economic theory primarily to address the issue of periodic unemployment in advanced industrial economies, particularly during the Great Depression. His theory highlights the deficiency of effective demand as the core cause of unemployment and stagnant income in capitalist economies operating under a laissez-faire system. Keynes proposed policies such as low-interest rates, government spending, deficit financing, and other fiscal measures to stimulate demand and revive economic activity. However, the applicability of Keynesian economics to underdeveloped countries remains limited. As economist Joan Robinson observed, Keynes's ideas were formulated within the framework of a highly industrialized economy with developed financial institutions, making them less relevant to economies with fundamentally different structures.

Weaknesses of Keynesian Economics

Despite its profound influence on economic thought, Keynesian economics has several limitations:

1. **Capitalist Framework:** Keynesian theory primarily examines employment determinants in a free-market economy. While it supports government intervention, it does not fully address socialist or communist economic systems. Keynes's approach is often compared to classical economists like Ricardo in its incompatibility with centrally planned economies.
2. **Depression-Centric Approach:** The theory emerged in response to the Great Depression, focusing on deficit financing and government spending to combat unemployment. However, its effectiveness in tackling inflationary pressures is limited, reducing its applicability in different economic conditions.
3. **Short-Term Focus:** Keynesian economics mainly deals with short-term economic fluctuations rather than long-term growth and structural economic changes. This makes it insufficient for addressing the broader developmental needs of underdeveloped economies.
4. **Limited Relevance to Underdeveloped Economies:** Keynes's theory is centered on cyclical unemployment, whereas underdeveloped countries often face chronic unemployment and disguised unemployment. His recommendation to boost spending and discourage savings does not align with the needs of poor economies, which require increased savings and investment to drive capital formation and economic growth.

5 **Misapplication of Keynesian Policies:** Some policymakers attempted to apply Keynesian solutions designed for advanced capitalist economies to underdeveloped nations, leading to economic distortions. Critics argue that it was not Keynesian policies but World War II that revitalized global economies. Economist Dennis Robertson, in his Cambridge lectures (1945–1957), urged students to supplement their understanding of Keynesian theory with critical perspectives.

6 **Economic Theories Are Context-Specific:** Many Western economic theories, including Keynesian economics, were developed based on the industrial revolution and economic conditions of specific regions, particularly Britain. Scholars like Arnold Toynbee opposed the universalization of economic laws, arguing that different regions require context-specific development models. The adoption of Western economic policies in developing countries often led to imbalances and dependency, undermining economic sovereignty.

7 **Failure in Agricultural Economies:** Keynes strongly advocated for an easy money policy and credit expansion to stimulate economic growth. However, in agrarian economies, where production is often inelastic, these policies led to inflation rather than sustained growth. Keynes did not integrate the relationship between agriculture and industry into his theoretical framework, making his ideas less suitable for economies reliant on agriculture.

8 **Deficit Financing and Economic Consequences:** The reliance on deficit financing, a key Keynesian policy, was criticized for causing inflationary pressures in developing countries. Economist Dr. B. S. Minhas resigned from India's Planning Commission due to concerns over excessive deficit spending. This policy was endorsed by the IMF in 1953, and economist Nicholas Kaldor observed that deficit financing contributed to a rise in privately held wealth, further exacerbating economic inequalities.

Self-Check Exercise-9.2

Q1. What is the Relevance of Keynesian economics to developing countries?

9.5 SUMMARY

While Keynesian policy measures may not be entirely suitable for addressing the challenges faced by underdeveloped economies, this does not diminish the relevance of Keynesian economics. The macroeconomic approach introduced by Keynes remains valuable for analyzing key economic issues across both developed and developing nations. However, as developing economies undergo institutional changes, economic planning, and socio-economic reforms, the application of Keynesian principles requires adaptation and modification to suit their specific economic conditions.

9.6 GLOSSARY

- **Classical Economist:** A school of thought emphasizing that economies operate most efficiently when individuals are free to pursue their self-interest in a competitive market. This perspective, rooted in the works of Adam Smith and other 18th and 19th-century British economists, asserts that minimal government intervention allows markets to self-regulate.

- **Keynesian Economist:** A theory developed by John Maynard Keynes during the 1930s, focusing on total economic spending (aggregate demand) and its impact on output and inflation. Keynes argued that government intervention, through increased public spending and lower taxes, could stimulate demand and mitigate economic downturns. This demand-side approach suggests that active fiscal policies help stabilize economies, particularly in the short run.

9.6 ANSWERS TO SELF-CHECK EXERCISES

Self-Check Exercise-9.1

Answer to Q1. Refer to Section 9.3.1.

Answer to Q2. Refer to Section 9.3.2.

Answer to Q3. Refer to Section 9.3.

Self-Check Exercise-9.2

Answer to Q1. Refer to Section 9.4.

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9.8 TERMINAL QUESTIONS

Q1. What is the difference between Classical and Keynesian economics?

Q2. Critically examine the Keynesian theory of income and employment.

UNIT-10

CONSUMPTION FUNCTION

STRUCTURE

10.1 INTRODUCTION

The renowned economist John Maynard Keynes introduced his influential work, *The General Theory of Employment, Interest, and Money*, in 1936. His theory of income and employment emphasizes that the level of employment in an economy is determined by effective demand, which, in turn, depends on aggregate demand and aggregate supply. In a two-sector model, Keynes identified consumption expenditure and investment expenditure as the two primary components of aggregate demand. Consumption expenditure plays a crucial role in influencing overall demand. Keynes primarily focused on short-run economic conditions, assuming that the existing productive capacity remains unchanged, which led him to emphasize aggregate demand over aggregate supply. Similar to how the demand for a commodity depends on its price, the level of consumption is influenced by income levels. The consumption function, also called the propensity to consume, describes the relationship between income (Y) and consumption (C), illustrating how consumption patterns change with variations in income.

10.2 LEARNING OBJECTIVES

After going through this unit, you will be able to

- Define consumption function
- Explain the Technical Attributes of Consumption Function
- Elucidate Keynes's Psychological Law of Consumption
- List the determinants of the consumption function

10.3 CONSUMPTION FUNCTION

A key concept in Keynesian economics is the consumption function, which represents the relationship between consumption expenditure and its influencing factors. While various elements, such as wealth, interest rates, expected future income, lifestyle, age, and gender, can impact household consumption, income remains the primary determinant.

The consumption function, also referred to as the propensity to consume, illustrates the link between income and consumption expenditure. Just as the demand for a commodity depends on its price, the level of consumption is influenced by income levels. Simply put, consumption is a function of income, meaning that the amount spent on consumption varies with changes in income. This function establishes a systematic relationship between total consumption and gross national income in an economy. The consumption function can be mathematically expressed as $C = f(Y)$, where:

- C represents consumption,
- Y denotes income, and
- f signifies the functional relationship between them.

In this equation, C is the dependent variable, meaning it is influenced by Y, which serves as the independent variable. This relationship operates under the ceteris paribus assumption, meaning that only the connection between income and consumption is analyzed, while other potential influencing factors—such as wealth, interest rates, future income expectations, lifestyle, age, and gender—are assumed to remain unchanged.

The consumption function should not be confused with the actual amount of consumption. The consumption function refers to the entire schedule that outlines consumption levels across different income levels. In contrast, the amount of consumption represents the specific consumption corresponding to a particular income level.

A hypothetical consumption schedule is given below

Income (in Rs)	Consumption (in Rs)
1000	750
1100	825
1200	900
1300	975
1400	1050
1500	1125

Although Keynes originally proposed a non-linear consumption function, modern Keynesian macroeconomic analysis often adopts a linear consumption function for simplicity. The linear form of the consumption function can be represented as:

$C = a + b\ Y$

In this equation, C represents aggregate consumption expenditure, while Y denotes total disposable income. The parameter 'a' is a positive intercept, indicating the level of consumption even when income is zero, known as autonomous consumption. The parameter **'b'** represents the slope of the consumption function, showing how consumption changes in response to variations in income. Keynes thought that income is the primary determinant of consumption and that the rate of interest does not have an important role. This conjecture stood in stark contrast to the belief of classical economists who preceded him. Classical economists argued that higher interest rates promote savings while reducing consumption. Keynes acknowledged that interest rates could theoretically impact consumption. However, he emphasized that in the short run, their effect on individual spending from a given income is minimal and not a primary factor.

Self-Check Exercise-1

Q1. Define Consumption Function.

10.4 PROPERTIES OR TECHNICAL ATTRIBUTES OF CONSUMPTION FUNCTION

The consumption function exhibits two key characteristics:

10.4.1 Average Propensity to Consume (APC)

APC represents the proportion of income allocated to consumption at a specific income level. It is determined by dividing total consumption expenditure by total income, expressed as:

$APC = C/Y$

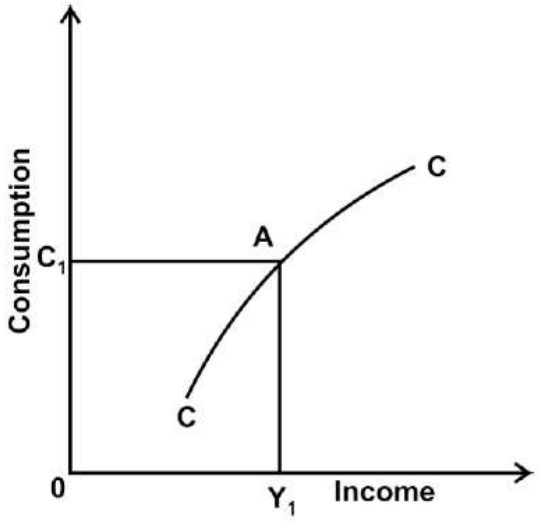
where *C* denotes consumption expenditure and *Y* represents income. Typically expressed as a percentage, APC illustrates how much of the income is spent on consumption. For example, if the income is ₹1000 and consumption expenditure is ₹750, then:

$APC = 750/1000 = 0.75$ or 75%

The Average Propensity to Consume (APC) is illustrated in the diagram above, where each point on the consumption function curve represents the APC. In the diagram, point A specifically indicates the

$$\frac{OC_1}{OY_1}$$

APC along the consumption function curve (CC) represents the proportion of income spent on consumption. The gradual flattening of the consumption function curve towards the right indicates a decreasing APC.



10.4.2 Marginal Propensity to Consume (MPC)

Marginal Propensity to Consume (MPC) represents the relationship between changes in income and changes in consumption. It is calculated as the ratio of the change in consumption to the change in income, expressed as MPC = ΔC/ΔY. This ratio indicates the fraction of additional income that is spent on consumption.

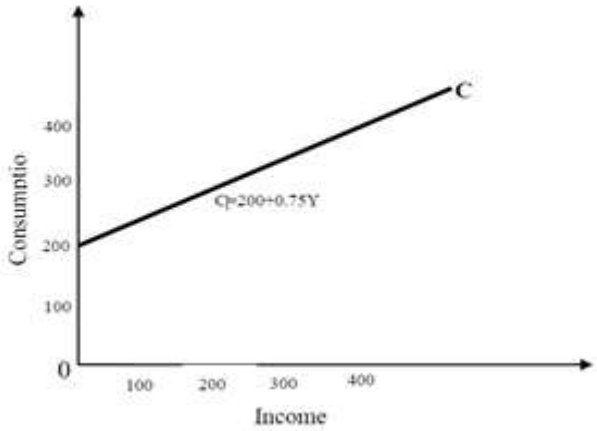
For instance, in the given consumption schedule, when income rises from Rs.1000 to Rs.1100, consumption increases from Rs.750 to Rs.825. Here, the increase in income is Rs.100, while consumption rises by Rs.75. Thus, MPC is calculated as

75/100 = 0.75.

From a graphical perspective, MPC corresponds to the slope of the consumption function. In the case of a linear consumption function, MPC remains constant regardless of the change in income. If the consumption function follows a straight-line pattern

C = 200+0.75Y

Then, the MPC = 0.75, which is the slope of the consumption function. This linear consumption function is graphically shown below.



Features of MPC:

- MPC ranges between 0 and 1 (0 < MPC < 1).
- It remains positive and does not take negative values.
- As income grows, MPC may decreases.
- However, MPC can increase, decrease, or remain unchanged based on various subjective and objective factors."

Relationship between APC and MPC:

1 In the case of a linear consumption function (C = a + bY), MPC remains unchanged, whereas APC declines as income rises.

2 Generally, both APC and MPC decrease with increasing income, but the decline in MPC is more rapid than that in APC.

3 If the consumption function passes through the origin, APC and MPC will be equal and remain constant.

Significance of MPC:

1 As per Keynes, MPC always falls within the range of 0 to 1 (0 < MPC < 1).

2 MPC plays a crucial role in bridging the gap between income and consumption through planned investment, ensuring a stable income level.

3 MPC is fundamental to the multiplier effect—the higher the MPC, the greater the multiplier impact, and vice versa.

Self-Check Exercise-10.2

Q1. Define

a) Average Propensity to Consume (APC)

b) Marginal Propensity to Consume (MPC)

Q2. What is the relationship between APC and MPC?

10.5 DETERMINANTS OF THE CONSUMPTION FUNCTION

By the determinants of consumption we mean the factors that influence the shape, position and slope of the consumption function. Keynes categorized consumption‘s non-income determinants into two broad groups but speculated that these non-income determinants were of minimum significance in explaining short run consumption. The two broad groups are I .Subjective factors and II. Objective factors. Subjective factors primarily include the psychological attitude of the people towards consumption. They are psychological characteristics of human nature, social practices and institutional and social arrangements. Objective factors include changes in price level, fiscal policy, rate of interest, expectations, wealth etc which undergo rapid changes and can cause marked shifts in consumption function. The subjective and objective factors are explained below.

10.5.1. Subjective factors

As stated above, the subjective factors are the psychological characteristics of human nature, social practices and institutions, especially behavioral patterns of business firms and social arrangements affecting the distribution of income. According to Keynes, these subjective factors, though not alterable, are unlikely to undergo a material change over a short period of time except in abnormal circumstances.

A. Individual motives

Under the psychological characteristics of human nature, Keynes list out eight motives that make people to undertake less consumption spending or more saving. They are

i. People save because they want to provide for unforeseen contingencies (precaution)

ii. They want to provide for expected future needs (foresight)

iii. People save from current income so as to use accumulated savings for investment, which increase their future income (calculation)

iv. People save with the intention of building wealth and enhancing their standard of living.

v. People save to enjoy a sense of independence and power to do things (independence)

vi. People save so that they can use them for speculative purposes (enterprise)

vii. People save for the sake of leaving a good fortune for their heirs and children (pride)

viii. People save because of their miserly instinct and habits (miserliness)

B. Business motives

Subjective factors also lead business firms to save from their incomes. Keynes has listed four motives for saving on the part of business firms.

i. Enterprise: many business firms desire to save a part of their current income so that they can make investment in new enterprises and carryout expansion in future.

ii. Liquidity: business firms are induced to save so that they can face contingencies in future. If they have good amount of liquid wealth in their hands, they would be able to meet emergencies and difficulties successfully.

iii. Successful management: many managers of business firms are motivated to save to secure large incomes and to show successful management.

iv. Financial prudence: business forms desire to save to provide adequate financial resources against depreciation in plant and machinery, to repay their debts etc.

10.5.2 Objective factors

The subjective factors explained above remain constant during short run and keep consumption function stable. But the objective factors undergo rapid changes and causes shifts in the consumption function. Objective factors which influence consumption are explained below.

(i) **Changes in the general price level:** The general price level is an important factor which influences the consumption of a community. When general price level increases, the consumption function shifts downwards because rise in price level cause fall in real value of the people‘s money balances. Similarly, fall in price level cause an upward shift in the consumption function.

(ii) **Change in wage rate:** If wage rate rises, the consumption function shifts upwards. The workers, having high MPC, spend more out of their increased income. However, if the rise in wage rate is accompanied by a more than proportionate rise in price level, the real wage rate will fall. This tends to shift consumption function downward.

(iii) **Fiscal policy:** Changes in fiscal policy, especially taxation policy affects the consumption function. Heavy commodity taxation adversely affects the consumption function. Likewise, when government reduces taxes, consumption of the people increases. At the same time, increased public expenditure on welfare programmes tends to shift the consumption function upward.

(iv) **Rate of interest:** Substantial changes in the market rate of interest may influence the consumption function indirectly. It is generally believed that higher rate of interest induces people to save more and this results in reducing their propensity to consume. But, this is not true in the case of all the people. Some individuals, who want a certain fixed income in future might consume more and save less when rate of interest goes up, as they can obtain the given fixed income with lesser savings.

(v) **Windfall gains and losses:** Unexpected changes in the stock market leading to gains or losses tend to shift the consumption function upward or downward. When the prices of shares go up, the shareholders begin to think themselves better off and it causes an upward shift in their consumption function. On the other hand, when the prices of share go down, the shareholders have to suffer sudden losses and tend to reduce their consumption.

(vi) **Changes in expectations:** Changes in expectations also affect the propensity to consume. When people expect war in the near future and expect prices to go up, they will try to spend more to meet the needs of current period. This shifts the consumption function upward. On the contrary, if the prices are expected to fall in future, people would buy only essential goods. It will lead to a fall in consumption demand and to a downward shift in consumption function.

(vii) **Income distribution:** Distribution of income and wealth in the society also determines the shape of consumption function. If the national income is more unequally distributed, the lower will be the propensity to consume. This is because propensity to consume of the rich is relatively less as compared to that of poor. If inequalities are reduced, the consumption function will shift upward because with the increase in income of the poor,

their consumption expenditure will increase more than the reduction in the expenditure of the rich.

(viii) Stock of wealth: The stock of wealth owned by households is an important factor that determines the propensity to consume. Pigou attempted to explain the effect of an increased stock of wealth upon consumption and saving. He point out that with addition in real wealth, there is lesser tendency amoung wealth-holders to add further to their amount of wealth. This wealth effect leads to an increase in spending and upward shift in consumption function.

(ix) Consumer credit: The availability of easy credit causes an increase in consumption and shifts consumption function upwards. The easy credit terms permit an increased volume of consumer spending with the purchases occurring earlier than they otherwise would be. On the other hand, tightening of credit produces an opposite effect. That is, it causes a downward shift in the consumption function.

Self-Check Exercise-3

Q1. What are the factors that determine the consumption function?

10.6 SUMMARY

Consumption expenditure is shaped by income levels and the tendency to spend, commonly referred to as the consumption function. Investment decisions are influenced by the marginal efficiency of capital and prevailing interest rates. The investment multiplier illustrates how variations in investment bring about proportional shifts in consumption. This chapter explored the concept of the consumption function along with Keynes' psychological law of consumption. The subsequent chapter will delve into investment and the saving function.

10.7 GLOSSARY

- **Consumption Function:** A mathematical expression that represents the relationship between consumption expenditure and the factors influencing it.
- **Average Propensity to Consume (APC):** The proportion of income spent on consumption at a given income level, calculated as consumption expenditure divided by income.
- **Marginal Propensity to Consume (MPC):** The fraction of additional income that is spent on consumption, determined by dividing the change in consumption by the change in income.

10.8 ANSWER TO SELF-CHECK EXERCISE

Self-Check Exercise-10.1

Answer to Q1. Refer to 10.3.

Self-Check Exercise-10.2

Answer to Q1. Refer to Sections 10.4.1 & 10.4.2.

Answer to Q2. Refer to Section 10.4.

Self-Check Exercise-10.3

Answer to Q1. Refer to Section 10.5.

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10.10 TERMINAL QUESTIONS

Q1. What are the determinants of the consumption function?

Q2. What are the Properties or Technical Attributes of Consumption Function?

Q3. What do you understand by Consumption function?

UNIT-11

KEYNES PSYCHOLOGICAL LAW OF CONSUMPTION

STRUCTURE

11.1. INTRODUCTION

Keynes laid the foundation of modern macroeconomics in his "General Theory of Employment, Interest and Money (1936). Consumption function plays an important role in the Keynes Psychological Law of Consumption. Keynes mentioned several subjective and objective factors which determine the consumption of a society. According to Keynes Psychological Law of Consumption, of all the factors, the current level of income determines the consumption level of an individual and society. Keynes considered the absolute size of income as a determinant of consumption. Therefore, Keynes's consumption theory is called the absolute income theory of consumption. However, many subjective and objective factors determine the level of consumption of an individual and society. Still, Keynes emphasized that the level of consumption of an individual and society mainly depends upon the current income level.

11.2. LEARNING OBJECTIVES

By the end of this unit, you will be able to

- Understand Keynes Psychological Law of Consumption
- Analyse the relationship between income and consumption

- Understand implications and importance of Keynes Psychological Law of Consumption

11.3. KEYNES'S PSYCHOLOGICAL LAW OF CONSUMPTION

Keynes propounded the fundamental psychological law of consumption in his famous book "General Theory of Employment, Interest and Money" (1936) which forms the basis of consumption function. The law is a statement of psychological tendencies of the community with respect to consumption spending. It explains, given the level of income and the propensity to consume, how the people allocate their incomes between consumption and saving. Psychological law of consumption is considered as the most notable and revolutionary contribution of Keynes to the macro-economic analysis. Keynes formulated his ideas on consumption through personal reflection and informal observations rather than statistical analysis.

Keynes' fundamental psychological law suggests that, on average, people tend to increase their consumption as their income rises, but not by the full amount of the income increase. Instead, a portion is saved. This implies that individuals allocate only part of their additional income to consumption, leading to a non-proportional relationship between income and consumption. Consequently, as aggregate income grows, the national saving rate is expected to rise.

Self-Check Exercise-1

Q1. Define Keynes's Psychological Law of Consumption.

Q2. What do you mean by Consumption?

Q3. According to Keynes's Psychological Law of Consumption, how is consumption related to income?

11.4 IMPORTANT FEATURES OF KEYNES'S CONSUMPTION FUNCTION

The important features of Keynes's consumption function are the following:

i) The absolute level of current income is the important factor determining an individual's and society's consumption level.
ii) The marginal propensity to consume (MPC) falls between zero and one, indicating that individuals spend a portion of their additional income while saving the rest. (0<MPC<1).
iii) According to Keynes' consumption function, the average propensity to consume (APC) declines as income rises.
iv) In the short run, the consumption function remains unchanged.

Self-Check Exercise-11.2

Q1. Discuss the important features of Keynes's Psychological Law of Consumption.

11.5 PROPOSITIONS OF THE LAW

Keynes's fundamental law of consumption essentially consists of three related propositions:

i) As income rises, consumption expenditure also grows, but at a slower pace. This occurs because as individuals satisfy more of their needs, the urge to spend

further on consumer goods decreases. Since many basic wants are already met, the increase in consumption is not directly proportional to the rise in income. Therefore, while consumption expands with income, it does so at a diminishing rate. This reflects the concept that the marginal propensity to consume (MPC) is positive but remains below one ($0 < MPC < 1$) under normal conditions.

ii) Additional income is distributed between consumption and savings in a specific proportion. This follows from the previous idea—when not all of the increased income is spent on consumption, the remainder is saved. Consequently, consumption and saving increase simultaneously, expressed as $\Delta Y = \Delta C + \Delta S$.

iii) A rise in income consistently results in higher consumption and greater savings. This implies that an income increment will not lead to reduced consumption or savings. Since consumption grows at a slower rate than income, the remaining portion is saved, ensuring that both consumption and savings increase together.

These three propositions of Keynesian fundamental law of can be verified with the help of the following hypothetical table.

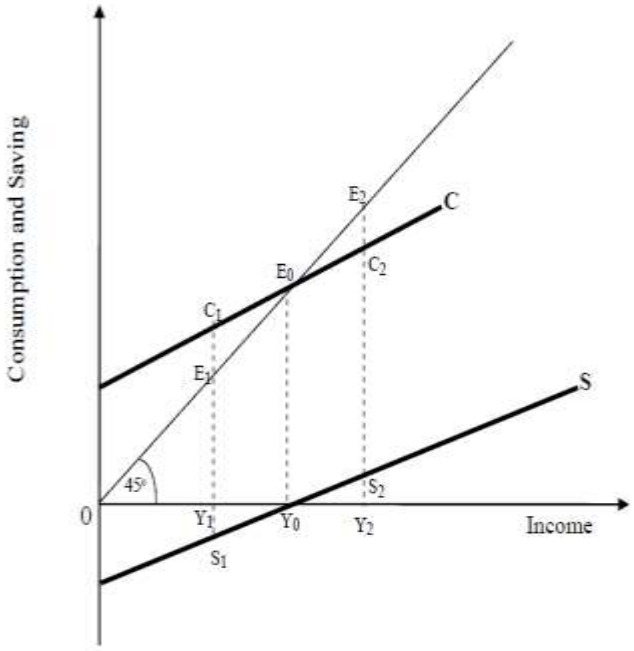
Income (Y) (in Rs.)	**Consumption (C) (in Rs.)**	**Saving (S=Y-C) (in Rs.)**
0	20	-20
60	70	-10
120	120	0
180	170	10
240	220	20
300	270	30
360	320	40

The table indicates that even with zero income, individuals continue to spend by drawing on past savings. As income rises, consumption also grows, but at a slower rate than the income increase. For example, when income increases by Rs. 100, consumption rises by Rs. 50, demonstrating that the marginal propensity to consume (MPC) is below one, specifically 0.83. Each additional increase in income leads to a smaller rise in consumption (proposition 1). The additional income is allocated between consumption and savings (proposition 2). For instance, when income grows from Rs. 240 to Rs. 300, consumption rises by Rs. 50, while savings increase by Rs. 10. As income increases from Rs 120 to 180, 240, 300 and 360, consumption also increases from Rs. 120 to 170, 220, 270 and 320 along with the increase in savings from Rs 0 to 10, 20, 30 and 40 respectively. The income distribution between savings and

consumption remains the same throughout the table. With the increase in income, neither consumption nor savings have fallen (proposition 3).

These propositions are illustrated in the following figure

In the given figure, income is represented on the horizontal axis, while consumption and savings are plotted on the vertical axis. The consumption function, denoted by line C, shows a positive linear relationship with income. The curve S represents the saving function. The 450 line represents the zero saving line since Y=C at all points on this line Y=C. E0 represents the economy's break-even point, where total income is entirely consumed, resulting in neither savings nor dis-saving.



At income level Y1, consumption (C1Y1) exceeds income, leading to negative savings or dis-saving, denoted as S1Y1 (= C1Y1). At a higher income level, Y2, consumption (C2Y2) is lower than total income (E2Y2), and the difference (E2C2) represents savings, which is also equal to S2Y2. As income increases from OY0 to OY2, consumption rises as well, but at a slower rate than income (proposition 1). The additional income is distributed between consumption (C2Y2) and savings (S2Y2) (proposition 2). The figure further illustrates that an increase in income leads to increased consumption ($C_2Y_2 > E_0Y_0$) and increased savings.

Self-Check Exercise-11.3

Q1.Discuss the important propositions of Keynes's Psychological Law of Consumption.

11.6 Assumptions of the Law

Keynes's fundamental law of consumption is based on the following three assumptions:

a) **Constant Psychological and Institutional Complex:** The law operates under the assumption that the psychological and institutional complexes influencing consumption tendencies remain constant. Such complexities are income distribution, tastes, habits, customs, populations growth etc. In the short run, they remain unchanged. This assumption implies that the consumption function remains stable over a short period, and any variations in consumption spending during this time are mainly driven by changes in income.

b) **Normal conditions:** The law assumes that the conditions are normal in the economic system. There are no instances of war, revolution, hyperinflation, or any other unusual or extreme circumstances. In unusual circumstances, a community's consumption behavior may deviate considerably from typical short-run patterns. People might allocate their entire additional income to consumption, resulting in a marginal propensity to consume (MPC) reaching or even surpassing unity.

c) **Existence of laissez faire capitalist economy:** Keynes also assumes a wealthy capitalist economy with the minimum government intervention in economic activities. Individuals should have the freedom to allocate their additional income as they choose. If the government imposes regulations on private enterprise and consumption spending, the law no longer holds. In a socialist system, where the state controls income distribution and consumption, the law does not apply.

Self-Check Exercise-11.4

Q1. What are the assumptions of the Keynes Psychological Law of Consumption?

11.7 IMPLICATIONS OR IMPORTANCE OF THE LAW

Keynes' fundamental law of consumption plays a crucial role in modern economic analysis. It enabled Keynes and his followers to explode many classical myths and beliefs and lay foundations of modern economic analysis and policy. This is why the psychological law of consumption is considered a significant advancement in modern economics and is recognized as a groundbreaking contribution by Keynes to economic theory.

1 **Invalidation of Say‘s Law:** One of the most significant implications of this law is that it challenges Say’s Law of Markets. Say’s Law suggests that supply automatically generates its own demand, ensuring that general overproduction and unemployment do not occur due to the presence of sufficient aggregate demand. However, Keynes' psychological law states that as income rises, consumption also increases but at a slower rate. Since the marginal propensity to consume (MPC) is less than one, demand does not grow in proportion to income or output. As a result, supply surpasses demand, leading to excess production and an oversupply of goods in the market. This imbalance ultimately contributes to widespread unemployment, undermining the foundation of Say’s Law and the classical economic framework.

2. **Crucial importance of investment:** Keynes' psychological law of consumption highlights the critical role of investment in determining income and employment levels in a capitalist economy. The law emphasizes that individuals do not allocate their entire additional income to consumption, creating a gap between income and spending. This shortfall can only be addressed through increased investment. Given that the consumption function remains stable in the short run, sustaining higher income and employment levels requires bridging the saving gap through sufficient investment. Thus, investment assumes the most crucial and strategic importance in the economy. It is the inadequacy of investment which results in unemployment and the remedy to overcome it is an increase in investment.

3. **Existence of underemployment equilibrium:** The most significant departure of Keynes from the classical analysis is in respect to the underemployment equilibrium. Keynes‘s notion of underemployment equilibrium is based on the psychological law of consumption. Since individuals do not allocate their entire additional income to consumption, a shortfall in aggregate demand arises within the economy. As the marginal propensity to consume (MPC) is less than one, aggregate demand does not expand sufficiently to reach full employment, resulting in an equilibrium below the full employment level.

4. **Necessity of Government Intervention:** The shortfall in consumption expenditure highlights the need for either an increase in consumer spending or a corresponding rise in investment to bridge the gap between savings and consumption. However, given that the consumption function remains stable in the short run, the focus shifts to boosting investment. Since private sector investment may not be sufficient to counteract the excess savings, government intervention becomes essential. By undertaking autonomous investment, the state can mitigate overproduction and widespread unemployment, ensuring a higher level of economic activity and employment.

5. **Decline in Marginal Efficiency of Capital:** The psychological law suggests that the anticipated profitability of capital tends to diminish in capitalist economies. This occurs because, as income grows, consumption does not expand at the same pace, resulting in reduced demand and an oversupply of goods in the market. Consequently, the expected rate of return on investments declines, discouraging further capital investment.

6. **Persistent Over saving Gap:** Since the marginal propensity to consume is less than one, consumption rises at a slower rate compared to income growth. This leads to a continuous accumulation of savings. However, due to the declining growth rate in consumer spending, favorable conditions for additional investment may not always exist. As a result, capitalist economies may experience a prolonged excess savings gap.

7. **Mechanism of Income Generation:** Keynes’ investment multiplier concept illustrates how income generation occurs within an economy. The multiplier effect states that an increase in investment leads to a more substantial rise in total income, depending on the magnitude of the multiplier. The multiplier value (k) is calculated as **k = 1 / (1 - MPC)**, indicating that a higher marginal propensity to consume results in a larger multiplier effect and a greater expansion of income.

8. **Business Cycle Fluctuations:** Keynes' fundamental consumption law has significantly contributed to understanding business cycle dynamics. It explains the turning points in economic cycles, demonstrating why downturns begin before an economy reaches full employment. Since individuals do not allocate their entire additional income to consumption, demand weakens, causing overproduction, rising unemployment, and a decline in investment profitability. On the other hand, economic recovery begins before reaching the lowest point of a depression, as consumption declines at a slower rate than income. When surplus inventories are depleted, consumer spending helps stimulate economic revival.

Self-Check Exercise-11.5

Q4. What are the implications of the Keynes Psychological Law of Consumption?

11.8 SUMMARY

This unit explored Keynes's Psychological Law of Consumption, which suggests that an individual's or society's consumption expenditure primarily depends on the absolute income of the current period. Consumption has a direct relationship with the current level of income, implying that as income grows, consumption also rises, though at a diminishing rate. This principle suggests that the marginal propensity to consume (MPC) remains between zero and one ($0 < MPC < 1$), meaning that part of any additional income is allocated to savings rather than entirely spent. Additionally, the law highlights that consumption does not increase in direct proportion to income, leading to a decline in the average propensity to consume (APC) as income grows.

11.9 GLOSSARY

- **Average Propensity to Consume (APC):** Represents the share of total income used for purchasing goods and services, determined by dividing consumption expenditure by total income.
- **Consumption Function:** Explains how income influences spending behavior at both individual and societal levels.
- **Current Income:** According to Keynesian theory, the prevailing income level significantly impacts consumption decisions for individuals and the economy as a whole.
- **Marginal Propensity to Consume (MPC):** Measures the portion of extra income allocated to consumption, calculated as the ratio of the change in consumption to the change in income.

11.10 ANSWERS TO SELF-CHECK EXERCISE

Self-Check Exercise-11.1

Answer to Q1. Refer to Section 11.3.

Answer to Q2. Refer to Section 11.3.

Self-Check Exercise-11.2

Answer to Q1. Refer to Section 11.4.

Self-Check Exercise-11.3

Answer to Q1. Refer to Section 11.5

Self-Check Exercise-11.4

Answer to Q1. Refer to Section 11.6.

Self-Check Exercise-11.5

Answer to Q1. Refer to Section 11.7.

11.11. REFERENCES/SUGGESTED READINGS

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11.12. TERMINAL QUESTIONS

Q1. Briefly discuss the Keynes's Psychological Law of Consumption. What are implications of this law according to Keynes?

Q2. What are the features of Keynes's Consumption Function?

UNIT-12

SAVING AND INVESTMENT

STRUCTURE

12.1 INTRODUCTION

Keynesian macroeconomics examines various economic concepts at an aggregate level. Factors such as price are analyzed as the overall price level, saving as the saving rate, and investment in terms of its overall level. The concepts of saving and investment hold significant importance in macroeconomic analysis. This chapter

explores the meaning of saving and investment, followed by a discussion on the types and key determinants of investment.

12.2 LEARNING OBJECTIVES

After going through this unit, you will be able to

- Explain Saving Function
- Elucidate the Technical Attributes of Propensity to Save
- Differentiate between Gross and Net investment
- Distinguish Induced and Autonomous investment
- Explicate Determinants of Investment

12.3 SAVING FUNCTION

Saving refers to the portion of disposable income that is not used for consumption. Since disposable income is allocated either to consumption or saving, it follows that

$Y = C + S$

$S = Y - C$

Where, Y= disposable income

C= consumption

S= saving

This is shown in the following table

Income	Consumption	Saving
0	20	-20
40	50	10
80	80	0
120	110	10
160	140	20

The saving function serves as a complement to the consumption function. Similar to consumption, saving also depends on disposable income. Mathematically, it can be expressed as $S = f(Y)$. When a specific consumption function is known, the corresponding saving function can be determined. For example, considering the Keynesian linear consumption function:

$C = a + bY$

The saving function can be derived accordingly as follows.

Since,

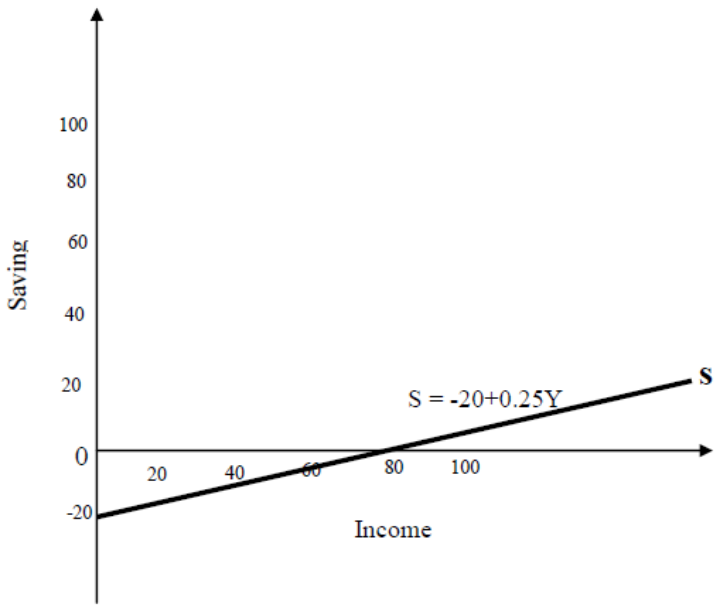
S = Y-C, we have S = Y – (a + bY)

S = Y-a-bY

That is, S = -a+Y-bY

Or S = -a + (1-b)Y

In this equation, the term '1-b' represents the marginal propensity to save, while 'b' denotes the marginal propensity to consume. In the above table, when income is zero, saving is -20. Savings are negative till income rises to Rs 80. Positive savings take place only after income rises above Rs 80. The saving function will take the form S = -20+ 0.25Y. The saving function is graphically presented below.



Self-Check Exercise-12.1

Q1. Define saving function.

12.4 TECHNICAL ATTRIBUTES OF PROPENSITY TO SAVE

In simple terms, the propensity to save refers to an individual's inclination to set aside a portion of their income rather than spending it entirely. Most people tend to save a part of their earnings, which reflects this natural tendency. From a technical perspective, the propensity to save is defined as the ratio of total savings to total income. There are several key attributes associated with the propensity to save, which include:

12.4.1 Average Propensity to Save (APS)

The saving equivalent of the Average Propensity to Consume (APC) is the Average Propensity to Save (APS). APS represents the fraction of disposable income that is set aside as savings. It is mathematically expressed as the ratio of savings to income: APS = S/Y. For instance, referring to the previous table, if income is Rs. 160 and savings amount to Rs. 20, then APS = 20/160 = 0.125. It is important to note that since total income is allocated between consumption and savings (Y = C + S), the sum of APC and APS always equals one. That is, APC + APS =1 or APS = 1-APC. Following our example, when income is Rs 160, APS = 0.125 and APC = C/Y=140/160 =0.875. Therefore, we have 0.125+0.875=1

12.4.2 Marginal Propensity to Save (MPS)

While APS measures the portion of total income that is saved, the Marginal Propensity to Save (MPS) reflects the share of additional income that is set aside as savings. In other words, MPS indicates how much savings increase when disposable income rises. As the saving counterpart to MPC, MPS is calculated as the ratio of the change in savings to the change in income.

Thus MPS = $\Delta S/\Delta Y$.

In the above table, when income increases from Rs 120 to Rs 160, the saving increases from Rs 10 to Rs 20. In this case, income increases by 40, while savings rise by 10. Therefore, MPS = $\Delta S/\Delta Y=10/40=0.25$. Since additional income is either be consumed or saved, the sum of marginal propensities of consume and save is equal to one. That is, MPC+MPS=1 or MPS = 1-MPC. If the MPC is greater than zero but less than one, then the MPS must also be positive and fall within the same range. Furthermore, if the MPC decreases steadily as income rises, then MPS must increase steadily as income rises because these two ratios must add up to one at all levels of income.

Self-Check Exercise-12.2

Q1. Define Average Propensity to Save (APS).

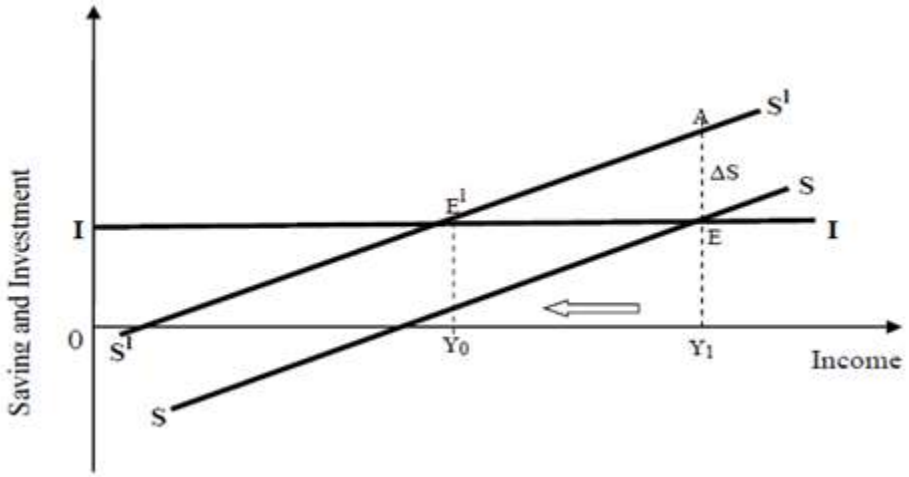
Q2. Define Marginal Propensity to Save (MPS).

12.5 PARADOX OF THRIFT

The classical writers maintained that hard work, restrain from consumption spending and thrift (desire to save more) are great economic virtues. Saving or thriftiness was considered a prudent behavior among individuals. According to classical prescriptions, minimum spending and highest possible level of savings will always bring definite improvement in the individual‘s or firm‘s financial position. According to them, thriftiness was essential for prosperity. Savings drive investment, which is crucial for boosting economic growth. They regarded savings not only as a private but also as a social virtue. When individuals within a community collectively save more, it leads to a higher overall accumulation of savings, facilitating economic growth. This idea aligns with the classical belief that savings and investment are always in equilibrium, ensuring steady progress in the economy.

J M Keynes contradicted this widely held belief. In his opinion, savings is a virtue in the case of individuals but no for the society as a whole. The paradox of thrift arises when everyone in society increases their savings from the same level of income. An increase in savings leads to a decrease in consumption expenditure, which in turn reduces overall demand for goods and services, resulting in a gradual decline in national income. As income falls, the investment activity will also go down considerably and hence the accumulation of social savings brings about eventual destruction of capital. The paradox of thrift suggests that attempts to increase savings can worsen an economic crisis by reducing output, lowering income, and raising unemployment. It is considered a paradox because, despite individuals trying to save more, their collective

actions lead to a drop in income and consumption, preventing any overall increase in societal savings. This concept is depicted in the following figure.



In the given figure, curve II represents the planned investment curve, while SS denotes the initial savings curve. The intersection of the savings and investment curves at point E determines the initial equilibrium income level, Y1, where S = I = EY1. Now, if society anticipates economic difficulties and collectively decides to save more, say by AE, the savings curve shifts upward to S1S1. The new intersection of the savings and investment curves occurs at E1, leading to a drop in the equilibrium income from 0Y1 to 0Y0. Consequently, planned savings decrease from AY1 to E1Y0, where E1Y0 is less than AY1. This decline in equilibrium savings illustrates the paradox of thrift.

The paradox of thrift operates through a reverse multiplier effect, as increased savings essentially withdraw money from the circular flow of income. This situation arises when savings are not channeled into investment—either due to full employment or because individuals and businesses are unwilling to invest due to high risks. When people attempt to save more by reducing their consumption, overall demand declines, leading to unsold goods and services. As a result, businesses cut production, causing a drop in income levels. Since savings are directly related to income, a decrease in income ultimately leads to lower savings. This process continues until the economy reaches a new equilibrium where savings match investment.

Keynes argued that while saving is a responsible individual choice, it can be detrimental when viewed at an aggregate level, turning into a social drawback. The classical perspective considers both individual and collective savings as beneficial, particularly in a fully employed economy where all savings are productively invested. Additionally, in inflationary conditions, increased savings can help curb rising prices. However, restricting consumption in developing economies may worsen economic challenges rather than solve them.

Some classical economists suggest that the paradox of thrift can be avoided since higher savings could lead to lower interest rates, thereby encouraging investment. However, Keynesian economists argue that during periods of recession or depression, the expected returns from investment are so low that even a significant drop in interest rates may not be enough to boost investment. According to this view, in a free-market

economy without government intervention, the paradox of thrift remains a persistent challenge.

Self-Check Exercise-12.3

Q1. What do you mean by Paradox of Thrift?

12.6 INVESTMENT FUNCTION

In Keynesian theories investment has been treated as the most volatile and strategic variable in all macroeconomic models. It influences both aggregate demand and the economy's productive capacity. Investment plays a significant role in determining short-term income fluctuations and shaping the long-term economic growth trajectory. Broadly speaking, investment involves allocating funds to acquire physical or financial assets or skills that generate returns over time. In Keynesian terms, investment specifically refers to real investment, which contributes to capital formation. This includes spending on new machinery, infrastructure projects such as roads and dams, and other capital goods that generate income and employment. Real investment, therefore, represents an expansion of the economy's physical capital stock.

12.6.1 Gross and Net investment

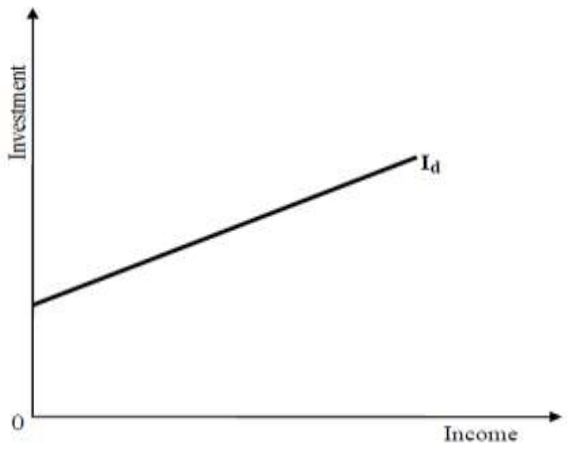
Gross investment refers to total spending on acquiring new fixed capital goods, increasing raw material stocks, and accumulating unsold consumer goods within a given year. However, part of the capital stock naturally depreciates or becomes obsolete over time. Net investment is calculated by subtracting depreciation and obsolescence costs from gross investment. Essentially, net investment represents the actual addition to an economy's capital stock, contributing to capital formation.

12.6.2 Induced and Autonomous investment

Investment that is influenced by current income levels, output, or interest rates is known as induced investment. This type of investment tends to rise as income increases because higher income leads to greater consumption demand, which in turn drives investment growth. Keynes identified interest rates as a factor influencing induced investment, leading to the general investment function:

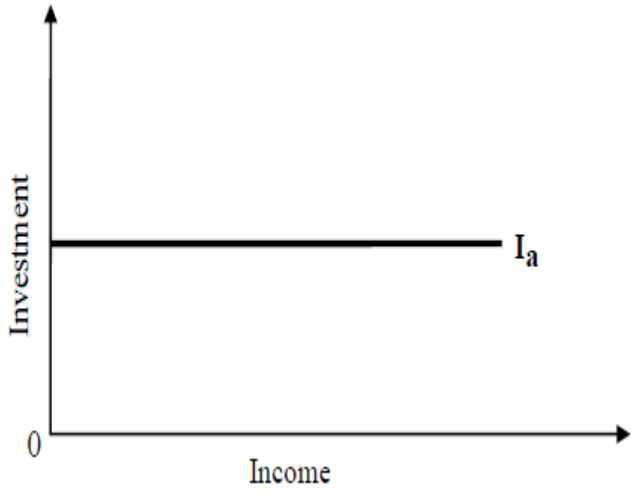
Thus, the general form of investment function is given by I = f (Y, i)

where **Y** represents income and **i** denotes the interest rate. However, empirical studies indicate that income levels have a more significant impact on induced investment than interest rates. The relationship between income growth and induced investment is typically illustrated in economic models, showing how investment expands as income rises.



Autonomous investment Autonomous investment refers to investment that remains unaffected by fluctuations in income levels. It is independent of income changes and is considered income inelastic. Instead of being influenced by variations in income or interest rates, autonomous investment is driven by external factors. These factors include technological advancements, the introduction of new products, population growth, labor force expansion, institutional changes, expectations about the future, and events such as wars or revolutions.

Government expenditures often fall under autonomous investment, particularly spending on economic and social infrastructure, such as roads, dams, schools, hospitals, power generation, and communication networks. In graphical representation, autonomous investment appears as a horizontal line, indicating that it remains constant regardless of income fluctuations.



Self-Check Exercise-12.4

Q1. Define Investment Function.

Q2. Differentiate between induced and autonomous investment.

12.7 DETERMINANTS OF INVESTMENT

The level of aggregate investment expenditure at any given time is influenced by three key factors: the anticipated income generated by the project, the overall cost of the project, and the prevailing market interest rate. Keynes integrated these factors into the concepts of Marginal Efficiency of Capital (MEC) and Marginal Efficiency of Investment (MEI).

12.7.1 Marginal Efficiency of Capital

Marginal Efficiency of Capital (MEC) represents the highest expected rate of return from an additional unit of capital in comparison to its cost. Simply put, it refers to the maximum return over cost that can be achieved from the most profitable type of capital investment.

To calculate MEC, an entrepreneur considers two main factors:

1. The cost of acquiring the capital asset, known as its supply price.
2. The anticipated returns generated by the capital asset over its useful life, referred to as its prospective yield.

Economist K. K. Kurihara describes MEC as the ratio of a capital asset's expected yield to its supply price. Mathematically, it is expressed as:

MEC=y/p

where:

- **MEC** represents the marginal efficiency of capital,
- **y** is the expected return per unit of time,
- **p** is the supply price of the capital asset.

For example, if a capital asset has an annual yield of ₹5000 and a supply price of ₹40,000, then:

$$MEC=5000/40000\times100=12.5\%$$

MEC increases when the expected return (**y**) rises. Conversely, if the supply price (**p**) increases while the expected yield remains the same, MEC declines.

Keynes further defined MEC as the rate of discount that equates the present value of expected future returns from a capital asset to its supply price. In other words, it is the discount rate at which the total expected earnings from the asset over its lifespan equal its initial cost. This can be expressed as:

Supply Price=Discounted Prospective Yields

$$C = \frac{R_1}{1+i} + \frac{R_2}{(1+i)^2} + \frac{R_3}{(1+i)^3} + \ldots + \frac{R_n}{(1+i)^n}$$

In this formula:

- **C** represents the supply price of the capital asset.
- **R_1, R_2, R_3,…, R** denote the series of expected returns, which are discounted to determine their present value.
- **i** refers to the discount rate, also known as the Marginal Efficiency of Capital (MEC).

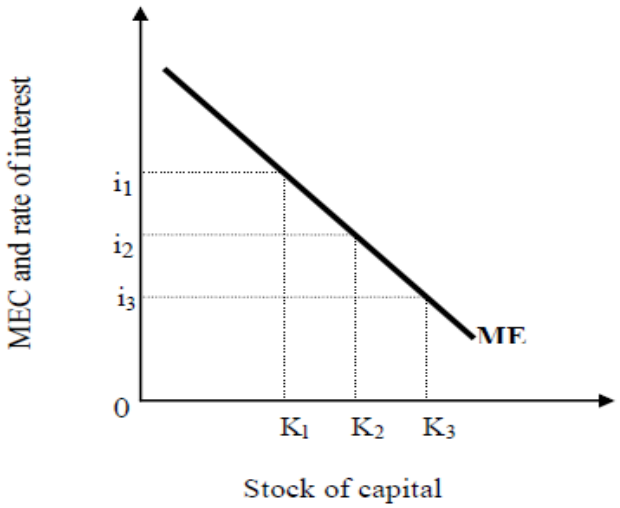
MEC is the rate at which the present value of all future expected returns equals the supply price of the capital asset. For example, if a capital asset has a supply price of ₹1000 and is expected to generate returns of ₹550 in the first year and ₹605 in the second year, solving the equation will yield a discount rate of 10%. This means the MEC is 10%, as it equates the present value of expected returns with the asset's supply price.

$$C = \frac{R_1}{1+i} + \frac{R_2}{(1+i)^2}$$

$$C = \frac{550}{1+10/100} + \frac{605}{(1+10/100)2}$$

$$1000 = 500 + 500$$

In the given figure, as the capital stock expands, the Marginal Efficiency of Capital (MEC) declines. Initially, when the capital stock is at $0K_1$, the MEC is at $0i_1$. As the capital stock increases to $0K_2$, the MEC decreases to $0i_2$. Similarly, with a further rise in capital stock to $0K_3$, the MEC continues to decline to $0i_3$. This illustrates the inverse relationship between capital stock and MEC.



12.7.2 Marginal Efficiency of Investment

The Marginal Efficiency of Investment (MEI) extends Keynes's concept of Marginal Efficiency of Capital (MEC). It represents the expected rate of return on an investment in a capital asset, excluding the interest cost. Similar to MEC, MEI is the discount rate that equates the cost of acquiring a capital asset with the present value of its expected future returns. In other words, MEI is the specific rate at which the present value of anticipated earnings from an investment equals the total cost of financing the project. It can be mathematically represented as:

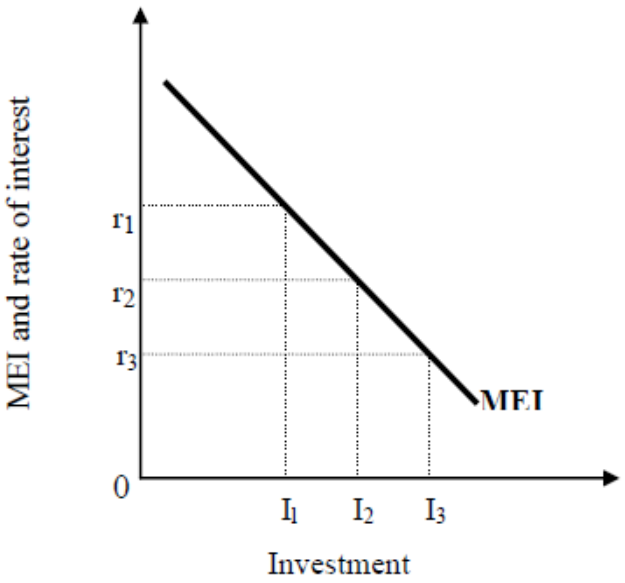
$$C = \frac{R_1}{1+d} + \frac{R_2}{(1+d)^2} + \frac{R_3}{(1+d)^3} + \ldots + \frac{R_n}{(1+d)^n}$$

Here, R_1, R_2, … R□ represent the expected returns from a specific investment, while C denotes the cost of financing the project. The discount rate (d), known as the Marginal Efficiency of Investment (MEI), is the rate at which the total discounted value of future returns equals the initial investment cost C.

MEI is influenced by expected returns and the cost of investment. When the expected returns increase, MEI rises, and when the cost of investment rises, MEI decreases. This concept plays a crucial role in ranking investment opportunities, as projects with higher MEI are considered more favorable.

The MEI schedule illustrates the relationship between various interest rates and corresponding investment levels, assuming a constant Marginal Efficiency of Capital (MEC). A higher interest rate discourages investment, while a lower rate encourages it. This inverse relationship between interest rates and investment makes the MEI schedule slope downward from left to right, forming what is also known as the investment demand schedule.

In the diagram, the horizontal axis represents investment (I) or changes in capital stock, while the vertical axis represents the rate of interest. The MEI curve slopes downward, indicating that as the interest rate declines from r_1 to r_2 and r_3, investment correspondingly increases from I_1 to I_2 and I_3.



While the MEC schedule reflects the investment demand of individual firms in response to market interest rates, the MEI schedule captures the collective investment demand of all firms in the economy. This aggregate demand for capital influences overall economic investment. The MEI schedule is mathematically represented as I = f(i), signifying that investment is a function of the interest rate.

Self-Check Exercise-12.5

Q1. What are the determinants of investment function?

Q2. Define Marginal Efficiency of Capital.

12.8 SECULAR STAGNATION

Secular stagnation is a condition of negligible or no economic growth in a market-based economy. When per capita income stays at relatively high levels, the percentage of savings is likely to start exceeding the percentage of longer-term investments in, for example, infrastructure and education, that are necessary to sustain future economic growth. The absence of such investments (and consequently of the economic growth) leads to declining levels of per capita income (and consequently of per capita savings). With the reduced percentage savings rate converging with the reduced investment rate, economic growth comes to a standstill i.e., it stagnates. In a free economy, consumers anticipating secular stagnation, might transfer their savings to more attractive-looking foreign countries. This would lead to a devaluation of their domestic currency, which would potentially boost their exports, assuming that the country did have goods or services that could be exported.

Persistent low growth, especially in Europe, has been attributed by some to secular stagnation initiated by stronger European economies, such as Germany, in the past few years.

Self-Check Exercise-12.6

Q1. Define Secular Stagnation.

12.9 SUMMARY

This unit explored the concepts of saving and investment, followed by an analysis of the technical aspects of the propensity to save, including APS, APS, and MPS. Additionally, the key determinants of investment were examined. The next chapter will focus on business cycles and their impact on the economy.

12.10 GLOSSARY

- **Autonomous Investment:** Investment that remains unaffected by changes in income levels.
- **Marginal Efficiency of Capital (MEC):** The highest expected rate of return from an additional unit of capital, relative to its cost.
- **Marginal Efficiency of Investment (MEI):** The anticipated rate of return on an investment, excluding interest costs.
- **Saving:** The portion of disposable income that is not allocated to consumption.
- **Average Propensity to Save (APS):** The fraction of disposable income that is saved, calculated as the ratio of saving to income.
- **Marginal Propensity to Save (MPS):** The proportion of additional income that is saved, representing the change in savings resulting from a change in disposable income.

12.11 ANSWERS TO SELF-CHECK EXERCISES

Self-Check Exercise-12.1

Answer to Q1. Refer to Section 12.3.

Self-Check Exercise-12.2

Answer to Q1. Refer to Section 12.4.1.

Answer to Q2. Refer to Section 12.4.2.

Self-Check Exercise-12.3

Answer to Q1. Refer to Section 12.5.

Self-Check Exercise-12.4

Answer to Q1. Refer to Section 12.6.

Answer to Q1. Refer to Section 12.6.2.

Self-Check Exercise-12.5

Answer to Q1. Refer to Section 12.7.

Answer to Q1. Refer to Section 12.7.1.

Self-Check Exercise-12.6

Answer to Q1. Refer to Section 12.8.

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12.13 TERMINAL QUESTIONS

Q1. State which two factors determine the investment demand?

Q2. Examine the factors which affect MEC?

Q3. What do you mean by saving function?

UNIT-13

MARGINAL EFFICIENCY OF CAPITAL

STRUCTURE

13.1 INTRODUCTION

This unit examines Keynesian investment theory alongside the concept of marginal efficiency of capital. Before exploring these ideas, it is crucial to grasp the significance of investment within the Keynesian framework. In the short run, national income and employment are determined by aggregate demand. In Keynes' two-sector model, aggregate demand consists of both consumption and investment expenditures. While previous units have covered the consumption function, this unit focuses on investment demand and its influencing factors. Since consumption demand tends to remain stable in the short run, investment demand plays a key role in determining income and employment. Higher investment leads to greater income and employment levels. Keynes argued that in a capitalist economy, equilibrium does not necessarily occur at full employment. He emphasized that investment demand is often insufficient to match the savings required for full employment. This imbalance results in underemployment, as opposed to the full employment scenario suggested by classical economists. The shortfall in investment demand creates a deflationary gap, leading to fluctuations in the general price level. Given that consumption remains relatively stable in the short run, investment demand significantly impacts income, employment, and price levels in the economy. The following sections will delve deeper into Keynesian investment theory and the marginal efficiency of capital.

13.2 LEARNING OBJECTIVES

By the end of this unit, you will be able to:

- Understand some basic concepts of investment.
- Understand Keynesian theory of investment.
- Understand Marginal Efficiency of Capital.

13.3 KEYNES'S THEORY OF INVESTMENT

In Keynes's two-sector model, aggregate demand consists of two components: consumption demand and investment demand. While previous units covered the consumption function, this section focuses on investment demand. According to Keynes, investment demand is influenced by two key factors: (1) the expected rate of profit, also known as the marginal efficiency of capital (MEC), and (2) the rate of interest.

To illustrate, consider a person with savings. They have two choices: either invest in capital assets such as machinery and factories to earn a return or lend their savings at a fixed interest rate. If the expected return from investment exceeds the prevailing interest rate, they will choose to invest in capital assets. Conversely, if the interest rate is higher than the expected return, they will prefer lending their money instead. This highlights that investment occurs only when the anticipated profit rate surpasses the market interest rate. Entrepreneurs seeking funds for investment must ensure that the expected return on capital assets exceeds the cost of borrowing. According to Keynes, investment decisions depend on the interaction between the marginal efficiency of capital and the interest rate. Equilibrium in investment occurs when the anticipated profit rate aligns with the current interest rate.

The marginal efficiency of capital and the interest rate both play a key role in shaping investment demand. However, Keynes viewed the marginal efficiency of capital as more influential in the short run. This is because interest rates usually remain stable, while shifts in investment expectations cause fluctuations in the marginal efficiency of capital, making it more unpredictable. Changes in MEC affect investment demand, which subsequently impacts aggregate demand, leading to economic fluctuations, commonly referred to as trade cycles. When profit expectations are high, investment levels rise, boosting aggregate demand and leading to economic expansion and prosperity. Conversely, when profit expectations decline, investment falls, reducing aggregate demand and potentially causing economic downturns, unemployment, and excess production capacity. Therefore, fluctuations in the marginal efficiency of capital play a crucial role in determining income, employment, and overall investment levels. Keynes also suggested that the rate of interest is determined by the interaction between liquidity preference and the money supply.

Some Basic Concepts of Investment

Some basic concepts of investment are following:

- **Business Fixed Investment:** This refers to expenditures made by businesses on machinery, tools, and equipment that are used for producing goods and services.

- **Residential Investment:** Residential investment refers to the expenditure which people make on constructing or buying new houses or dwelling apartments for the purpose of living or renting out to others.
- **Inventory Investment:** This type of investment involves the accumulation of raw materials, semi-finished goods, and other stock items by businesses.
- **Autonomous Investment:** This refers to investment that remains unaffected by changes in income levels, meaning it is independent of economic fluctuations.
- **Induced Investment:** This form of investment varies with income changes, increasing as income rises and decreasing when income falls.

Self-Check Exercise-13.1

Q1. Define Keynes's theory of investment.

Q2. What do you mean by autonomous investment?

13.4 MARGINAL EFFICIENCY OF CAPITAL

The marginal efficiency of capital reflects the projected return on an investment in a specific capital asset. It indicates the expected profitability of an additional unit of capital. J. M. Keynes introduced this idea in *The General Theory of Employment, Interest, and Money*, describing it as the discount rate that equates the present value of anticipated future earnings from a capital asset to its cost of acquisition. The MEC is crucial in investment decision-making and understanding economic behavior. It is determined using the following formula:

Supply Price = Discounted Prospective Yields

$$C = \frac{R_1}{1+r} + \frac{R_2}{(1+r)^2} + \frac{R_3}{(1+r)^3} \dots\dots\dots + \frac{R_n}{(1+r)^n}$$

13.4.1. Calculation of Marginal Efficiency of Capital

The calculation of the marginal efficiency of capital can be demonstrated using a numerical example. Suppose an entrepreneur plans to invest in a particular capital asset. To compute the marginal efficiency of capital, the following steps are undertaken:

(1) Identify the Cost of Investment

Investment in Capital Asset = Rs. 3000

Life of the Capital Asset = 2 years

(2) Estimated Expected Clash Flows

Year 1 =1100

Year 2 = 2420

(3) Calculating the Value of r

$$C = \frac{R1}{1+r} + \frac{R2}{(1+r)^2}$$

$$3000 = \frac{1100}{1+r} + \frac{2420}{(1+r)^2}$$

By solving for **r** in the given equation, we determine that **r** equals 10. This implies that the marginal efficiency of capital in this case is **10 percent**. Substituting **r = 10** into the equation will yield the following outcome.

$$3000 = \frac{1100}{1+0.10} + \frac{2420}{(1+0.10)^2}$$

$$3000 = 1000 + 2000$$

$$3000 = 3000$$

Therefore, with r=0.10 or 10 per cent, the preset value of expected cash flows equal the initial investment cost of Rs.3000. This confirms that MEC for this investment is indeed 10 per cent.

Self-Check Exercise-13.2

Q1. What do you mean by Marginal Efficiency of Capital?

Q2. What are the steps to calculate Marginal Efficiency of Capital?

13.5 RATE OF INVESTMENT AND INVESTMENT DEMAND CURVE

As discussed earlier, the calculation of the marginal efficiency of capital can be visually represented through a downward-sloping curve.

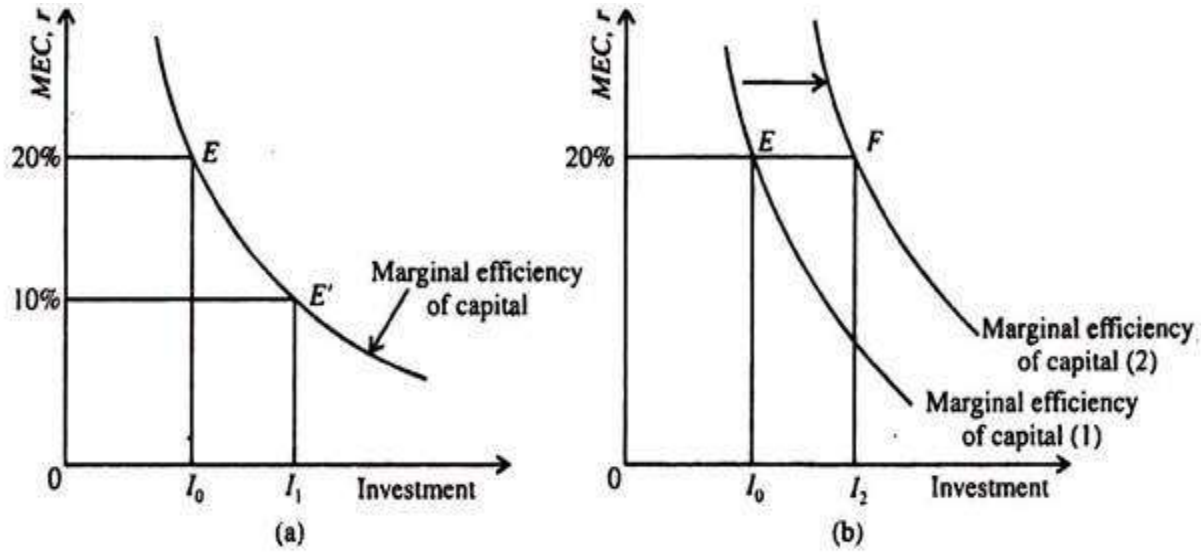

Figure 13.1. Marginal Efficiency of Capital

In the diagram, the x-axis represents capital investment, while the y-axis shows both the marginal efficiency of capital and the interest rate. The illustration indicates that when investment is at I_0, the marginal efficiency of capital is 20 percent. As investment rises to I_1, the marginal efficiency of capital decreases to 10 percent.

Investment decisions depend on the marginal efficiency of capital and the prevailing interest rate. The equilibrium investment level is determined at the point where the marginal efficiency of capital equals the market interest rate. This establishes the overall level of investment in the economy.

Therefore, the marginal efficiency of capital curve depicts the relationship between investment demand and varying interest rates, functioning as the investment demand curve.

Self-Check Exercise-13.3

Q1. How is the equilibrium level of investment determined in the economy?

13.6 SUMMARY

This unit explored Keynesian investment theory and the marginal efficiency of capital. In Keynes's two-sector model, aggregate demand comprises consumption and investment demand. Since consumption demand remains relatively stable in the short run, investment demand plays a key role in determining income and employment levels—higher investment leads to greater economic activity.

Keynes identified two main factors influencing investment: (1) the expected rate of profit (marginal efficiency of capital) and (2) the interest rate. The marginal efficiency of capital represents the anticipated return on capital assets, guiding investment decisions. The equilibrium level of investment is reached when the marginal efficiency of capital matches the prevailing interest rate.

13.7. GLOSSARY

- **Marginal Efficiency of Capital:** The anticipated rate of return from investing in a specific capital asset.
- **Present Value:** The current worth of a future sum of money or cash flow series, discounted at a given rate of return.
- **Rate of Interest:** The percentage charged by lenders to borrowers on the principal amount.

13.8. ANSWERS TO SELF-CHECK EXERCISES

Self-Check Exercise-13.1

Answer to Q1. Refer to Section 13.3.

Answer to Q2. Refer to Section 13.3.

Self-Check Exercise-13.2

Answer to Q1. Refer to Section 13.4.

Answer to Q2. Refer to Section 13.4.1.

Self-Check Exercise-13.3

Answer to Q1. Refer to Section 13.5.

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13.9. TERMINAL QUESTIONS

Q1. Critically examine Keynes's theory of investment.

Q2. What do you mean by Marginal Efficiency of Capital? How equilibrium level of investment is determined in the economy?

UNIT-14

BUSINESS EXPECTATIONS

STRUCTURE

14.1 INTRODUCTION

Business expectations refer to the anticipations and outlooks that companies have about future economic conditions. These expectations influence their decisions on investment, production, and hiring. For instance, if businesses expect economic growth, they are more likely to invest in new projects and hire more employees. Conversely, if they foresee a downturn, they might cut back on spending and reduce their workforce. Understanding business expectations is crucial because they play a significant role in shaping the overall economy, affecting everything from GDP growth to employment rates. Accurate predictions can help businesses and policymakers make informed decisions to foster economic stability and growth.

14.2 LEARNING OBJECTIVES

By the end of this unit, you will be able to

- Define business expectations and their economic impact.
- Compare rational and adaptive expectation models.
- Describe the New Classical Rational Expectation Model.

14.3 BUSINESS EXPECTATIONS

Business expectations refer to what companies think will happen in the future regarding the economy. These thoughts and predictions affect their decisions about spending money, producing goods, and hiring workers. For example, if businesses expect the economy to grow, they may invest more and hire more people. If they expect a recession, they might cut back on spending and reduce their workforce. Understanding business expectations is important because it helps explain how businesses plan for the future and how their actions can influence the overall economy, including growth and employment rates.

14.3.1 Business Expectations and Investment

The key feature of prospective yield is that it represents an anticipated return. However, the actual return may differ, either exceeding or falling short of expectations. However, it is the expectations of yield, rather than the actual yield, which govern the investment decisions of the entrepreneurs. It is thus that expectations become important in determining the position of the MEC and I (r) function. Any change in entrepreneurs' expectations about the yield from capital assets will shut the MEC and I (r) function up or down.

Keynes classified expectations into short-term and long-term expectations. The short-term expectations pertain to the net revenue from the sale of output produced with the existing plant. However, the long-term expectations pertain to the net revenue expected from the sale of output produced with variation in the size of the existing plant or with an entirely new plant. It is the long-term expectations which are vital to the MEC schedule and the I (r) function which accounts for their instability.

Short-term expectations are rather stable because the realized results of the recent past are a relatively safe guide to what can be expected in the near future. In a short period, most of the circumstances influencing output and revenue remain substantially the same from day to day or from week to week or from month to month. By their very nature, short-term expectations are subject to frequent checks in the light of realized results, realized results are thus, a satisfactory guide to the near future, and, therefore, can be substituted for expectations relating to the near future. Short-term expectations are thus stable and less important.

However, the long-term expectations are highly unstable and, therefore, are more important in explaining the fluctuations or shifts in the MEC and I (r) functions. While economic activity can be safely expected to remain the same over a short period, it cannot be expected to be so over a long period. realized result of, say, the past five years cannot be a safe guide for estimating yields from capital assets in the next five years. It is not possible in the case of durable equipment to check expectations against realized results at short intervals as can be done in the case of short-term expectations. This renders the long-term expectations, which are the only relevant expectations in determining MEC, highly unstable.

Let us look more closely at the various elements which enter into the formulation of the entrepreneur's long-term expectations. One important element among these is the existing stock of capital assets. If investment, for example, in a given type of textile

machine is being contemplated, the expected return or prospective yield from it depends, in part, on the number of such machines already in existence. The greater this number the lower will be the prospective yield from this type of capital asset. The existing stock of a capital asset can be ascertained with more or less, certainty. Therefore, this is a factor which cannot cause the instability of MEC and investment, I (r), schedules. That is why Keynes had acknowledged that there are some considerations affecting long-term expectations which do not rest upon the "shifting sands of a precarious future."

However, as soon as we go beyond the existing stock of capital and its capacity to satisfy the existing demand, we enter into the area of uncertainty. An entrepreneur contemplating a given type of capital equipment of the durable type has to estimate its probable economic life of it, which depends not only on the rate at which it physically wears out but also on obsolescence, the rate of which depends on the frequency with which technological improvements and innovations are introduced. He has also to make some guesses with regard to the general level of effective demand over the whole period of the expected economic life of the given capital equipment. In order to guess the level of this demand, he has to take into consideration a number of other factors such as the probable degree of new competition, which might influence the price of the product to be produced with the contemplated investment, from year to year, the size of the export market, changes in the monetary and fiscal policies of the government, conditions in the labour market including the level of wages and the frequency of strikes, future trends of other factors prices, political climate, wars, revolution, etc. These are factors which cannot be accurately fore known because they have no probability calculus. The long-term expectations are, therefore, subject to sudden revisions and are highly unstable. Periods of optimistic expectations including almost a feverish investment activity tend to be followed by periods of pessimistic expectations dragging economic activity to the minimum. Optimistic expectations tend to shift upward the MES as well as the I (r) function, and pessimistic expectations shift them downward.

The alternating waves of optimism and pessimism in business would arise from the fact that there is no reliable basis for a scientific formulation of long-term expectations, they tend to be influenced to a disproportionate degree by the ascertainable facts of the current situation. But, as already explained, the facts of the current period cannot be a substitute for long-term expectations which depend on a large number of uncertain factors. Consequently, the investors in durable capital are favorably surprised or disappointed as the future unrolls itself. The entrepreneurs tend to be optimistic when they are favourably surprised, and they tend to be pessimistic when they are disappointed. The MEC and I() functions are shifted upward in the former case, and they are shifted downward in the latter case.

According to Keynes, check exchange activity in a modern free enterprise economy is another destablishing factor as regards the MEC and I (r) functions. In modern business organisations ownership is separated from control. Secondly, there is the organisation of stock exchanges where stocks can be easily sold and purchased whenever one likes to Since the majority of the investors in new stocks (which are intended to collect savings for investment in new stock of real capital) do not have the means and ability of forecasting the events influencing the prospective yields of the

various types of capital assets, they tend to be guided by the prices of the similar old stock at the stock exchange prices are generally controlled not by the economic and other factors affecting the prospective yields, but by the operations of the speculators, who are simply trying to successfully forecast the mass psychology of the operators at the stock exchanges. What has happened is that the institution of the stock exchange has greatly increased the liquidity of an individual investor, in consequence of which, combined with the too precarious a knowledge of the future events affecting MEC, he allowed himself to be guided by the speculators' activity, for the high liquidity made possible by the organization of stock exchanges permits him to convert his stock into cash at a short notice. Thus, 'speculation' tends to dominate 'enterprise' in the market and it, consequently, makes the MEC and the I (r) functions highly unstable. Not only that, this domination of 'Speculations over enterprise is in the opinion of Keynes, an ill basis for the capitalist development of a country. In his words. "Speculation may do no harm as bubbles on a steady stream of enterprise but the position is serious when enterprise becomes the bubble on a whirlpool of speculation. When the capital development of a country becomes a by-product of the activities of a casino, the job is likely to be ill-done. (General Theory, 1936, p. 139).

The above analysis gives a rather too much importance to expectations in determining the MEC and investment. It has been suggested recently that changes in long-term expectations have not been as important a determinant of change, in investment after World War II as they were before this war. One of the reasons is that the Keynesian analysis, which assigns a very big role to expectations in explaining fluctuations in investment was based upon the assumption of a large number of freely competing entrepreneurs, each of them operating relatively small scale. Under such conditions, there is a lack of coordination and no individual entrepreneur knows what the others are doing in order to meet a given increase in demand. Therefore, there is a tendency for each one of them to increase his investment proportionately more than what is justified by the objective conditions. But, it is argued, in the present period, the bulk of investment expenditure in advanced economies like that of the U.S.A. is controlled by a few big enterprises. Huge errors of over-expansion or over-contraction, resulting from the waves of optimism and pessimism are less likely to occur in industries controlled by a few big corporations. In an industry dominated by a few big firms, it is likely that each firm will have carved out a secure position in the market and will, therefore, plan its expenditures on investment in plant and equipment in accordance with the estimated long-run growth potential of the industry, which is largely uninfluenced by the recurrent waves of optimistic and pessimistic expectations. Another reason for the reduced importance of long-term expectations may be looked for in the fact that there has not been any serious downturn of the economy in the postwar world.

Moreover, the marginal efficiency of capital and rate of interest are not the only factors which influence the investment expenditure. There are also some other factors which determine the investment expenditure. The more important among these factors are (i) technological change and innovation, (ii) level of income and output, (iii) changes in the level of income and output, and (v) level of profits.

Self-Check Exercise-14.1

Q1. Define

1) Business Expectations
2) Investment

Q2. Write a short note on business expectations and investment.

14.4 MODELS OF EXPECTATIONS

14.4.1 Rationale Expectation

New Classical economics is built upon the rational expectations hypothesis, introduced by Robert Lucas from the University of Chicago. This hypothesis suggests that economic agents, including workers and firms, make decisions based on their expectations of the future, even though they do not have absolute certainty. These agents form rational expectations by utilizing all available information to make the most accurate forecasts possible. Before Lucas, the relationship between inflation and unemployment was often analyzed using a basic Phillips curve model, which suggested that higher inflation led to lower unemployment. However, these simple Phillips curve models assumed that the firms and workers did not use all available information to make forecasts and therefore would make the same mistakes again and again. In earlier theories, higher inflation was believed to encourage workers to supply more labor, as they mistakenly perceived their rising money wages as an increase in real wages. They failed to recognize that inflation had also raised the prices of all goods. As a result, they were repeatedly misled into thinking their purchasing power had improved when, in reality, only their nominal wages had increased. Lucas's rational expectations approach emphasizes that while people's forecasts may not always be accurate, they do not consistently make systematic errors when forming expectations. According to Robert Barro, an advocate of the rational expectations approach, “In Lucas’s theory, people can be confused temporarily by monetary surprises…. In particular, an unanticipated expansion of money and the general price level may temporarily fool workers into thinking that their wages had risen in real terms. Similarly, producers might believe that the prices of the goods they were selling had risen relative to the prices of other goods. Through these channels, a monetary stimulus might cause a temporary boom, but one that must end soon after the errors in expectations were recognized.” A further important aspect of the rational expectations model is that it believes in equilibrium in which the market is clear immediately. That is they have no faith in either money-wage stickiness or price-stickiness. Having rational expectations, if firms fix prices and wages on that basis, then on average, prices and wages will be set at the levels at which products and labour markets will be in equilibrium.

14.4.2 Adaptive Expectation

Adaptive expectations is an economic theory that emphasizes the role of historical events in forecasting future outcomes. For instance, when predicting inflation, this theory suggests that if inflation rose in the previous year, individuals will anticipate a higher inflation rate for the following year.

A simple formula for adaptive expectations is Pe = Pt. -1 This states people expect inflation will be the same as last year. Adaptive expectations is a theory in economics that helps explain how people predict future events based on past experiences. This theory is particularly useful for understanding how people form expectations about inflation.

According to adaptive expectations, if the inflation rate increased last year, people will likely expect a higher inflation rate this year. They base their expectations on what they have observed in the recent past. For example, if prices went up by 3% last year, people might expect prices to rise by a similar rate this year. This concept is important because people's expectations about inflation can influence their economic decisions, such as spending and saving. If people expect higher inflation, they might spend more now to avoid higher prices later, which can, in turn, affect overall economic activity. Understanding adaptive expectations helps economists and policymakers predict how changes in inflation or other economic factors might influence behaviour and the economy as a whole.

Self-Check Exercise-14.2

Q1. Define rationale expectations.

Q2. Define adaptive expectations.

14.5 THE ROLE OF EXPECTATIONS

Keynes emphasized the significance of expectations in shaping investment expenditure. While he considered the consumption function relatively stable, he viewed the investment function as highly unpredictable. He attributed sharp economic fluctuations to the volatility of investment spending, which he linked to the instability of expectations. In this context, he made a distinction between short-term expectations and long-term expectations. As we have already explained in our lesson on the Keynesian theory of investment, he believed the short-term expectations to be more or less stable but the long-term expectations, which, according to him, have no firm basis to be built upon are very unstable. Thus, expectations play a pivotal role in determining the expected yield from new investment or the marginal efficiency of investment which is the more potent force determining aggregate effective demand.

The practical consequence of the discussed role of expectations is that the policymakers will have to take into account the way the policy will affect the expectations of the economic agents, otherwise, the stabilisation policy chosen and implemented may not turn out to be effective. On the contrary, there is a real danger that a miscalculation regarding expectations may turn a policy intended to be stabilising into an actually destabilising policy.

Given this, it is crucial for policymakers to understand how expectations are formed. The general belief is that the past behaviour of a variable generally influences the expectations about its future value, but Keynes had provided a very useful insight by emphasising that this hypothesis is true in the case of short-term expectations only. In the case of long- term expectations which are the only kind of expectations relevant in determining investment expenditure, there is no scientific basis so that they are

determined more by the speculative activity at the stock exchanges than by any other factor.

However, in recent times, there has arisen a new school of economic thought known as the New Classical Economics School or the Rational Expectations School of economic thought. This school assumes economic agents to be rational in their behaviour in the sense that they formulate their expectations not only on the basis of past behaviour of the variables concerned but they also take into account any additional information that they can lay their lands on and that is relevant for predicting or expecting the values of the relevant variables in the future. For example, while forming expectations with regard to the future course of prices, the rational economic agents will, no doubt, consider how they had been changing in the past. But, if, at the same time, a government comes into power with a firm commitment to change the course of prices in a particular direction and if they believe in the information available to them that the government will not play false to this commitment, then the economic agents' expectations will be formulated taking into consideration this additional information also.

The econometric model in the light of which a policy is to be chalked out has to be built upon the basis of all the information that the economic agents use while formulating their expectations. But that is not an easy task. This means inevitable errors in the predictions of the econometric model used to formulate policy. This is a very knotty problem and implies that precise control of economic activity is well high and an impossible task.

Moreover, the policy itself may affect expectations. Therefore it is necessary for policy formation that the effects of a given policy action itself on expectations should also be considered. The interaction of policy and expectations is a special feature of the so-called rational expectations approach.

However, despite the emphasis placed by the rational expectations approach on taking into consideration all the information that influences the formulation of expectations in order to build econometric models that can effectively serve as guides for policy making, such a task is so difficult that even in an advanced country like the U.S.A most expectations mechanisms used in the econometric models of the U.S economy assume that expectations affecting consumption and investment expenditures are based entirely on past values.

Self-Check Exercise-14.3

Q1. How do expectations impact the prediction of future economic outcomes in macroeconomics?

14.6 SUMMARY

In conclusion, we can say that expectations play a great role in determining the level of aggregate demand. Secondly, the difficulties of modelling the way expectations are formulated inevitably lead to errors in forecasting the effects of a particular policy measure on the economy. Thirdly, expectations themselves are likely to be influenced by policy measures; therefore, failure to take account of the effect of policies on expectations will lead to wrong predictions of the effects of these policies.

14.7 GLOSSARY

- **Adaptive Expectations**: An economic theory that explains how people predict future events based on past experiences. For example, if inflation increased last year, people expect higher inflation this year.
- **Business Expectations**: The forecasts or outlooks that businesses have about future economic conditions, such as demand for their products, costs, and overall market trends. These expectations influence business decisions like investments and hiring**.**
- **Rational Expectations**: An economic theory suggesting that individuals use all available information, including historical data and current economic indicators, to make accurate predictions about the future. People are assumed to make unbiased and informed forecasts.
- **Risk**: The potential for losing something of value, such as money, time, or resources, due to uncertain future events. In business, risk is often quantified and managed through strategies like diversification and insurance.
- **Uncertainty**: A situation where the likelihood of future events or outcomes is unknown and cannot be precisely measured or predicted. Unlike risk, uncertainty does not allow for the calculation of probabilities, making decision-making more challenging.

14.8 ANSWER TO SELF-CHECK EXERCISES

Self-Check Exercise-14.1

Answer to Q1. Refer to Sections 14.3 and 14.3.1.

Answer to Q2. Refer to Section 14.3.1.

Self-Check Exercise-14.2

Answer to Q1. Refer to Section 14.4

Answer to Q2. Refer to Section 14.4

Self-Check Exercise-14.3

Answer to Q1. Refer to Section 14.5

Answer to Q2. Refer to Section 14.5

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14.10 TERMINAL QUESTIONS

Q1. How do expectations, such as adaptive and rational expectations, influence the prediction of future economic outcomes in an economy?

UNIT-15

MONEY

STRUCTURE

15.1 INTRODUCTION

The term ‘money’ originates from the Latin word ‘Moneta,’ a title associated with the Roman goddess Juno, in whose temple currency was minted. The exact origins of money remain unknown, but even early human societies had forms of exchange. The type of money varied with economic activities—hunters used animal skins, pastoral communities relied on livestock, and agricultural societies traded grains and food. In ancient Greece, coins became a widely accepted medium of exchange.

15.2 LEARNING OBJECTIVES

By the end of this unit, you will be able to

- Define money
- List and explain the stages in the evolution of money
- Identify the function of money
- List the different types of money

15.3 STAGES IN THE EVOLUTION OF MONEY

The development of money has undergone five distinct phases, reflecting the advancements of human civilization across different periods and regions.

15.3.1 Commodity money

Throughout history, different commodities have been used as money. In early societies, hunters used items like stones, animal skins, spears, and axes for trade. Pastoral communities relied on livestock, while agricultural societies used grains. At various points in history, the Romans used cattle and salt for trade, while Mongolians exchanged squirrel skins. Different societies adopted items like precious stones, tobacco, tea, shells, and fishhooks as money, depending on their economic circumstances and requirements. However, commodity money had several drawbacks:

- Lack of uniformity in quality, making standard pricing difficult (e.g., cattle and grains).
- Storage issues, especially for perishable goods.
- Uncertainty in supply.
- Limited portability, making transportation inconvenient.
- Indivisibility, as seen in goods like cattle, which could not be easily divided for smaller transactions.

15.3.2 Metallic money

As civilizations expanded and trade flourished both by land and sea, metallic money gradually replaced commodity money. Various nations began using metals such as gold, silver, copper, and tin as a medium of exchange. However, using raw metal posed challenges, as it required weighing, dividing, and assessing quality for each transaction. To address this, standardized coins of predetermined weight were introduced. This development is often credited to King Midas of Lydia in the 8th century B.C., although gold coins had already been in use in India long before that. Coins soon became a widely accepted and convenient form of exchange.

As the value of gold increased, people melted gold coins to sell the metal for higher profits. To counteract this, governments started mixing gold with silver or copper to ensure that the intrinsic value of the coins did not exceed their face value. Eventually, as gold became scarcer and more expensive, silver coins gained popularity, initially in pure form and later as alloys mixed with other metals.

Despite its advantages, metallic money had certain limitations:

- Its supply could not be easily adjusted to meet the nation's internal and external economic needs.
- The weight of metal coins made it difficult to transport large amounts of money.
- Carrying precious metals over long distances was risky and inconvenient for merchants.
- The production of coins was costly, leading to issues like debasement and significant government expenditure on minting and distribution.

15.3.3 Paper money

The emergence of paper money can be traced back to goldsmiths, who were known for securely storing gold in their safes. Due to their reputation for honesty,

individuals began entrusting their gold to them for safekeeping. In exchange, goldsmiths provided deposit receipts, which served as a promise to return the gold upon request. Over time, these receipts began circulating as a medium of exchange, functioning as a substitute for physical money. This practice eventually evolved into the issuance of banknotes, initially backed by gold and convertible on demand.

Banknotes are now issued by a country's central bank. However, as the value of gold and silver increased, many nations abandoned the convertibility of banknotes into precious metals, particularly during and after the First World War. Since then, paper money has transitioned from representative money to fiat money, which is not backed by a physical commodity but holds value because it is legally

15.3.4 Credit money

In the modern monetary system, cheques have emerged as a significant medium of exchange. While they serve a function similar to banknotes by facilitating transactions, cheques differ in key ways. Unlike banknotes, a cheque is issued for a specific amount and is valid only for a single transaction. It does not function as money itself but rather as a written instruction directing a financial institution to transfer funds. Despite this distinction, cheques are widely used for large transactions, whereas physical banknotes are primarily utilized for smaller payments.

15.3.5 Near money

The final stage in the development of money includes financial instruments such as treasury bills, bonds, debentures, savings certificates, and bills of exchange. These assets, often referred to as "near money," do not serve as direct currency but can be easily converted into cash when needed. They are highly liquid and function as close substitutes for money. In contemporary financial systems, money has become largely intangible, with ownership and transfers increasingly conducted through electronic records and book entries rather than physical exchange.

Self-Check Exercise-15.1

Q1. Define

a) Near Money
b) Commodity Money
c) Metallic Money
d) Credit Money

Q2. Discuss the stages of the evolution of money.

15.4 DEFINITION OF MONEY

Defining money with precision is challenging, as different scholars and economists have provided varying interpretations based on its functions and roles in the economy.

According to Crowther, “Money can be defined as anything that is generally acceptable as a means of exchange and that at the same time acts as a measure and a store of value”.

Professor D. H. Robertson defines money as “anything which is widely accepted in payment for goods or in discharge of other kinds of business obligations”.

From these definitions, two key aspects of money can be observed. First, money is typically defined based on the functions it performs, leading to the well-known statement that "money is what money does." This suggests that anything serving as a medium of exchange, store of value, unit of account, and standard of deferred payment can be considered money.

Second, for anything to function as money, it must be widely accepted within society. Its value to an individual depends on the belief that others will accept it in exchange for goods or as payment for debts. However, general acceptability is not an inherent physical trait of money; rather, it is a social construct established through legal frameworks or widespread convention.

Self-Check Exercise-15.2

Q1. Define Money.

15.5 FUNCTIONS OF MONEY

The functions of money can be categorized into three main types: primary functions, secondary functions, and contingent functions.

15.5.1 Primary functions of money

The primary functions of money include:

- Acting as a medium of exchange
- Serving as a measure of value

1. Medium of exchange

One of the fundamental roles of money is facilitating exchange. In a barter system, goods were traded directly for other goods, which often required a "double coincidence of wants." This made transactions difficult and inefficient. Money eliminates this problem by acting as an intermediary in exchanges. A seller can receive money for goods and use it to purchase other goods and services, making trade more flexible and efficient. This function of money has also enabled the growth of specialization and division of labor in modern economies.

2. Measure of value

Money also serves as a standard unit for measuring the value of goods and services. Under the barter system, there was no uniform way to assess and compare the value of different goods, making trade complex. Money simplifies this process by providing a common benchmark, allowing for easy valuation and comparison of products and services.

15.5.2 Secondary functions

The secondary functions of money include:

1. Standard of deferred payments

Money serves as a benchmark for transactions that are to be settled in the future. When individuals or businesses take loans, they repay them over time using money as

the standard unit of value. A significant portion of economic activities involves credit transactions, where payments are scheduled for a later date. Money is widely accepted for such payments because its value remains relatively stable. However, if there is high inflation or deflation, money's effectiveness in this role diminishes. For instance, during inflation, the real value of money declines, benefitting borrowers while lenders face losses. Conversely, during deflation, money's value rises, favoring creditors while debtors bear the burden. To function effectively in deferred payments, money should maintain a stable value over time.

2. Store of value

Money also acts as a means of preserving wealth. Since it is highly liquid, individuals and businesses prefer storing their wealth in money rather than in perishable or difficult-to-liquidate assets. Historically, gold was a preferred form of wealth storage due to its durability. While assets such as property, stocks, and bonds also hold value, they must first be converted into money before being used for transactions. The advantage of money is that it can be immediately used for purchasing goods and services. However, money effectively serves as a store of value only when its purchasing power remains stable.

15.5.3 Contingent functions

Money also performs several additional functions that support economic activities. These contingent functions include:

1. Basis of credit: The existence of a well-developed monetary system has enabled the growth of credit markets. Financial institutions extend credit based on the availability of money.

2. Distribution of national income: As a standard unit of value, money helps in distributing national income among the four factors of production—land, labor, capital, and entrepreneurship.

3. Transfer of value: Money allows the transfer of economic value from one location to another, making transactions and trade more efficient.

4. Medium of compensations: In cases of loss or damage due to accidents or unforeseen events, compensation is typically provided in monetary terms, ensuring ease of settlement.

5. Liquidity: Liquidity refers to the ease with which an asset can be converted into cash. Money, being the most liquid asset, can be readily exchanged for goods and services.

6. Money guide in production and consumption: The value of goods and services is expressed in monetary terms. Similarly, marginal productivity is assessed based on the prices of goods and production factors. This pricing mechanism influences both production and consumption patterns.

7. Guarantor of solvency: Solvency signifies an individual's or firm's ability to meet financial obligations. Holding sufficient money ensures financial stability and credibility in business transactions.

Self-Check Exercise-15.3

Q1. What are the functions of money?

15.6 TYPES OF MONEY

Money of Account

Money of account refers to the unit in which a country's financial transactions, debts, and prices are recorded and expressed. It serves as a measure of purchasing power, but it does not necessarily have to be in physical circulation. For example, in India, the rupee functions as the money of account, while in the United Kingdom, it is the pound sterling, and in Germany, it is the euro. In cases of extreme depreciation, as seen in Germany between 1922 and 1924, a currency may lose its function as money of account.

Limited and Unlimited Legal Tender

Legal tender refers to money that must be accepted for the settlement of debts as per legal provisions. Refusal to accept such currency is not permissible. If a currency can be used for transactions of any amount, it is considered unlimited legal tender. In India, rupee notes and coins serve this purpose. Conversely, limited legal tender applies to currencies that can only be used for transactions up to a specific limit. For instance, coins of smaller denominations like 25 or 50 paise can only be used up to a fixed amount (e.g., Rs. 25). Additionally, if a coin becomes significantly worn out, reducing its weight beyond a specified threshold, it ceases to be legal tender.

Standard Money

Standard money is the primary monetary unit in which the value of goods and other forms of money are measured. In India, the rupee serves this function, as all goods and financial instruments are valued in terms of rupees. Standard money is typically designated as unlimited legal tender. Historically, standard money was often full-bodied, meaning its face value equaled its intrinsic value (the value of the metal used). However, in modern economies, standard money is typically token money, where the material's actual worth is much lower than the face value.

Token Money

Token money refers to currency whose intrinsic value is significantly less than its face value. In India, all coins and rupee notes are examples of token money, as their material cost is far lower than their assigned value.

Bank Money

Bank money refers to demand deposits held in banks, which form a significant part of a country's money supply. These deposits arise when individuals place money in banks or when banks extend loans to businesses and traders.

Bank deposits are generally classified into two categories: demand deposits and time deposits. Demand deposits can be withdrawn at any time without prior notice, typically through cheques. In contrast, time deposits have a fixed maturity period, cannot be withdrawn on demand, and do not allow cheque transactions. While only demand deposits function as a direct medium of exchange, time deposits are included

in a broader money supply measure, often referred to as M3, since they can be liquidated by forgoing some interest.

Inside Money

Inside money refers to money that arises from financial obligations within the economy, meaning it is a liability to the entity that issues it. The total net amount of inside money within an economy is effectively zero because one party's financial asset is another's liability. A significant portion of the money circulating in modern economies falls under this category.

Outside Money

Outside money consists of assets that are not liabilities within the domestic economy. This type of money is held in net positive amounts and includes commodities such as gold, foreign currency, and financial assets backed by foreign debt, such as stocks and bonds. Since private-sector financial institutions operate within the economy, government-issued currency is also categorized as outside money.

Self-Check Exercise-15.4

Q1. Discuss the different types of money.

Q2. Define

a) Token Money
b) Inside Money
c) Outside Money
d) Limited and Unlimited legal tender

15.7 SUMMARY

This unit provided an overview of money, its definition, and its essential role in the economy. Money is recognized as any item widely accepted as a medium of exchange while also serving as a measure of value and a store of wealth. The discussion covered the historical evolution of money and its various functions, which were classified into primary, secondary, and contingent functions. Additionally, the unit explored different types of money, highlighting their characteristics and significance in the financial system.

15.8 GLOSSARY

- **Money:** A universally accepted medium of exchange that also functions as a unit of measurement and a store of value.
- **Unlimited Legal Tender:** A form of currency that can be used to settle debts of any amount. In India, rupee notes and coins serve as unlimited legal tender, allowing transactions without restrictions on the amount.
- **Legal Tender Money:** Currency that has official legal backing, making its acceptance mandatory for payments. Refusing to accept legal tender for transactions is not permitted.

- **Standard Money:** The currency unit in which the value of goods and other forms of money are expressed. In India, the rupee serves as the standard unit of monetary measurement.
- **Token Money:** A type of currency where the intrinsic (metallic) value is significantly lower than its face value. Most coins and rupees in India fall into this category.
- **Bank Money:** Refers to demand deposits held by banks, which are created when individuals deposit money or when banks issue loans. These deposits are a key component of the money supply.
- **Inside Money:** Money that is created within the economy and represents a liability to the issuer. The overall net amount of inside money in an economy balances out to zero.
- **Outside Money:** A form of money that does not represent a liability within the domestic economy. This includes assets such as gold, foreign currency, or financial instruments backed by foreign debt. Government-issued currency is also classified as outside money.

15.9 ANSWER TO SELF-CHECK EXERCISES

Self-Check Exercise-1
Answer to Q1. Refer to Section 15.3.
Answer to Q2. Refer to Section 15.3.
Self-Check Exercise-2
Answer to Q1. Refer to Section 15.4.
Self-Check Exercise-3
Answer to Q1. Refer to Section 15.5.
Self-Check Exercise-4
Answer to Q1. Refer to Section 15.6.
Answer to Q1. Refer to Section 15.6.

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15.11 TERMINAL QUESTIONS

Q1. Define money. Explain the different Stages in the evolution of money.

Q2. Write short notes on

i. Legal Tender money
ii. Outside money
iii. Near money

iv. Token money

Q3. What are the different functions of money?

Q4. Define money.

Q5. Explain the primary and secondary functions of money.

UNIT-16

DEMAND FOR MONEY

STRUCTURE

16.1. INTRODUCTION

In macroeconomics, understanding the demand for money is essential to analyzing the functioning of an economy. The demand for money represents the preference of individuals, households, businesses, and the government to hold cash or bank deposits instead of investing in securities or other assets. Several factors influence this demand, including interest rates, income levels, and the overall economic environment. Historically, John Maynard Keynes and Milton Friedman have developed the theories to explain why people demand money or why people prefer money. John Maynard Keynes introduced the concept of liquidity preference, explaining that people demand money for three main reasons: transaction, precautionary, and speculative motives. In contrast, Milton Friedman highlighted the function of money as a store of value and its long-term relationship with supply. This unit explores fundamental concepts related to the demand for money, including Fisher's Transaction Approach, the Cambridge Cash Balance Approach, and Keynesian theory. While this unit provides an overview, subsequent sections will examine these theories in greater detail.

16.2. LEARNING OBJECTIVES

By the end of this unit, you will be able to

- Understand Demand for Money
- Fisher Transaction approach for demand for money

- Cambridge Cash balance theory of demand for money
- Keynesian theory of demand for money

16.3. DEMAND For MONEY

The reason why individuals and institutions choose to hold money is a significant topic in macroeconomics. The demand for money influences both interest rates and national income within an economy. Classical economists primarily viewed money as a medium of exchange, essential for facilitating transactions. In contrast, Keynes highlighted its role as a store of value. He argued that money functions as an asset, and individuals hold it with the expectation of earning returns based on fluctuations in its price, particularly through changes in interest rates.

Self-Check Exercise-16.1

Q1. What do you mean by demand for money?

16.4. FISHER'S TRANSACTION APPROACH TO DEMAND FOR MONEY

Irving Fisher developed the transaction approach to the demand for money, highlighting its primary role as a medium of exchange. Fisher and other classical economists stressed that money facilitates transactions by enabling the buying and selling of goods and services. From their perspective, individuals hold money mainly for transactional purposes, as it serves as a necessary tool for exchanging goods and services in the economy.

Fisher's Equation of Exchange

$MV = PT$

Where

M = the quantity of money in circulation

V= transaction velocity of circulation

P =Average price

T = the total number of transactions

1. **Money Supply (M):** The money supply refers to the total amount of money available within an economy. Fisher asserted that the nominal quantity of money is determined by the Central Bank.
2. **Velocity of Circulation (V):** A key assumption in Fisher's equation of exchange is that the velocity of money remains stable and is not influenced by changes in money supply (M), price level (P), or total transactions (T).
3. **Price Level (P):** This denotes the general level of prices for goods and services within the economy.
4. **Total Transactions (T):** This represents the overall volume of goods and services exchanged for money. Classical economists, assuming full employment of resources, considered the total number of transactions (T) as fixed in the short run.

For the money market to achieve equilibrium, the nominal money supply must match the nominal demand for money. The equilibrium condition is established when this balance is maintained.

$$M_s = M_d = M$$

As previously mentioned, the money supply (MsM_sMs) is determined by the Central Bank of a country. Consequently, Fisher's equation of exchange can be expressed as:

$$M_d = PT/V$$

$$M_d = 1/V.\ PT$$

Therefore, according to Fisher, demand for money depends upon the following three factors:

1) The number of transactions (T)
2) The average price of transactions (P)
3) The transaction velocity of circulation of money

Self-Check Exercise-16.2

Q1. Define Fisher's equation of exchange.

Q2. Critically examine Fisher's transaction approach to demand for money.

16.5. CAMBRIDGE CASH BALANCE THEORY OF DEMAND FOR MONEY

The Cambridge Cash-Balance Theory of Demand for Money was developed by economists from the Cambridge School, notably Alfred Marshall and Arthur Pigou. This theory presents a distinct viewpoint compared to Fisher's Transaction Approach. While Fisher's approach emphasizes money's role as a medium of exchange for transactions, the Cambridge theory focuses on money as a store of value and a form of wealth.

The Cambridge approach suggests that individuals hold money to maintain their purchasing power over time. Factors influencing the demand for money include the prevailing interest rate, personal wealth, expectations regarding future prices, and anticipated changes in interest rates. However, the theory assumes that variations in these factors remain stable or change proportionally with individual income. Based on this approach, the aggregate demand for money can be represented as:

$$M_d = kPY$$

Where

Y = real national income

P = average price level

PY = national income

k = proportion of nominal income (PY) that people want to hold as cash balances

In the Cambridge Cash-Balance approach, the demand for money (M_d) is considered a linear function of nominal income. A key aspect of this theory is that the demand for money is proportional to nominal income, represented as Md = kPY, where

k denotes the proportion of income people wish to hold as cash balances. Unlike Fisher's approach, which highlights money's role as a medium of exchange, the Cambridge theory emphasizes the preference for holding money as a part of overall wealth. It suggests that the demand for money is influenced by income levels and individuals' liquidity preferences rather than the frequency of transactions.

Self-Check Exercise-16.3

Q1. Discuss the Cambridge Cash Balance theory of demand for money.

16.6. KEYNESIAN THEORY OF DEMAND FOR MONEY

John Maynard Keynes introduced a theory of money demand in his influential work The General Theory of Employment, Interest, and Money (1936). He referred to this concept as "Liquidity Preference," which represents the preference for holding money rather than investing or lending it. The amount of money an individual chooses to hold depends on their desire for liquidity. Keynes identified three primary reasons why individuals and businesses demand money:

16.6.1. The Transaction Demand for Money

Individuals and businesses require money for daily transactions, such as purchasing goods and services. This need for liquidity arises because money facilitates economic exchanges. The amount of money held for transaction purposes depends on income levels and the frequency of expenditures.

16.6.2. Precautionary Motive

People and businesses set aside money to cover unexpected expenses, such as emergencies or unforeseen financial obligations. This motive ensures financial security in uncertain situations. Firms also maintain cash reserves to safeguard against unpredictable business conditions.

16.6.3. Speculative Motive

Some individuals hold money to capitalize on changes in asset prices, particularly in financial markets. If bond prices are expected to rise, investors prefer to invest in them rather than hold cash. Conversely, if bond prices are expected to fall, they may choose to hold onto cash and wait for a better investment opportunity. Liquidity preference under this motive is influenced by interest rate fluctuations, with people holding more cash when interest rates are low and investing more when rates are high.

16.6.4. Aggregate Demand for Money: Keynes's View

Keynes explained the total demand for money (M_d) by dividing it into two components: M_1 , which accounts for money held for transaction and precautionary purposes, and M_2, which represents money held for speculative purposes. This can be expressed as:$M_d = M_1 + M_2$.

According to Keynes, the demand for money associated with transactions and precautionary motives (M_1) is largely unaffected by interest rate changes, except when interest rates are exceptionally high. This relationship can be expressed in

$M_1 = L_1 (Y)$

Here, M_1 represents the demand for money held for transaction and precautionary purposes, while L_1 denotes the demand function, and Y signifies income. This indicates that the money held for these purposes depends on income levels. In contrast, the demand for money for speculative purposes (M2) is mainly influenced by the interest rate.

$M_2 = L_2 (r)$

Since total demand for money can be written as

$M = M_1 + M_2$

$M = L_1 (Y) + L_2 (r)$

According to Keynes's theory, the demand for money follows an additive function consisting of two components: $M = L_1 (Y) + L_2 (r)$. Here, $L_1(Y)$ represents a direct relationship with income, meaning it increases as income rises, while $L_2(r)$) reflects an inverse relationship with the interest rate, decreasing as interest rates go up.

Self-Check Exercise-16.4

Q1. Define

a) Transaction demand for money
b) Precautionary demand for money
c) Speculative demand for money

Q2. Critically examine the Keynes's theory of demand for money.

16.7. SUMMARY

In this unit, we discussed demand for money. As we discussed historically, John Maynard Keynes and Milton Friedman have developed the theories to explain that why people demand for money or why people prefer money. Fisher and other classical economists highlighted the role of money primarily as a medium of exchange for facilitating transactions. In contrast, the Cambridge Cash-Balance theory views money as a store of value and a form of wealth preservation. Keynes, however, introduced the concept of liquidity preference, explaining that individuals demand money for three main reasons: (1) Transaction motive, (2) Precautionary motive, and (3) Speculative motive. Keynes further proposed that the demand for money follows an additive function, expressed as $M=L_1(Y)+L_2(r)$, where $L_1(Y)$ depends on income and $L_2(r)$varies inversely with the interest rate.

16.8. GLOSSARY

- **Fisher's Equation of Exchange:** Represents the relationship between money supply, velocity of circulation, price level, and total transactions, expressed as MV=PT.
- **Transaction Motive:** The need for money to facilitate daily economic activities and business transactions.

- **Precautionary Motive:** The holding of money as a safeguard against unexpected expenses or emergencies.
- **Speculative Motive:** The preference for holding cash to capitalize on fluctuations in bond and security prices.

16.9 ANSWER TO SELF-CHECK EXERCISES

Self-Check Exercise-16.1

Answer to Q1. Refer to Section 16.3.

Self-Check Exercise-16.2

Answer to Q1. Refer to Section 16.4.

Answer to Q2. Refer to Section 16.4.

Self-Check Exercise-16.3

Answer to Q1. Refer to Section 16.5.

Self-Check Exercise-16.4

Answer to Q1. Refer to Section 16.6.

Answer to Q2. Refer to Section 16.6.

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16.11 Terminal Questions

Q1. What do you mean by demand for money? Discuss Fisher's Transaction Approach to demand for money.

Q2. Critically examine the Keynesian theory of demand for money.

UNIT-17

SUPPLY OF MONEY

STRUCTURE

17.1 INTRODUCTION

The money supply refers to the total quantity of money accessible to the public for transactions within an economy. It is a key factor influencing economic policies. This concept includes the overall stock of money used as a medium of exchange, excluding reserves held by central banks, commercial banks, and government treasuries, as these entities primarily generate money rather than actively circulate it. Thus, the money supply comprises only the funds available for public use at a given moment.

17.2 LEARNING OBJECTIVES

By the end of this unit, you will be able to:

- Define the concept of money supply.
- Identify the key components that make up the money supply.
- Explain the different measures of money supply used in India.
- Describe the factors influencing money supply.
- Analyze the relationship between money supply and high-powered money.

17.3 DEFINITIONS OF MONEY SUPPLY

The money supply refers to the total amount of money present in an economy at a specific moment, while also reflecting the concept of a continuous flow over time. It is often referred to using terms like "money stock," "quantity of money," or simply "money supply." There are three main perspectives on defining and measuring money supply:

Narrow Definition (M1): This perspective is consistent with both traditional and Keynesian economics, highlighting money's role as a medium of exchange. The money supply is defined as the total of currency in circulation along with demand deposits maintained in commercial banks. Demand deposits include savings and current accounts, which allow depositors to withdraw money via cheques. Since these deposits provide immediate liquidity, this measure is considered a more restricted definition of money supply.

Broader Definition (M2): This viewpoint, advocated by modern quantity theorists such as Milton Friedman, broadens the definition of money supply by incorporating time deposits alongside M1. Time deposits, such as fixed deposits, earn interest and have withdrawal restrictions. However, they still retain liquidity and serve as a temporary store of purchasing power. In the U.S., this measure is denoted as M2, while in Britain and India, it corresponds to M3. This perspective, supported by economists such as Gurley and Shaw, extends the concept of money supply by including M2 along with deposits from savings banks, loan associations, and various financial institutions. Although these assets act as a store of value, they do not function directly as a medium of exchange. Moreover, since they are beyond the direct regulation of the central bank, they are generally excluded from the official definition of money supply.

Self-Check Exercise-17.1

Q1. Define Money Supply.

17.4 THE CONSTITUENTS OF MONEY SUPPLY

The money supply represents the total amount of money available for expenditure in an economy at a specific point in time. It significantly influences economic policies. This concept includes all liquid financial assets accessible to the public for transactions while excluding funds held by central banks, commercial banks, and government treasuries, as these institutions primarily create money rather than circulate it. Since the money retained by these entities is not directly available for spending, only the portion accessible to the public in a liquid form is considered part of the money supply.

The money supply is typically classified into two main categories:

i) Narrow Money (Traditional Measure):

This definition views money mainly as a medium of exchange, including only assets that can be used immediately for transactions. Under this measure, the money supply consists of:

- Coins and paper currency in circulation.
- Demand deposits in banks, which are accessible through cheques.

Time deposits are not included in this measure since they lack immediate liquidity and cannot be withdrawn on demand. Because it focuses on the most liquid forms of money, this classification is referred to as narrow money. Some economists also describe it as transaction money, as it is directly utilized for daily economic activities.

The traditional measure of money supply is expressed as follows:

M1 = C+DD

Where M1 = Traditional measure or Narrow Money.

C = Currency (coins & Notes)

DD = Demand deposits (Chequeable deposits)

ii) Modern Measure or Broad Money: The concept of broad money encompasses not only currency and demand deposits but also various near-money assets that can be converted into cash with minimal cost or delay. Economists such as Milton Friedman, Gurley, and Shaw support this broader definition of the money supply, as do institutions like central banks.

Perspectives on Broad Money:

- **Milton Friedman:** He emphasized a wider definition of money supply that includes savings and time deposits held in commercial banks, as these deposits can be accessed for spending with certain conditions.
- **Gurley and Shaw:** They viewed money supply as a weighted average of currency, demand deposits, and near-money assets, recognizing the liquidity of financial instruments.
- **Central Bank Approach:** This perspective includes funds extended by various financial institutions as part of the total money supply.

Components of Broad Money in India:

Broad money includes M1 along with other liquid assets, such as:

- **Post Office Savings Bank deposits**
- **Time deposits in banks** (withdrawable with prior notice and subject to penalty)
- Government securities, bonds, and other financial instruments
- Credit in the form of mortgages, bonds, and similar financial obligations

Since broad money incorporates these diverse financial elements, it provides a more comprehensive measure of the total money available in an economy.

M2 = M1 + a + b + c

In the modern measure of money supply, represented as M2, the components vary in terms of liquidity, with liquidity decreasing progressively from the most liquid to the least liquid assets. Based on this classification, broad money is further categorized into M2, M3, and M4, each including different levels of liquid and near-liquid assets.

M2 = M1 + a + b

M3 = M2 + c

M4 = M3 + d

It is important to note that there is no universal agreement on the specific components of the modern measure of money. Each country's monetary authorities determine which items to include based on their influence on economic activity.

Self-Check Exercise-17.2

Q1. Define

a) Narrow Money

b) Broad Money

Q2. What are the constituents of money supply?

17.5 RESERVE BANK OF INDIA'S MEASURES OF MONEY SUPPLY

Since 1977, the Reserve Bank of India (RBI) has implemented a revised system for assessing the money supply. Before this, up until 1967-68, money supply measurement was confined to currency and demand deposits (M). From 1967-68 to 1977, a more comprehensive measure, termed Aggregate Monetary Resources (AMR), was utilized.

The RBI's updated classification of money supply is structured as follows:

a) **M1 = C + DD + OD**

- **C**: Currency held by the public, including cash in circulation and bank reserves.
- **DD**: Demand deposits with all commercial banks, financial institutions, foreign central banks, foreign governments, and the World Bank.
- **OD**: Other deposits held with the RBI, which form a minor portion of the total money supply.

M1 has the highest liquidity and plays a crucial role in monetary and fiscal policy formulation.

b) **M2 = M1 + SD**

- **SD**: Savings deposits held in post offices, which are more liquid compared to time deposits.

c) **M3 = M1 + TD**

- **TD**: Time deposits with commercial and cooperative banks (excluding interbank deposits). M3 represents a broader concept of money supply.

d) **M4 = M3 + TDP**

- **TDP**: Total deposits with post offices, excluding National Saving Certificates.

The RBI includes post office deposits in the broader money supply classification; however, these deposits are less liquid compared to commercial bank deposits.

While M1 aligns with the traditional definition of money supply, M3 is considered the most relevant for policy decisions.

RBI's Revised Money Supply Measures (1998)

In 1998, the RBI redefined money supply parameters, making modifications to M2 and discontinuing M4. As a result, the monetary aggregates now include only M1, M2, and M3:

- **M1 =** C + DD + OD
- **M2 =** M1 + Time liability portion of savings deposits with banks + Certificates of Deposit (CDs) issued by banks + Term deposits maturing within one year.
- **M3 =** M2 + Term deposits exceeding one year maturity + Call/term borrowings of banks.

Additionally, the RBI introduced a concept of **liquid resources**, aligning with the broader definition of money supply.

Liquidity Aggregate:

Liquidity aggregates consist of L1+L2+L3 that is L_A = L1 + L2 + L3

where L_A = Liquidity Aggregates.

L1 = New M3 + All deposits with Post offices savings banks (excluding NSCs)

L2 = L1 + term deposits with term lending institutions + term borrowings of FIs + CDs issued by FIs

L3 = L2 + public deposits of NBFCs.

The concept of LA is wider than the revised money supply measure.

Self-Check Exercise-17.3

Q1. Define measures of money supply.

Q2. What are the liquidity aggregates?

17.6 HIGH-POWERED MONEY (H) AND THE MONEY MULTIPLIER

High-powered money refers to the total currency (notes and coins) issued by the government and the Reserve Bank of India (RBI). This currency is distributed in two ways: a portion is held by the public, denoted as Cp, while the remaining portion is retained by banks as reserves, represented as R.

Bank reserves consist of two components:

1. Cash reserves maintained in the vaults of individual banks.
2. Deposits kept by banks in their reserve accounts with the RBI.

Thus, high-powered money is the sum of the currency in circulation with the public and the reserves maintained by banks.

H = Cp + R.....(2)

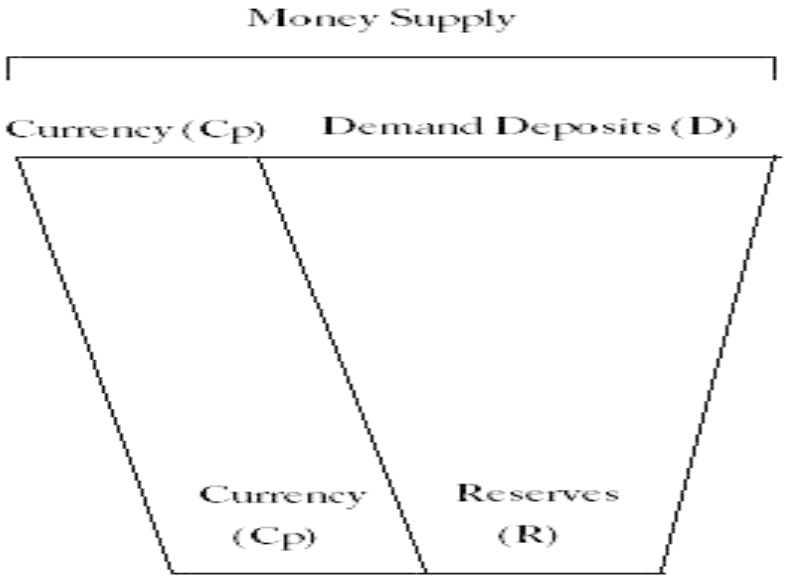
High-powered money (H) refers to the total currency issued by the Reserve Bank of India (RBI) and the government. It comprises two key components:

- **Cp**: The currency held by the public.
- **R**: The cash reserves maintained by banks.

The RBI and the government are solely responsible for creating high-powered money, while commercial banks do not generate it. However, commercial banks play a crucial role in money creation by generating demand deposits, which function as money alongside currency.

To issue demand deposits or credit, banks must maintain a portion of currency as reserves (R). These reserves serve as a foundation for multiple deposit creation, significantly contributing to the overall money supply in the economy. This ability of reserves to support a larger money supply gives high-powered money its significance.

The process of determining the money supply revolves around the availability and demand for high-powered money. Some economists refer to this concept as the H Theory of Money Supply. However, it is more widely known as the Money Multiplier Theory of Money Supply, as it explains how the money supply is determined as a multiple of high-powered money. The relationship between high-powered money and total money supply is illustrated in the following figure.



The foundation of the money supply is built upon the availability of high-powered money (H). The total money supply is determined as a multiple of this high-powered money.

- The currency held by the public (Cp) has a direct, one-to-one relationship with high-powered money. This means that every unit of currency held by individuals corresponds directly to the stock of high-powered money.

- In contrast, bank deposits are created as a multiple of the cash reserves (R) held by banks. This means that a single unit of high-powered money kept as reserves can support a much larger amount of demand deposits.

This process is driven by the money multiplier, denoted as m, which establishes the ratio between the total money supply (M) and the available stock of high-powered money (H). The mathematical representation of this relationship is as follows:

$$m = \frac{M}{H}$$

The extent of the money multiplier is influenced by two key factors:

1. Public's preference for holding currency relative to deposits (denoted as K).
2. The reserve ratio maintained by banks (denoted as r), which represents the proportion of deposits kept as reserves.

When the public increases its currency holdings while keeping demand deposits constant, there is a direct rise in the money supply. However, if banks increase their cash reserves, the money supply does not immediately expand. Instead, this action triggers a process where banks extend more loans, leading to the creation of additional demand deposits over time.

Although banks utilize their reserves (which are part of high-powered money) to provide loans and generate deposits, the total stock of high-powered money remains unchanged. The Reserve Bank of India (RBI) determines the supply of high-powered money through its past monetary policies.

Money Multiplier

The **money multiplier** represents the extent to which the money supply grows in response to an increase in high-powered money. It illustrates how a given amount of high-powered money leads to a multiple expansion in the total money supply.

$$m = \frac{M}{H}$$

Rearranging the equation, we get:

$M = H. m$

This indicates that the total money supply (M) is influenced by both the high-powered money (H) and the money multiplier (m). The larger the money multiplier, the greater the expansion of the money supply for a given amount of high-powered money.

Self-Check Exercise-17.4

Q1. Define Money Multiplier.

Q2. What do you mean by High Powered Money (H)?

17.7 DETERMINANTS OF MONEY SUPPLY

The money supply is influenced by two perspectives. One approach suggests that the central bank controls it externally, while the other view argues that money supply is shaped by internal factors such as economic activity, interest rates, and public preferences for holding cash versus deposits.

Thus, money supply determinants can be classified as both exogenous and endogenous factors. Key factors include:

- Minimum Cash Reserve Ratio
- Bank Reserves
- Public's Currency-to-Deposit Preference

The latter two are collectively referred to as the monetary base or high-powered money.

1. The Required Reserve Ratio

The required reserve ratio (RRR)—also known as the cash reserve ratio (CRR) or reserve deposit ratio—plays a significant role in regulating money supply. When the required reserve ratio increases, banks hold more reserves, reducing their capacity to lend, which in turn contracts the money supply. Conversely, a lower reserve ratio allows banks to extend more credit, increasing money supply. The RRR is legally mandated and represents the proportion of a bank's deposits that must be kept with the central bank. However, cash held in bank vaults is not considered part of this reserve.

In addition to the CRR, another regulatory measure is the Statutory Liquidity Ratio (SLR), which mandates banks to hold a certain percentage of their net demand and time liabilities in the form of liquid assets such as government securities. A higher SLR restricts the availability of funds for lending, tightening money supply, whereas a lower SLR boosts credit availability, expanding money supply. In some countries, this ratio is referred to as the secondary reserve ratio.

2. The Level of Bank Reserves

The reserves held by commercial banks play a crucial role in determining the money supply. These reserves include the cash held in bank vaults and deposits maintained with the central bank. The central bank regulates these reserves to manage the overall money supply.

Commercial banks are required to maintain a specified percentage of their total deposits as reserves with the central bank. This percentage is known as the required reserve ratio (RRr). The amount of reserves that a bank must hold is calculated as:

$$RR=RRr\times D$$

where RR represents required reserves, RRr is the required reserve ratio, and D stands for total deposits.

For example, if a bank holds deposits worth ₹80 lakh and the required reserve ratio is 20%, then the required reserves would be:

$20\%\times 80=₹16$ lakh

If the reserve ratio is lowered to 10%, the required reserves decrease to ₹8 lakh. A higher reserve ratio results in banks holding more reserves, reducing their capacity to lend, while a lower reserve ratio allows banks to expand credit.

However, the excess reserves (ER), which are the difference between total reserves (TR) and required reserves (RR), determine the bank's lending ability:

$$ER=TR-RR$$

If a bank has total reserves of ₹80 lakh and required reserves of ₹16 lakh, its excess reserves would be ₹64 lakh. When the required reserves are reduced to ₹8 lakh, excess reserves increase to ₹72 lakh, allowing the bank to extend more credit.

Monetary Policy Tools Affecting Bank Reserves

The central bank influences bank reserves using open market operations (OMO) and the discount rate policy.

1. Open Market Operations (OMO):
    - When the central bank purchases government securities, it injects money into the banking system, increasing reserves.
    - When it sells securities, banks and the public pay for them, reducing reserves and tightening money supply.
2. Discount Rate Policy:
    - The discount rate (or bank rate in India) is the interest rate at which commercial banks borrow from the central bank.
    - A higher discount rate makes borrowing costlier, leading to a reduction in bank reserves and credit availability.
    - A lower discount rate encourages banks to borrow more, increasing reserves and expanding credit.

For these policies to be effective in controlling money supply, open market operations and discount rate adjustments must complement each other. If they work in isolation, their impact on bank reserves and overall money supply remains limited.

3. Public's Desire to Hold Currency and Deposits

The amount of money people choose to keep as cash versus depositing in banks influences the money supply. When individuals prefer holding more of their money in bank deposits rather than as cash, commercial banks have larger reserves, allowing them to create more credit. This leads to an increase in the overall money supply. Conversely, if people prefer to hold their wealth in cash rather than depositing it in banks, the scope for credit creation decreases, leading to a lower money supply.

4. High Powered Money and the Money Multiplier

The money supply is also influenced by the concept of high-powered money, which includes both the reserves held by commercial banks and the currency (coins and notes) held by the public. High-powered money serves as the foundation for deposit expansion and credit creation in the banking system.

The money supply is directly linked to the monetary base, implying that an increase in high-powered money results in a corresponding growth in the money supply. However, the degree of this expansion depends on factors such as the currency-to-deposit ratio and the reserve ratio. A higher reserve or currency ratio results in a lower money supply, whereas a lower ratio enables greater money creation.

5. Other Factors

Apart from high-powered money, several other factors, such as interest rates, income levels, and overall economic conditions, influence the money supply. Changes in these variables impact public preferences regarding cash holdings and bank deposits. Economic fluctuations can alter the lending behavior of banks and the cash-holding patterns of individuals, making the money supply both a controllable policy tool and a result of endogenous economic dynamics.

Self-Check Exercise-17.5

Q1. What are the determinants of money supply?

17.8 SUMMARY

In this unit, we explored the concept of money supply, which represents the total amount of money available for spending within an economy. It includes the funds held by individuals in a readily usable form. The components of money supply are generally categorized into two broad measures: the traditional approach and the modern approach. The traditional measure is also called as narrow money and the modern measure is termed as broad money. The RBI's measure of money supply consists of three monetary aggregates namely M1, M2 and M3. RBI also introduced a new concept of liquid resources on the lime of broad money that is LA = L1 + L2 + L3. Hence in summary we can state Walker's definition of money "Money is what money does."

17.9 GLOSSARY

- **Money Supply:** The total amount of financial assets available for transactions within an economy.
- **Narrow Money:** A measure of money supply that includes only liquid assets, such as currency and demand deposits, which can be used directly for transactions.
- **Broad Money:** It includes all very close substitutes of money in the measure of money supply.
- **High-Powered Money:** The total currency issued by the government and central bank, including cash held by the public and reserves maintained by banks.

17.10 ANSWER TO SELF-CHECK EXERCISES

Self-Check Exercise-17.1

Answer to Q1. Refer to Section 17.3.

Answer to Q2. Refer to Section 17.3.

Self-Check Exercise-17.2

Answer to Q1. Refer to Section 17.4.

Answer to Q1. Refer to Section 17.4.

Self-Check Exercise-17.3

Answer to Q1. Refer to Section 17.5.

Answer to Q2. Refer to Section 17.5.

Self-Check Exercise-17.4

Answer to Q1. Refer to Section 17.6.

Answer to Q1. Refer to Section 17.6.

Self-Check Exercise-17.5

Answer to Q1. Refer to Section 17.7.

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17.12 TERMINAL QUESTIONS

Q1. Explain the various components of the money supply.

Q2. Discuss the determinants of the money supply. Should time deposits be included under the supply of money?

Q3. In how many ways is the broad money divided?

Q4. In which year did RBI redefine the parameter of measuring M money supply?

Q5. Write short note on high powered money and money multiplier?

UNIT-18

QUANTITY THEORY OF MONEY

STRUCTURE

18.1. INTRODUCTION

This section examines the Quantity Theory of Money, which historically linked changes in the money supply to price level fluctuations. Early economists viewed money supply as a key determinant of price movements. Irving Fisher argued that an increase in money circulation leads to a corresponding rise in overall prices, whereas a reduction causes a decline. This theory, emphasizing the direct relationship between

money supply and price levels, came to be known as the Quantity Theory of Money. Here, we will analyze this relationship in detail, along with the factors influencing price determination.

18.2. LEARNING OBJECTIVES

After going through this unit, we will able to understand

- Quantity Theory of Money: Fisher's Transaction Approach
- Fisher's Equation of Exchange
- Determination of general price level in the economy

18.3. VALUE OF MONEY AND PRICE LEVEL

18.3.1. Value of Money

The value of money and the price level share an inverse relationship—when prices rise, the purchasing power of money declines. The "value of money" signifies the quantity of goods and services that a unit of currency can obtain, while the "price level" indicates the average cost of goods and services in an economy. Although a currency unit retains a constant numerical denomination, referred to as its "face value," its real worth is determined by its purchasing power. Over time, fluctuations in supply and demand impact this purchasing power, typically leading to a decrease as prices increase.

18.3.2. Price Level

The price level serves as an overall measure of the cost of goods and services within an economy, unlike the value of money, which is expressed in specific units. Because calculating the average price of all goods and services is challenging, the price level is typically determined using a selected basket of representative goods and services. Over time, inflation tends to drive the price level upward, though in many economies, this increase happens gradually.

18.3.3. Relationship Between Money and Price

As the general price level increases, the purchasing power of money diminishes. This change typically happens progressively in most economies due to inflation and fluctuations in supply and demand. Similar to other goods, money operates within a market where its availability and demand interact. The Central Bank manages the supply of money, adjusting it as necessary to maintain economic stability. Meanwhile, the demand for money arises from individuals and businesses needing it for transactions. Several factors influence money demand. Generally, individuals need money to buy goods and services. However, access to alternative payment methods, such as ATMs and credit cards, can reduce the need for holding cash. The primary determinant of money demand is the general price level. When prices are high, people require more money for transactions, whereas lower prices reduce the demand for money.

The worth of money depends on the interaction between its supply, managed by the Central Bank, and its demand, influenced by consumers. Since both factors vary over time, the value of money remains dynamic rather than constant. Any shift in either

supply or demand results in an opposite but proportional change in the purchasing power of money and the overall price level.

18.3.4 Velocity of Money

The velocity of money refers to how frequently a unit of currency is exchanged in economic transactions over a given period. It plays a crucial role in determining the effect of money supply changes on economic activity. A higher velocity indicates that money circulates more rapidly, enabling a smaller monetary base to facilitate a larger volume of transactions. Conversely, a lower velocity means money moves more slowly, necessitating a greater supply to maintain economic stability.

Velocity is not constant; it fluctuates due to consumer spending habits, shifts in purchasing power, and variations in price levels. As the value of money decreases and prices increase, the need for more currency in transactions typically causes velocity to rise. Additionally, monetary policy adjustments by the Central Bank can influence velocity, affecting both the money supply's effectiveness and price level stability.

18.3.5. The relationship between velocity, money supply, price level, and output

The interaction between velocity, money supply, price level, and output is captured by the equation **M × V = P × Y**, where:

1. **M** represents the total money supply,
2. **V** is the velocity of money,
3. **P** stands for the price level, and
4. **Y** denotes real output (GDP).

The product **P × Y** represents nominal GDP. Rearranging the equation as **V = Nominal GDP / M** shows that when nominal GDP remains unchanged, a lower money supply requires money to circulate faster, increasing velocity. This equation helps in assessing the effects of changes in money supply, velocity, or price level. In the short run, **Y** is often assumed to be fixed, as production levels take time to adjust. For example, if the money supply expands by 3% while velocity and output remain stable, the price level is also expected to rise by 3%, leading to an equivalent inflation rate. Over the long term, the velocity of money tends to remain steady, as consumer spending habits do not change suddenly. Additionally, output is largely determined by structural economic factors like productivity and technology rather than monetary policy. Consequently, long-term variations in the money supply primarily affect the price level, reinforcing the idea that excessive money supply growth can contribute to inflation. This velocity equation plays a key role in the **Quantity Theory of Money**, offering insights into how monetary policy influences inflation across different timeframes. Two main interpretations of this theory will be explored in subsequent sections.

I. The Transaction Approach

II. The Cash Balance Approach

Self-Check Exercise-18.1

Q1. Define the Value of Money in economics.

Q2. What is velocity of money?

18.4. THE QUANTITY THEORY OF MONEY

The Quantity Theory of Money describes the link between the supply of money in an economy and its purchasing power. It suggests that the price level moves in direct proportion to the money supply. For instance, if the money supply doubles while all other factors remain constant, prices are expected to rise accordingly, reducing the purchasing power of money. Conversely, a decrease in money supply leads to a proportional decline in the price level.

Several factors influence both the value of money and the price level, including:

1. The total volume of trade and economic transactions.
2. The amount of money available in circulation.
3. The speed at which money circulates (velocity of money).

This theory highlights that the price level is largely determined by the money supply. When money supply increases, the purchasing power of money declines, leading to higher prices. On the other hand, a reduction in money supply enhances the value of money, resulting in lower prices. Since inflation is characterized by a persistent rise in the price level, the Quantity Theory of Money suggests that excessive money supply growth is a major driver of inflation.

Self-Check Exercise-18.2

Q1. What factors determine the value of money and general price level?

18.5. FISHER'S EQUATION OF EXCHANGE OR THE TRANSACTION APPROACH

Irving Fisher, an American economist, developed the Transaction Approach to the Quantity Theory of Money, which he presented in *The Purchasing Power of Money* (1911). Fisher argued that the value of money is primarily influenced by the amount of money in circulation. Changes in the money supply directly affect the overall price level, with the value of money adjusting inversely in proportion.

According to Fisher, assuming other factors remain constant, an increase in the money supply leads to a proportional rise in prices, reducing the purchasing power of money. Conversely, a decrease in the money supply results in lower prices, thereby increasing the value of money. For example, if the money supply is doubled, the price level will also double, cutting the value of money in half. Similarly, halving the money supply would reduce the price level by half, effectively doubling the purchasing power of money. This approach views the price level as a function of both money supply and money demand, akin to how market forces determine the prices of goods and services.

18.5.1 Supply of Money

The money supply refers to the total amount of currency and deposits available in an economy, combined with how frequently money circulates within a specific period. The velocity of money (V) indicates the number of times a unit of currency is used for

transactions during a given timeframe. The total money supply in circulation is represented by the equation MV, which reflects the overall volume of monetary transactions.

For instance, if an economy has a total money stock of Rs. 5,000 billion and the velocity of money is 10, the total monetary flow would be calculated as: 5,000 × 10 = Rs. 50,000 billion.

18.5.2. Demand for Money

The need for money arises because it acts as a medium of exchange, enabling individuals to conduct transactions. People do not hold money for its own sake but for its purchasing power, which allows them to acquire goods and services. Therefore, the demand for money is driven by its essential role in facilitating economic activities.

18.5.3. Assumptions of the Theory

Fisher's approach to the Quantity Theory of Money is based on specific assumptions:

1. **Full Employment** – The economy is assumed to be functioning at full capacity, utilizing all available resources efficiently.
2. **Fixed Trade Volume and Velocity** – In the short run, the volume of trade (T) and the velocity of money (V) are considered stable.
3. **Stable Money Composition** – The theory assumes a constant proportion between physical currency (M) and credit money (M1).
4. **Price Level (Passive Factor)** – The price level (P) is viewed as an outcome influenced by M, M1, T, V, and V1, rather than an independent factor affecting these variables.

Fisher's Equation of Exchange remains a fundamental concept in monetary economics, helping to explain the interactions between money supply, velocity, price levels, and overall economic activity.

18.5.4. Equation of Exchange

Irving Fisher introduced the Transaction Approach to the Quantity Theory of Money through a mathematical representation. This equation highlights the connection between money supply, circulation velocity, price levels, and transaction volume within an economy.$MV = PT$

Where,

M = total supply of money

V = velocity of circulation of money

P = general price level

T = total transactions

This equation functions as an identity, meaning it holds true by definition. It asserts that the total money spent within an economy (MV) must equal the total value of goods and services exchanged (PT).

Fisher's analysis is based on two key assumptions:

1. **Constant Transaction Volume** – Under full employment, the total number of transactions (T) remains stable.
2. **Stable Velocity** – In the short run, money velocity (V) does not change drastically, as it depends on consumer spending patterns.

Given these assumptions, the equation suggests a direct relationship between money supply and price levels—when the money supply increases, prices rise proportionally.

Initially, Fisher's equation focused solely on physical currency. However, as financial systems evolved to include credit money and demand deposits, he later modified the equation to account for these additional forms of money.

$P = MV + M1\ V1/T$ or $PT = MV + M1V1$

Here,

P = price Level

M = quantity of money

V = velocity of circulation of M

M1 = volume of credit money

V1 = velocity of circulation of M1

T = total volume of goods and Trade

Fisher explains the relationship between money supply (M) and price level (P), which can be illustrated using a diagram. The graph demonstrates a proportional relationship between M and P. When the money supply increases from M_0 to M_1, the price level correspondingly rises from P_0 to P_1. Likewise, a further increase in money supply from M_1 to M_2 results in a proportional rise in the price level from P_1 to P_2. This indicates that any change in the quantity of money leads to an equal percentage change in the price level.

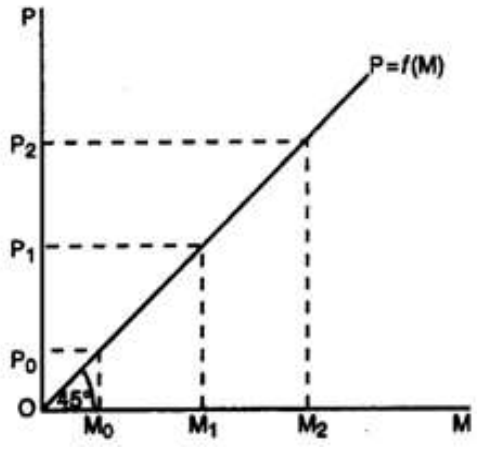

Figure 18.1 Relationship between Quantity of Money and Price Level

Fisher's Transaction Approach helps in understanding the factors behind hyperinflation, particularly during periods of war or emergencies. It also provides insights into long-term price trends. However, it does not effectively explain inflation under normal economic conditions during peacetime. This limitation led to the

development of the Cambridge version, also known as the Cash-Balance Approach, which offers a more refined perspective on inflation dynamics.

Self-Check Exercise-18.3

Q1. Discuss the Fisher Equation of Exchange.

Q2. According to Fisher Equation of Exchange, what is the relationship between quantity of money and price level?

18.6. CRITICISM OF THE THEORY

The Quantity Theory of Money has been challenged for several reasons:

1. **Unrealistic Assumptions** – The theory is based on rigid assumptions that do not align with real-world economic conditions. It treats the price level (P) as a passive factor and assumes that trade volume (T), credit money (M_1), and velocity of money (V, V_1) remain constant in the short term. However, these factors fluctuate, making the theory less applicable in practice.
2. **Interdependence of Variables** – The theory presumes that its variables operate independently, which is not entirely accurate. An increase in the money supply (M) can influence the velocity of money (V), while changes in the price level (P) can impact trade volume (T). For example, higher prices may lead to increased business profits, thereby stimulating trade activity.
3. **Assumption of Full Employment** – J. M. Keynes criticized the theory for assuming full employment, which is rarely observed in real-world economies. Since economies often operate below full employment, changes in money supply do not always lead to proportional changes in price levels.
4. **Neglect of Interest Rates** – Fisher's theory overlooks the impact of interest rates on money supply and price levels. In practice, an increase in the money supply typically lowers interest rates, which in turn affects investment and consumption decisions. This omission limits the theory's ability to explain the broader effects of monetary changes on the economy.
5. **Failure to Explain Business Cycles** – The theory does not adequately explain economic fluctuations. For example, during a depression, an increase in money supply may not necessarily raise prices, and in a boom period, reducing money supply may not immediately bring down inflation. As G. Crowther noted, the theory provides an incomplete explanation of business cycles.
6. **Exclusion of Other Price Determinants** – Several factors beyond money supply (M), velocity (V), and trade volume (T) influence the price level, such as income, savings, investment, population growth, and consumption patterns. The theory overlooks these crucial elements, making its analysis incomplete.

Self-Check Exercise-18.4

Q1. Critically examine the Fisher Equation of Exchange.

18.7. SUMMARY

This unit examined Fisher's Transaction Approach and the Quantity Theory of Money, which establish a direct connection between the money supply and price levels. According to the theory, when the money supply increases while other factors remain constant, prices rise proportionally, decreasing the purchasing power of money. Conversely, a reduction in the money supply results in a corresponding decline in the price level, assuming no changes in other economic conditions.

18.8. GLOSSARY

- **Price Level:** The price level represents the average cost of goods and services within an economy over a specific period.
- **Value of Money:** The value of money indicates the purchasing power of a currency unit, determining how much it can buy in terms of goods and services. In economics, value generally refers to its exchange worth.
- **Velocity of Circulation of Money (V):** This concept measures how frequently a unit of money is exchanged within the economy for transactions over a given timeframe.

18.9. ANSWERS TO SELF-CHECK EXERCISES

Self-Check Exercise-18.1

Answer to Q1. Please refer to section 18.3.1.

Answer to Q2. Please refer to section 18.3.4.

Self-Check Exercise-18.2

Answer to Q1. Please refer to section 18.4.

Self-Check Exercise-18.3

Answer to Q1. Please refer to section 18.5.4.

Answer to Q2. Please refer to section 18.3.4.

Self-Check Exercise-18.4

Answer to Q1. Please refer to section 18.6.

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18.11. TERMINAL QUESTIONS

Q1. Explain the Quantity Theory of Money according to the Fisher Transaction Approach. Discuss how the equation of exchange illustrates the relationship between money supply, velocity of money, price level and volume of transaction.

Q2. Critically examine Fisher's Equation of Exchange or the Transaction approach.

UNIT-19

MONETARY POLICY

STRUCTURE

19.1. INTRODUCTION

Monetary policy serves as a crucial instrument for governments and central banks to regulate economic conditions. It involves managing the supply of money, borrowing costs, and interest rates to achieve national economic goals. Essentially, monetary policy includes measures aimed at controlling money circulation, borrowing expenses, and credit availability within the economy. Additionally, it oversees the allocation of credit among different users and determines lending and borrowing interest rates.

By adjusting interest rates and utilizing financial tools, monetary policy influences economic activity—either stimulating investment and spending or curbing inflationary pressures. Central banks, such as the Reserve Bank of India (RBI), play a key role in implementing these policies to maintain financial stability and promote economic growth.

19.2. LEARNING OBJECTIVES

After going through this unit, you will be able to

- Understand the role of monetary policy in an economy.
- Know about methods of Monetary Policy.

- Know the difference between quantitative and qualitative methods of monetary policy.

19.3. MONETARY POLICY

Under the Reserve Bank of India Act, 1934 (as amended in 2016), the RBI is entrusted with the formulation and execution of monetary policy in India. The primary goal of this policy is to maintain price stability while fostering economic growth. Monetary policy encompasses various actions taken by the central bank, such as regulating the money supply and adjusting interest rates, to achieve defined economic objectives. The core aims of this policy include managing inflation, ensuring currency stability, and promoting a conducive environment for economic development. To achieve these objectives, central banks utilize various tools, including interest rate adjustments, open market operations, reserve requirements, and quantitative easing. By using these instruments, the central bank influences economic conditions, ensures price stability, and promotes long-term growth.

Self-Check Exercise-19.1

Q1. What do you mean by monetary policy?

19.4. OBJECTIVES OF MONETARY POLICY

The primary objectives of monetary policy are followings:

1. **Price Stability:** Price stabilisation is one of the main objectives of the monetary policy. Price stability controls the inflation level of an economy. Money supply affects the price level of the economy. Therefore, monetary policy plays an important role to stabilise the price level in the economy.
2. **Employment Generation:** The monetary policy promotes employment generation by providing concessional loans to the small and medium businesses, entrepreneurs and for productive purposes.
3. **Financial Market Stability:** One of the essential objectives of monetary policy is to maintain stability within financial markets by reinforcing the overall financial system. In times of economic distress, the central bank plays a crucial role as the lender of last resort, ensuring adequate liquidity to support the money market.
4. **Interest Rate Stability:** Monetary policy aims to regulate interest rates to prevent excessive fluctuations, as unpredictable changes can create economic uncertainty and disrupt investment decisions.
5. **Economic Growth:** An essential objective of monetary policy is to ensure adequate money supply and credit availability to support economic expansion and sustainable development.
6. **Other Objectives:** Monetary policy has various objectives which include foreign market exchange stability, to control business cycle, manage aggregate demand, export promotion and import substitution, and priority sector landings.

Self-Check Exercise-19.2

Q1. What are the objectives of monetary policy?

19.5. METHODS OF MONETARY POLICY

Monetary policy methods can be categorized into quantitative and qualitative approaches. These approaches differ in the how they affect economy and tools they use. The quantitative and qualitative approaches of monetary policies have been shown in the table below.

Table 19.1

Quantitative and Qualitative Methods

Parameter	Quantitative Methods	Qualitative Methods
Methods	1. Bank Rate 2. Statutory Liquidity Ratio (SLR) 3. Cash Reserve Ratio 4. Open Market Operation (OMO) 5. Repo rate 6. Reverse Repo Rate 7. Liquidity Adjustment Facility 8. Standing Deposit Facility (MSF) 9. Long Term Repo 10. Market Stabilisation Scheme (MSS)	1. Marginal requirements 2. Regulation of consumer credit 3. Rationing of Credit 4. Moral Suasion 5. Direct Action

Let us discuss the quantitative and qualitative methods of monetary policy one by one.

19.5.1. Quantitative Methods of Monetary Policy

Quantitative approach of monetary policy primarily focusses on controlling the supply of money and credit in the economy through direct and measurable interventions. The instrument of quantitative approach are followings:

- **Bank Rate:** The Bank Rate refers to the interest rate at which the Reserve Bank provides funds by rediscounting bills of exchange or other commercial instruments. It serves as a penal rate imposed on banks that fail to meet their reserve obligations, including the cash reserve ratio (CRR) and statutory liquidity ratio (SLR). As per Section 49 of the Reserve Bank of India Act, 1934, this rate is officially published. The Bank Rate is linked to the Marginal Standing Facility (MSF) rate and fluctuates in response to adjustments in the MSF and policy repo rates.
- **Statutory Liquidity Ratio (SLR):** Banks must hold a fixed percentage of their net demand and time liabilities (NDTL) in liquid assets like cash, gold, or government securities, as set by the RBI.
- **Cash Reserve Ratio (CRR):** The portion of a bank's NDTL that must be kept with the RBI to regulate liquidity in the banking system.

- **Open Market Operations (OMOs):** The RBI buys or sells government securities to control liquidity—purchases add liquidity, while sales reduce it.
- **Repo Rate:** The rate at which banks borrow from the RBI using government securities as collateral; lower repo rates increase liquidity, while higher rates restrict it.
- **Reverse Repo Rate:** The rate at which banks park surplus funds with the RBI, helping to absorb excess liquidity.
- **Liquidity Adjustment Facility (LAF):** Includes repo and reverse repo operations to manage short-term liquidity.
- **Marginal Standing Facility (MSF) Rate:** Allows banks to borrow emergency funds from the RBI overnight, typically at a higher rate than the repo rate.
- **Market Stabilisation Scheme (MSS):** RBI issues government securities to absorb surplus liquidity in the economy.
- **Long Term Repo Operations (LTRO):** This mechanism allows banks to access long-term funds from the RBI at prevailing repo rates, typically for durations of one to three years. It aims to improve liquidity in the banking system and ensure stable credit flow.

19.5.2. Qualitative Methods of Monetary Policy

Quantitative methods are methods aimed at controlling and regulating the overall quantum or volume of credit (i.e., Loans) given by commercial banks to various sectors of the economy while Qualitative methods are those aimed at controlling not only the quantum but also the purpose for which the loans are given by banks to various sectors of the economy. Qualitative methods focus on influencing the behavior of banks, borrowers, and investors by altering the terms and conditions of financial transactions and using communication strategies.

- **Change in Marginal Requirement:** Margin requirement refers to the difference between the current value of the security offered for loan (called collateral) and the value of loan granted. It is a qualitative method of credit control adopted by the central bank to stabilize the economy from inflation or deflation.
- **Regulation of Consumer Credit:** The supply of consumer credit is managed through structured financing methods like hire purchase and installment-based sales of consumer goods. Key aspects, such as the down payment amount, loan tenure, and installment structure, are predetermined to help regulate credit flow and curb inflation. For example, in the case of home loans, the Reserve Bank of India (RBI) may mandate a minimum down payment requirement. If the limit is set at 15%, a borrower seeking a home loan of ₹1 crore would need to contribute ₹15 lakhs upfront, while the remaining ₹85 lakhs could be financed through the loan.
- **Rationing of Credit:** Rationing of credit is a qualitative method by which central bank of a country seeks to limit the maximum amount of loans and advance and in certain cases fix ceilings for specific categories of loans and advances.

- **Moral Suasion:** Moral suasion is a qualitive method used by the central bank for moral influence on the commercial banks. It includes, advice, suggestions, persuasion with the commercial banks to co-operate with the central bank. The success of this method depends on the co-operation between commercial banks and the central bank of a country.
- **Direct Action:** Direct action is a qualitative method through which the central bank (RBI) can punish and impose sanctions on banks for not following guidelines issued under monetary policy.

19.5.3. Other Instruments of Monetary Policy

Monetary policy is implemented using various direct and indirect tools:

- **Standing Deposit Facility (SDF) Rate:** The rate at which the RBI accepts overnight uncollateralized deposits from banks. Introduced in April 2022, it replaced the fixed reverse repo rate as the lower bound of the Liquidity Adjustment Facility (LAF) corridor and is set 25 basis points below the policy repo rate.
- **LAF Corridor:** The framework for short-term liquidity management, with the **Marginal Standing Facility (MSF) rate** as the upper limit, the **SDF rate** as the lower limit, and the **policy repo rate** in between.
- **Primary Liquidity Management Tool:** A 14-day variable rate term repo or reverse repo auction, aligned with the CRR maintenance cycle, helps regulate short-term liquidity in the banking system.
- **Fine-Tuning Operations:** To address unexpected liquidity fluctuations during the reserve maintenance period, the Reserve Bank supplements its primary operations with short-term fine-tuning measures. This may include overnight or longer-term repo and reverse repo transactions, along with variable rate auctions exceeding 14 days when necessary.

Self-Check Exercise-19.3

Q1. Discuss the quantitative and qualitative methods of monetary policy.

Q2. Define

a) Bank Rate
b) Statutory Liquidity Ratio (SLR)
c) Rationing of Credit
d) Moral Suasion

19.6. SUMMARY

Monetary policy is the central bank's strategy to regulate money supply and interest rates to achieve economic goals like controlling inflation, stabilizing the currency, and supporting growth. The Reserve Bank of India (RBI) manages the financial system through functions such as currency issuance, banking services for the government and commercial banks, exchange rate management, and credit control. To implement monetary policy, the RBI uses tools like the Repo Rate, Reverse Repo Rate,

Marginal Standing Facility, Open Market Operations, and Statutory Liquidity Ratio. Both quantitative and qualitative measures are applied to maintain financial stability.

19.7. GLOSSARY

- **Bank Rate:** The rate at which the central bank provides funds to commercial banks by rediscounting financial instruments like bills of exchange.
- **Monetary Policy:** The central bank's strategy to regulate money supply and interest rates to ensure economic stability and growth.
- **Moral Suasion:** A qualitative approach used by the central bank to influence commercial banks through advice, recommendations, and persuasion to align with monetary policies.
- **Import Substitution:** A trade policy strategy aimed at reducing dependency on imported goods by promoting domestic production.

19.8. ANSWERS TO SELF-CHECK EXERCISES

Self-Check Exercise-19.1

Answer to Q1. Refer to Section 19.3.

Self-Check Exercise-19.2

Answer to Q1. Refer to Section 19.4.

Answer to Q2. Refer to Section 19.4.

Self-Check Exercise-19.3

Answer to Q1. Refer to Section 19.5.

Answer to Q1. Refer to Sections 19.5.1 & 19.5.2.

19.9. REFERENCES/SUGGESTED READINGS

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19.10. TERMINAL QUESTIONS

Q1. What do you mean by monetary policy? What are the methods of monetary policy to control the money supply in an economy?

Q2. Differentiate between quantitative and qualitative methods of monetary policy.

UNIT-20

LIQUIDITY PREFERENCE AND RATE OF INTEREST

STRUCTURE

20.1 INTRODUCTION

The need for money arises due to its fundamental roles in the economy. Firstly, money serves as a medium of exchange, facilitating transactions. Secondly, it functions as a store of value, enabling individuals and businesses to hold wealth in monetary form as well as in other assets. The factors influencing the demand for money can be explained through two perspectives. The first is the "scale" perspective, which highlights the relationship between income or wealth levels and money demand. A higher income level leads to an increased demand for money. The second is the "substitution" perspective, which focuses on the attractiveness of alternative assets. When financial assets such as bonds become less appealing due to declining interest rates, individuals prefer holding cash, thereby increasing the demand for money, and vice versa. The combination of these two perspectives helps in understanding the demand for money, which is categorized into three types: transactions demand, precautionary demand, and speculative demand. There are three major theories explaining money demand: the classical theory, Keynesian theory, and post-Keynesian theory. The discussion ahead focuses on the Keynesian approach.

20.2 LEARNING OBJECTIVES

After studying this unit, you will be able to

- Explain the Demand For money
- Explain the Liquidity trap
- State the Meaning of Liquidity Preference

- State Theory of Liquidity Preference theory
- Elucidate the neutrality of money

20.3 THE KEYNESIAN APPROACH: LIQUIDITY PREFERENCE THEORY

Liquidity refers to the ease of converting an asset into cash without loss. Money is the most liquid asset due to its universal acceptability. People prefer to hold cash because it offers immediate purchasing power. If they forgo this liquidity, they expect compensation in the form of interest. While assets like gold or property have value, they lack immediate convertibility. Keynes termed this tendency as liquidity preference, stating that interest serves as the reward for sacrificing liquidity. Liquidity preference reflects the demand for money. According to Keynes, the interest rate is determined by the balance between money supply and demand. The public's liquidity preference influences interest rates, as individuals hold cash for various needs.

20.3.1 Demand for Money

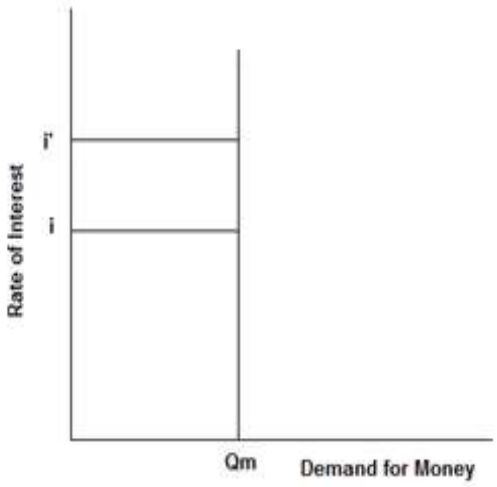
The demand for money is mainly for the following three motives according to Keynes:

1. Transaction Motive
2. Precaution Motive
3. Speculative Motive

1. Transaction Motive

Individuals and businesses require money for daily transactions. People need to keep cash on hand to purchase goods and services, and businesses require funds for operational expenses. The need to hold money for everyday expenses is referred to as the transaction motive for liquidity preference. The demand for money for transaction purposes is influenced by the following factors:

1. **Income Level:** Higher income leads to increased transactions, resulting in a greater demand for money.
2. **Frequency of Income Receipts:** Individuals receiving income daily require less cash on hand, whereas those with irregular income inflows need to hold more money.
3. **Spending Habits:** Those who spend more frequently will require a larger amount of liquid cash.

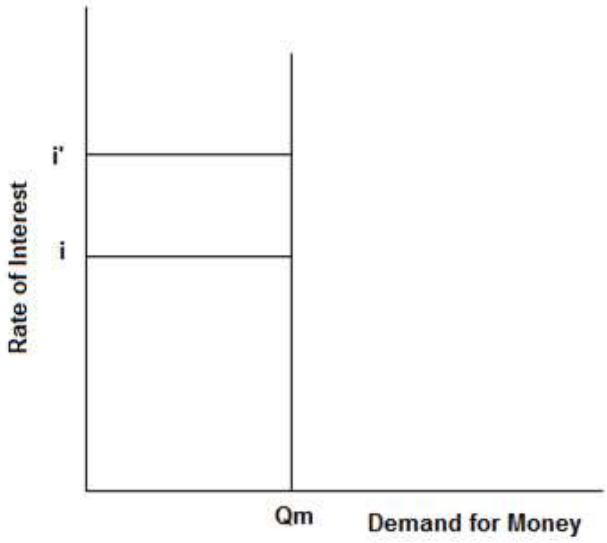


This type of money demand is not influenced by interest rates (interest inelastic) as it is primarily determined by the need to facilitate everyday transactions.

2. Precautionary Motive

Individuals and businesses prefer to keep a certain amount of liquid money to handle unexpected situations such as emergencies, uncertainties, or financial setbacks. This need to hold cash as a safeguard for the future is known as the **precautionary motive** for liquidity preference. Several factors influence the demand for money for precautionary purposes:

1. **Income Level:** Higher income allows individuals and firms to set aside more funds as a precaution.
2. **Risk Perception:** Optimistic individuals anticipate fewer risks and thus hold less money for precautionary purposes, whereas pessimistic individuals, expecting more uncertainties, prefer to keep a larger cash reserve.
3. **Future Planning:** Those with a farsighted approach assess potential risks more accurately and may decide to hold additional liquid funds.



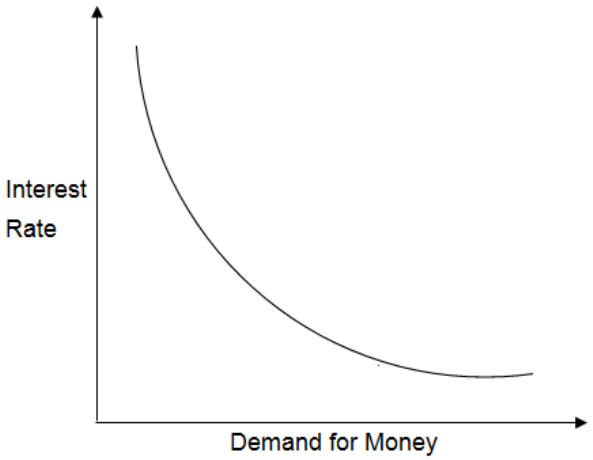
The demand for money under this motive is not influenced by interest rates, as it primarily depends on income level and individual risk assessment.

3. Speculative Motive

Individuals and investors often hold cash to capitalize on fluctuations in bond and securities prices. In developed economies, people prefer to retain liquidity to invest in financial assets when market conditions appear favorable.

- When bond prices are expected to rise, investors prefer purchasing them rather than holding cash.
- When bond prices are anticipated to decline, individuals hold onto cash, waiting for a more favorable opportunity to invest.

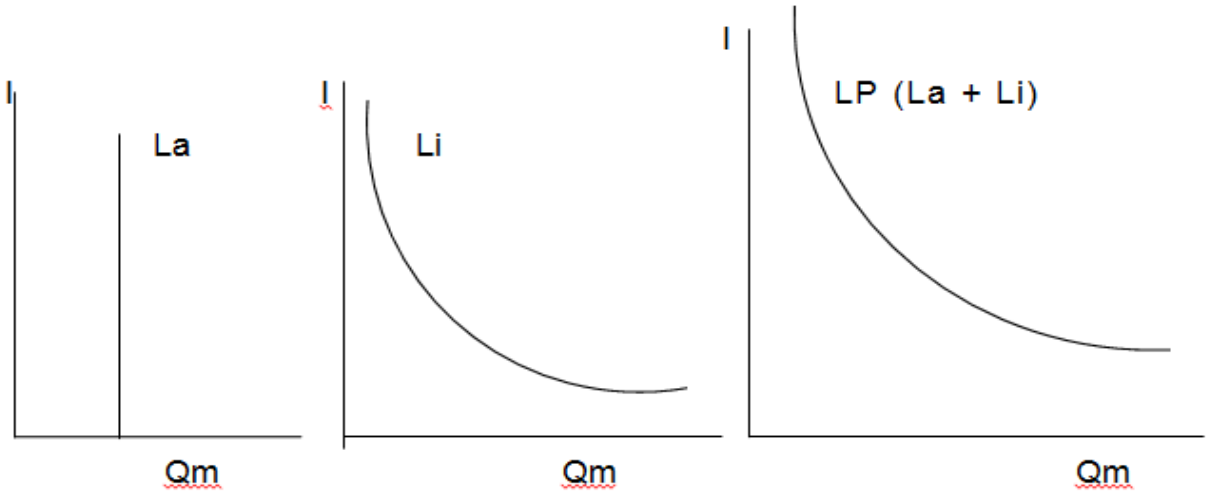
As a result, liquidity preference increases when interest rates are low, as investors expect bond prices to rise in the future.



20.3.2 The Liquidity Preference Curve

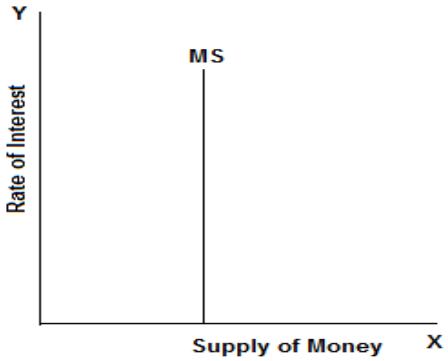
Since transaction and precautionary balances are maintained to facilitate purchases whenever necessary, they are collectively termed as the demand for active balances. The important point about the demand for active balances is that it is not responsive to changes in the rate of interest i.e. it is interest inelastic. The demand for speculative balances, on the other hand is sometimes referred to as the demand for idle balances.

The overall demand for money in a community, or the liquidity preference schedule, is obtained by combining the demand for active balances (La) and idle balances (Li).



20.3.3 Supply of Money

The supply of money differs significantly from the demand for money. Private individuals have no control over it, as it is managed by the central bank or the government. Factors such as currency issuance and credit policies influence the regulation of money supply. In the short run, the money supply remains constant at a specific moment, resulting in a perfectly inelastic supply curve.

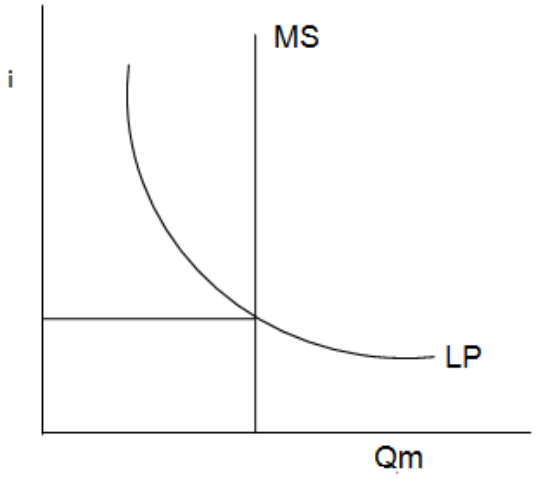


20.3.4 Equilibrium Rate of Interest

The interaction of demand and supply of money determines the interest rate. The rate of interest is determined by the demand for money and supply of money. The equilibrium rate of interest is fixed at that point where supply of and demands for money are equal. If the rate of interest is high peoples demand for money (liquidity preference) is low. The liquidity preference function or demand curve states that when interest rate

falls, the demand to hold money increases and when interest rate raises the demand for money, diminishes.

In the given diagram, LP represents the demand for money, while Ms denotes the money supply. This gives an equilibrium rate of interest i. At any rate of interest above i, the supply of money exceeds demand and this will pull down the rate of interest, while at any rate of interest below i the demand for money exceed supply and this will bid up the rate of interest. The interest rate will stay at level "i" unless there is a shift in either the demand for money or the supply of money. This implies that the authorities have two choices :



1. They can fix the supply of money and allow interest rates to be determined by the demand for money; or
2. They can fix the rate of interest and adjust the supply of money to whatever level is appropriate so as to maintain the rate of interest.

20.3.5 Criticism

1. Prof. Hansen maintains that the Keynesian theory of interest rate, like the classical theory, is indeterminate. In the Keynesian version, the liquidity preference function will shift up or down with changes in the level of income. Particularly, L_1 (i.e., liquidity preference for transactions and out of precautionary motives), being the function of income, we already know the income level. And, to know the level of income, we must know the rate of interest. Thus, Keynes' criticism of the classical theory applies equally to his own theory. It is interesting to note here that Professor Hansen considers the loanable funds version as well as the liquidity preference theory, inadequate But, in his view, loanable funds formulation and the Keynesian formulation, taken together, do supply us with an adequate theory of interest.
2. According to Hazlitt, the Keynesian theory of interest is one-sided since it ignores the real factors in the determination of the rate of interest. Keynes considered interest to be a purely monetary phenomenon and refused to believe that real factors like productivity and time preference had any influence on the rate of interest. Similarly, the classicists also were wrong in considering interest purely as a real phenomenon, and ignoring the monetary factors.
3. Keynes ignored the element of saving when he considered interest as a reward for parting with liquidity. Professor Jacob Viner points out that "Without saving there can be no liquidity to surrender. The interest rate represents the return on savings in the absence of liquidity. Therefore, disregarding the influence of savings in determining the interest rate would be inaccurate.

4. The liquidity preference version is clearly wrong. It goes directly contrary to the facts that it presumes to explain. According to the theory, the rate of interest should be the highest at the bottom of a depression when, due to falling prices or rising value of money, people have strong liquidity preference. On the contrary, the rate of interest is found to be the lowest at the bottom of a depression.
5. The concept of liquidity preference in the theory of interest is vague and confusing. For instance, if a man holds funds in the form of time-deposits, he will be paid interest on them; therefore, he is getting both, i.e., interest-cum-liquidity.
6. For some critics, Keynes' liquidity preference theory of interest is too narrow in scope. According to their perspective, the preference for liquidity plays a crucial role in determining the interest rate. This preference stems not only from the three primary motives outlined by Keynes—transactions, precautionary, and speculative—but also from additional factors that he did not emphasize.
7. Some critics opine that interest is not a reward for parting with liquidity as stressed by Keynes. In their view, interest is the reward paid to the lender for the productivity of capital and interest is paid because capital is productive.
8. In Keynesian theory, the interest rate is considered separate from the demand for investment funds. However, critics argue that this assumption is unrealistic. The cash reserves held by entrepreneurs are significantly affected by their need for capital to finance investments.The demand for capital being dependent upon the marginal productivity of capital, the rate of interest is not determined independently of the marginal efficiency of capital or the demand for investment funds.
9. Keynesian theory concentrates only on the short run and ignores the long period. But, for capital investment, it is a long-term rather than a short- term rate of interest which is really significant.

Self-Check Exercise-20.1

Q1. Critically examine the Keynes's Liquidity Preference Approach.

Q2. Define Keynes's

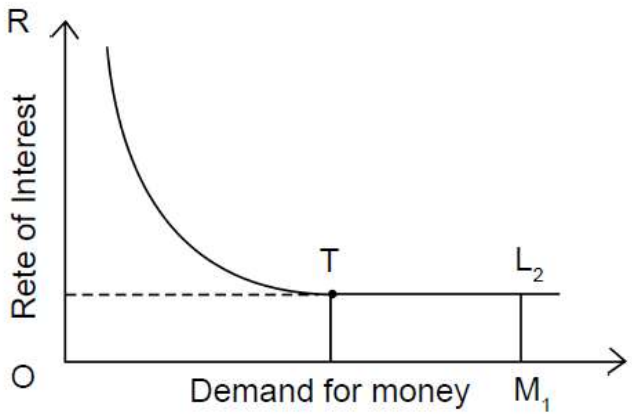
a) Transaction Motive
b) Precautionary Motive
c) Speculative Motive

20.4 LIQUIDITY TRAP:

At extremely low-interest rates, the inverse correlation between interest rates and speculative demand for money takes on a different pattern. Keynes stated that at a very low rate of interest the speculative demand for money becomes perfectly elastic. Keynes considered a 2 percent rate of interest as lowest rate, below which the market rate of interest would not decline. At such low rate of interest people prefer cash and not the securities.

The speculative demand for money, its inverse relationship with the rate of interest and the liquidity trap are shown in the following figure.

In the above diagram, the L2 curve slopes down to point T, indicating an inverse relationship between speculative demand for money and the market rate of interest. At point T, the L2 curve becomes horizontal. The horizontal part of the L2 curve shows the liquidity trap, which explains the perfectly elastic demand for money for speculative motives.



Self-Check Exercise-20.2

Q1. Define Liquidity Trap.

20.5 NEUTRALITY OF MONEY

The neutrality of money is a key principle in classical economic theory and is closely linked to the classical dichotomy. It suggests that an increase in the money supply influences only nominal variables, such as price levels and wages, without affecting real economic factors like employment, real GDP, or investment. This implies that monetary expansion does not impact the real economy, as any increase in money supply is offset by a proportional rise in prices and wages. While classical economists strongly supported this view, monetarist theories argue that money remains neutral in the long run but may have short-term effects.

The idea of money neutrality suggests that a change in the money supply does not alter real economic output, unemployment, or the interest rate. Instead, it affects only the general price level. Don Patinkin defined money neutrality as a situation in which a proportional increase in the money supply leads to a corresponding rise in equilibrium prices without influencing relative prices or the interest rate. Thus, all prices adjust proportionally, and money determines only absolute prices, without impacting income, capital formation, or employment levels.

In classical economics, money primarily serves as a medium of exchange, determining the general price level at which goods and services are traded. According to the quantity theory of money, the price level is a function of the money supply, represented by the equation MV = PT, where M is the money supply, V is the velocity of money, P is the price level, and T represents total transactions (or output). If V and T remain constant, any change in M results in a proportional change in P, reinforcing the idea that money is neutral and only influences price levels.

While the neutrality of money is considered valid over long-term economic cycles, short-term fluctuations challenge this assumption. In the short run, changes in the money supply can influence real variables such as GDP and employment due to

price stickiness and information lags in markets. Central banks actively monitor and regulate the money supply through policies like open market operations, acknowledging that short-term variations in monetary supply can impact real economic conditions.

Self-Check Exercise-20.3

Q1. Define Neutrality of Money.

20.6 SUMMARY

In this unit, we understood various concepts related to the demand for money. John M. Keynes in his approach to demand for money, John M. Keynes states the motives of liquidity preference: transaction, precautionary and speculative. Out of these, the transaction and precautionary motive are income inelastic, whereas the speculative motive is income elastic. We also studied about the liquidity trap. Economists call it a liquidity trap because expansion in the money supply gets trapped in this sphere and therefore cannot affect the rate of interest and the level of investment. According to Keynes, it is because of the existence of a liquidity trap that monetary policy becomes ineffective to tide over economic depression. In the last we also studied about the neutrality of money.

20.7 GLOSSARY

- **Liquidity Trap-** Keynes believed that there must be some minimum rate of interest at which the demand for holding money becomes perfectly elastic. The basic reason for it, as given by Keynes, is that the risk of capital loss at a very **low rate of interest is** much **greater than it is at a** high rate of interest. When the rate of interest is very low the capital loss from a future rise in the rate of interest and the consequent fall in bond prices may be much greater than the income earned from the holding of bonds.
- **Liquidity preference** is the preference of the people to keep **their assets in** the form of **cash balances rather** than in any other form.
- **Transaction Motive**: people keep some amount of money with them because they have to make cash payment in day to day transactions. The main reason for keeping cash balances for this purpose is that while people receive their incomes at the end of certain period of time, such as a week or a month, their expenditure is done more or less daily because they cannot buy all their daily necessaries on credit Therefore they have to keep a part of their income in the form of readily available purchasing power. The cash balances kept on account of this motive are **known** as **transaction** demand for money.
- **Speculative motive**: Individuals and firms like to keep their assets in the form of cash balances not only for transaction and precautionary motives but also because they hope to profit from prospective changes in bond prices or, alternatively, from changes in the rate of interest.
- **Precautionary motives:** People, both individuals and firms, keep a part of their assets in the form of money balances to meet unforeseen contingencies, such as sickness and unemployment in the case of individuals and sudden unanticipated demands for cash payments in the case of firms.

- **Neutrality of money:** Money neutrality suggests that changes in the overall money supply influence only nominal factors, such as prices and wages, without affecting real economic variables. This theory implies that an increase in the money supply leads to a proportional rise in price levels and wages but does not impact real GDP, employment rates, or actual purchasing power.

20.8 Answer to Self-Check Exercise

Self-Check Exercise-20.1

Answer to Q1. Refer to Section 20.3.

Answer to Q2. Refer to Section 30.3.1.

Self-Check Exercise-20.2

Answer to Q1. Refer to Section 20.4

Self-Check Exercise-20.3

Answer to Q1. Refer to Section 20.5.

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20.10 TERMINAL QUESTIONS

Q1. Critically examine the liquidity preference theory.

Q2. Write short notes.

1) Liquidity trap
2) Neutrality of money

Q3. According to the liquidity preference theory there are how many motives for demand for money? Explain