LOVELY PROFESSIONAL UNIVERSITY

MACRO ECONOMICS

Edited By

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SYLLABUS

Macro Economics

Objectives: To understand the concept of Macro Economics and its usefulness in the current economic scenario, for a student to comprehend its application in the real-world scenario.

Sr. No.	Description
1.	Introduction to Macro Economics, its importance and scope. National Income: Concepts, Methods and Problems in measuring National Income, Circular Flow of Income in 2, 3 and 4 sector model.
2.	Theories of Income, Output and Employment Determination: Classical and Keynesian; Principle of effective demand. Classical vs Keynesian. Say's Law.
3.	Consumption function: Concept, Propensity to consume, factors affecting propensity to consume.
4.	Investment: Meaning and factors affecting investment decisions.
5.	Concept of Multiplier, Types of multiplier and limitation, Static and Dynamic Multiplier.
6.	Money-Meaning and Functions, Measures of Money, Factors affecting Demand for Money
7.	General Equilibrium of economy: IS–LM curve analysis.
8.	Inflation: Meaning, Theories – Demand Pull and Cost Push, Control of inflation, Phillips Curve.
9.	Balance of Payments: Introduction and its types, Factor responsible for imbalance in BOP and the India's Balance of Payments, Automatic adjustment in BOP
10.	Macro Economic policies; Monetary Policy its instruments, transmission and effectiveness, Fiscal Policy its instruments, transmission and effectiveness.

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Unit 1: Introduction to Macro Economics

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Objectives

After studying this unit, you will be able to:

- Realise the importance of Macro Economics;
- Discuss the development of the knowledge of Macro Economics;
- Describe the scope of Macro Economics;
- Identify the major Macro Economic instruments.

Introduction

Economics is the study of how people choose to allocate their scarce resources to meet their unlimited wants and involves the application of certain principles like scarcity, choice, and rational self-interest, in a consistent manner. The study of economics is usually divided into two separate branches, namely Micro Economics and Macro Economics. In this course, you will study the concepts of Macro Economics.

Macro economics is the branch of economics which deals with economic aggregates. It makes a study of the economic system in general. Macro Economics perceives the overall dimensions of economic affairs of a country. It looks at the total size, shape and functioning of the economy as a whole, rather than working of articulation or dimension of the individual parts. To use Marshall's metaphorical language, Macro Economics views the forest as a whole, independently of the individual tress composing it. Macro Economics is, in fact, a study of very large, economy- wide aggregate variables like national income, total savings, total consumption, total investment,

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money supply, general price level, unemployment, economic growth rate, economic development, etc. In this unit, you will be introduced to the knowledge area of macro economics.

1.1 Developments of Macro Economics

The Great Depression of the 1930s gave birth to a branch of economics that in 1933 Ragnar Frisch called Macro Economics. The developments in Macro Economics can be studied under three distinct heads:

- Classical Macro Economics
- Keynesian Macro Economics
- Post-Keynesian Macro Economics

1.1.1 Classical Macro Economics

The classical economists took a simple view of Macro Economic environment of an economy to champion the cause of 'laissez faire' capitalism guided by free market price mechanism, private property rights and commercial profit motive. There are three pillars of classical Macro Economics.

JB Say's Law of Market

Say's law argued that an economy is self-regulating provided that all prices, including wages, are flexible enough to maintain it in equilibrium. In a more simplistic, and somewhat inaccurate form, Say's law states that supply creates its own demand and over-production is impossible. This theory has major implications for how governments respond to periods of high unemployment or widespread underemployment.

Caution Say's law was accepted as a major plank in classical Macro Economic theory until English economist John Maynard Keynes challenged its applicability in modern economies.

Fisher's Quantity Theory of Money

If free market price mechanism has to play its role and responsibility, then price must come to exist so as to reflect the relative position of either scarcity or abundance in the market. Price itself is measured in terms of money. In fact, price is the value of something expressed in a monetary unit. Thus, we may have rupee price or dollar price or yen price, which was stated by Fisher. Starting from his 'equation of exchange', we worked out earlier that the money is an instrumental variable to control prices.

Caution A reduction of money by 10% may bring about deflation, i.e., price reduction by exactly 10%. Otherwise, when money increases in the system, more money chases few goods, people's propensity to spend money goes up and this is reflected in a price rise, called inflation.

In other words, when prices are required to fall during inflation time, the Central Bank must reduce money supply. Thus, the quantity of money matters. However, money should always be treated as a servant rather than as a master. The economy needs to keep money stock under control so that the general free level does not get disturbed and price mechanism functions to ensure an optimal allocation of resources.

Thus, Fisher's quantity theory of money works as a supplement to Say's law of market. One is not complete without the other.

Walras' General Equilibrium Model

General economic equilibrium explained how all prices and quantities would exchange within an entire economy for a given period. In contrast, partial equilibrium theory took, as given, all prices and quantities exchanged except for one or two and attempted to explain those one or two markets within the context of the other given prices and quantities.

To develop his general economic equilibrium theory, Walras first had to describe some of the features of the social and economic setting of the market situation that was to be used in explaining the prices and quantities exchanged. From his analysis, Walras came up with a law that proved that if all markets but one are in equilibrium, then the last market must also be in equilibrium. This meant that with any given set of prices, the total demand for all things exchanged must equal the total supply of all things exchanged. Therefore, supply was a consequence of demand. This implied that there would always be a demand for all newly produced commodities. If there was disequilibrium or excess supply somewhere, then there must also be an equal disequilibrium or excess demand somewhere else since total excess supply equaled total excess demand.

1.1.2 Keynesian Macro Economics

John Maynard Keynes is well known for his simple explanation for the cause of the Great Depression. Keynes' economic theory was based on a circular flow of money. His ideas spawned a slew of interventionist economic policies during the Great Depression. In Keynes' theory, one person's spending goes towards another's earnings, and when that person spends her earnings she is, in effect, supporting another's earnings. This circle continues on and helps support a normal functioning economy. When the Great Depression hit, people's natural reaction was to hoard their money. Under Keynes' theory this stopped the circular flow of money, keeping the economy at a standstill.

Keynes's view that governments should play a major role in economic management marked a break with the laissez-faire economics of Adam Smith, which held that economies function best when markets are left free of state intervention.

Keynes argued that full employment could not always be reached by making wages sufficiently low. Economies are made up of aggregate quantities of output resulting from aggregate streams of expenditure - unemployment is caused if people don't spend enough money.

Caution Keynes stated that if Investment exceeds Saving, there will be inflation. If Saving exceeds Investment there will be recession. One implication of this is that, in the midst of an economic depression, the correct course of action should be to encourage spending and discourage saving. This runs contrary to the prevailing wisdom, which says that thrift is required in hard times. In Keynes's words, "For the engine which drives Enterprise is not Thrift, but Profit."

Tasks Find out more about JM Keynes-his achievements, contribution to the field of economics, etc.

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1.1.3 Post Keynesian Macro Economics

Post-Keynesians are highly concerned with short-term economic growth as induced by aggregate demand. For them, the adjustment process of the economy to equilibrium conditions is not so "automatic" as neoclassical economist's claimed because it largely depends on the economic agent's interpretation of both the past and expectations for the future all in the midst of a decision-making setting involving complex interdependencies and unforeseen factors. As a result of these beliefs, post-Keynesians essentially deny relevance of conventional equilibrium analysis.

They argue that saving is passively linked to changes in level of income, and investment is highly correlated with capitalists' expectations for the future. Another area where post-Keynesians have divergent economic thought from orthodoxy has to do with their belief in the endogeneity of money. For them, post-Keynesians stress the fact that real commodity and labor flows are expressed in the economy as monetary flows.

Self Assessment

Fill in the blanks:

1. ..... states that supply creates its own demand and over-production is impossible.
2. Price itself is measured in terms of .....
3. General Equilibrium theory was given by.....
4. The concept of 'laissez faire' was given by.....
5. Post Keynesians argue that saving is passively linked to changes in level of .....

1.2 Importance of Macro Economics

Over the decades that followed up to the present, the interactions of economic events, economic policy, and macro economic theory have created a fascinating story integral to the life and politics of national economies around the world. The following statements assert the importance of macro economics:

- It explains the working of the economic system as a whole.
- It examines the aggregate behaviour of Macro Economics entities like firms, households and the government.
- Its knowledge is indispensable for the policy-makers for formulating macro-economic policies such as monetary policy, fiscal policy, industrial policy, exchange rate policy, income policy, etc.
- It is very useful to the planner for preparing economic plans for the country's development.
- It is helpful in international comparison.

Example: Macro Economic data like national income, consumption, saving-income ratio, etc. are required for a comparative study of different countries.

- It explains economic dynamism and intricate interrelationship among Macro Economic variable, such as price level, income, output and employment.
- Its study facilities overall purposes of control and prediction.

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Self Assessment

State whether the following statements are true or false:

6. Macro economics studies the working of an economy as a whole.
7. Macro Economic knowledge is very useful in development of monetary and fiscal policy.
8. Macro Economics explains the effect of low productivity of labour on the market supply.
9. Macro economics explains the relationship between price, income and employment.
10. The concept of macro economics emerged as a result of World War II.

1.3 Scope of Macro Economics

Macro Economics is the study of the aggregate modes of the economy, with specific focus on problems associated with those modes - the problems of growth, business cycles, unemployment and inflation. The Macro Economic theory is designed to explain how supply and demand in the aggregate interact to concern with these problems:

- Economic growth takes place when both the total output and total income are increasing.
- GNP is the basic measure of economic activity. Gross National Product (GNP) is the value of all final goods and services produced in the economy in a given time period.
- Nominal GNP measures the value of output at the prices prevailing in the period, during which the output is produced, while Real GNP measures the output produced in any one period at the prices of some base year.
- Inflation rate is the percentage rate of increase of the level of prices during a given period.
- Unemployment rate is the fraction of the labour force that cannot find jobs.
- Business cycle is the upward or downward movement of economic activity that occurs around the growth trend. The top of a cycle is called the peak. A very high peak, representing a big jump in output, is called a 'boom'. When the economy starts to fall from that peak, there is a downturn in business activity. If that downturn persists for more than two consecutive quarters of the year, that downturn becomes a recession. A large recession is called a depression. In general, latter is much longer and more severe than a recession. The bottom of a recession or depression is called the trough. When the economy comes out of the trough, economists say it is an upturn. If an upturn lasts two consecutive quarters of the year, it is called an expansion.
- The output gap measures the gap between actual output and the output the economy could produce at full employment given the existing resources. Full employment output is also called Potential output.
- Okun's rule of thumb determines the relation between the unemployment rate and income. It states that a 1 per cent change in the unemployment rate will cause income in the economy to change in the opposite direction by 2.5 per cent.
- The Phillips curve suggests a tradeoff between inflation and unemployment. Less unemployment can always be obtained by incurring more inflation or inflation can be reduced by allowing more unemployment. However, the short and long run tradeoffs between inflation and unemployment are a major concern of policy making.
- The basic tools for analysing output, price level, inflation and growth are the aggregate supply and demand curves. Aggregate demand is the relationship between spending on

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goods and services and the level of prices. The aggregate supply curve specifies the relationship between the amount of output firms produce and the price level. Shifts in either aggregate supply or aggregate demand will cause the level of output to change – thus affecting growth – and will also change the price level - thus affecting inflation.

Task Find out the current inflation rates in India, China, USA, Brazil, Zimbabwe and Japan. Also find out the highest ever inflation rates recorded in these countries.

1.3.1 Objectives

Objectives refer to the aims or goals of government policy whereas instruments are the means by which these aims might be achieved and targets are often thought to be intermediate aims - linked closely in a theoretical way to the final policy objective.

If the government might want to achieve low inflation, the main instrument to achieve this might be the use of interest rates and a target might be the growth of consumer credit or perhaps the exchange rate.

Broadly, the objective of Macro Economic policies is to maximise the level of national income, providing economic growth to put on a pedestal the utility and standard of living of participants in the economy. There are also a few secondary objectives which are held to lead to the maximisation of income over the long run. While there are variation between the objectives of different national and international entities, most follow the ones detailed below:

- ***Sustainability:*** A rate of growth which allows an increase in living standards without undue structural and environmental difficulties.
- ***Full Employment:*** Where those who are competent and willing to have a job can get hold of one, given that there will be a certain amount of frictional and structural unemployment.
- ***Price Stability:*** When prices remain largely stable, and near is not rapid inflation or deflation. Price stability is not necessarily the same as zero inflation, but instead steady level of low-moderate inflation is often regarded as ideal. It is worth note that prices of some goods and services often fall as a result of productivity improvements during period of inflation, as inflation is only a measure of general price level.
- ***External Balance:*** Equilibrium in the balance of payments, lacking the use of artificial constraints. That is, exports roughly equal to imports over the long run.
- ***Equitable distribution of Income and Wealth:*** A fair share of the national 'cake', more equitable than would be within the case of an entirely free market.
- ***Increased Productivity:*** more output per unit of work per hour.

Only a limited number of policies can be used to achieve the government's objectives. There is a huge amount of research conducted in trying to determine the effectiveness of different policies in meeting key objectives. Indeed the debates about which policies are most suitable lie at the heart of differences between economic schools of thought.

The main instruments available to meet the objectives are:

- ***Monetary Policy:*** changes to interest rates, the supply of money and credit and changes to the exchange rate.
- ***Fiscal Policy:*** changes to government taxation, government spending and borrowing.

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- ***Supply-side Policies:*** designed to make markets work more efficiently.
- Direct controls or regulation of particular markets.

Caselet

Crippling Infrastructure in India

Crippling infrastructure shortages are the leading constraint to rapid growth as well as in spreading this growth more widely. These shortages have resulted in a skewed pattern of growth that is not sustainable.

While the high skill services sector that employs the better educated among India's work force has flourished, the growth of more labor-intensive manufacturing that generates jobs for low and semi-skilled workers has remained constrained.

Infrastructure shortages have particularly hindered the growth of export oriented manufacturing and value-added agriculture that integrate into global supply chains, and need good roads, ports, airports, and railways as well as reliable power and water to prosper.

Challenges:

- India needs to invest 3-4% more of its GDP on infrastructure to sustain 8% growth.
- The private sector can play an important role in investing in infrastructure, including through public private partnerships.
- Improving the country's capacity to implement infrastructure projects will be as important as increasing the amount of investment available.
- Investments should improve the delivery of services, and service providers need to be made more accountable to consumers.
- Emphasis should be placed on maintaining existing assets.
- Reforms need to be accelerated in all sectors. Difficult issues such as rationalizing user fees for services need to be faced.

Source: www.worldbank.org

1.3.2 Instruments of Macro Economic Policy

The main instruments of Macro Economic policy are:

Monetary Policy

Monetary policy is one of the tools that a national government uses to influence its economy. Using its monetary authority to control the supply and availability of money, a government attempts to influence the overall level of economic activity in line with its political objectives. Usually this goal is "Macro Economic stability" - low unemployment, low inflation, economic growth, and a balance of external payments.

Did u know? Monetary policy is usually administered by a government appointed "Central Bank", the Reserve Bank of India and the Federal Reserve Bank in the United States.

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Fiscal Policy

Fiscal policy is an additional method to determine public revenue and public expenditure. In the recent years importance of fiscal policy has increased due to economic fluctuations. Fiscal policy is an important instrument in the modern time. According to Arther Simithies fiscal policy is a policy under which government uses its expenditure and revenue programme to produce desirable effects and avoid undesirable effects on the national income, production and employment.

Supply Side Policies

Supply side economics is the branch of economics that considers how to improve the productive capacity of the economy. It tends to be associated with Monetarist, free market economics. These economists tend to emphasise the benefits of making markets, such as labour markets more flexible. However, some supply side policies can involve government intervention to overcome market failure

Supply Side Policies are government attempts to increase productivity and shift Aggregate Supply (AS) to the right.

Benefits of supply side policies are:

- ***Lower Inflation:*** Shifting AS to the right will cause a lower price level. By making the economy more efficient supply side policies will help reduce cost push inflation.
- ***Lower Unemployment:*** Supply side policies can help reduce structural, frictional and real wage unemployment and therefore help reduce the natural rate of unemployment.
- ***Improved Economic Growth:*** Supply side policies will increase the sustainable rate of economic growth by increasing AS.
- ***Improved Trade and Balance of Payments:*** By making firms more productive and competitive they will be able to export more. This is important in light of the increased competition from China and Oriental nations.

Direct Control

The government affects business transactions and activities of an economy through a system of controls and regulations. Fiscal and monetary policies constitute 'indirect' or 'general' controls; they affect the overall aggregate demand of the economy. In contrast, there may be 'direct' or 'physical' controls; they affect particular choices of consumers and producers. Such controls are in the form of licensing, price controls, rationing, quality control, monopoly control, regulation of restrictive trade practices, export incentives, import duties, import-export and exchange regulations, quotas, authorisation and agreements, anti-hoarding and anti-smuggling schemes, etc. It is this complex and varied set of direct controls, which is often, referred to the term Physical Policies. Unlike fiscal and monetary policies, which affect the entire economy, physical policies tend to affect the strategic point of the economy; they are specially oriented and discriminatory in nature. They are designed and executed to overcome specific shortages and surpluses in the economy. Thus, the basic purpose of physical policies is to ensure proper allocation of scarce resources like food, raw materials, consumer goods, capital equipment, basic facilities, foreign exchange, etc.

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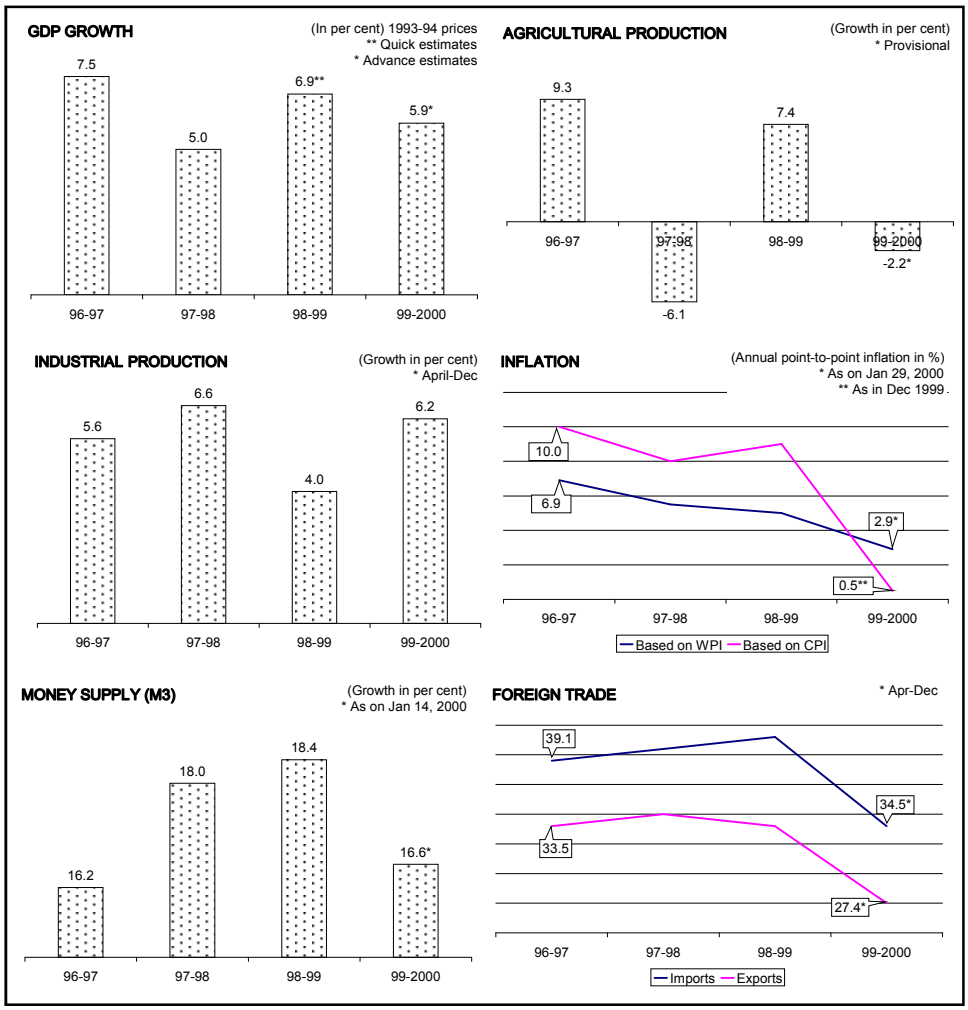
Case Study

Macro Economic Scene in India

The growth of the Indian economy is expected to be 5-9 per cent in 1999-2000. There has been a sharp upturn in GDP growth in 1998-99, which reversed the deceleration in growth seen in 1997-98. GDP growth accelerated to 6.8 per cent in 1998-99 from 5 per cent in 1997-98. The primary supply side factor for the recovery was agriculture. On the demand side, private consumption recovered in 1998-99 from its slump in 1997-98, with real consumption growth doubling from 2.6 per cent in 1997-98 to 5.1 per cent in 1998-99.

Gross domestic saving declined sharply in 1998-99 to 22.3 per cent of GDP. Though household saving increased as a proportion of GDP, the overall private saving rate declined by 1 per cent of GDP. The decline in saving rate of the government and households is a counterpart of the higher consumption growth during 1998-99. Though in the short run, growth in government consumption may have had a positive effect on aggregate recovery, government dis-saving (mainly reflecting high revenue deficits) will have to be reduced if aggregate investment and growth of the economy is to increase.



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Growth of government consumption expenditures in real terms has accelerated to 14.5 per cent in 1998-99 from 10.6 per cent in 1997-98. This provided an even greater stimulus to demand than in the previous year and contributed 1.6 per cent points to overall demand growth in 1998-99. A sharp slump in investment, however, had a deflationary impact and countered part of this stimulus. Total investment (at 1993-94 prices) declined by about half a per cent in 1998-99 after increasing by over 13 per cent the year before. This deceleration in investment was linked to the deceleration in manufacturing and the slump in agriculture in 1997-98. Average real interest rates, as measured by the cut-off yield on 364-day treasury bills (adjusted by WPI inflation) declined by 1 per cent points over the previous year, it was not sufficient to counter the negative factors.

Inflation rate dropped to international levels of 2 to 3 per cent for the first time in decades. The balance of payments survived the twin shocks of East Asian crisis and the post-Pokhran sanctions with a low current account deficit and sufficient capital inflows. This was demonstrated by the continuing rise in foreign exchange reserves coupled with a relatively stable exchange rate.

Question:

Comment on the Macro Economic scene in India.

Self Assessment

Multiple Choice Questions:

11. Economic growth takes place when:
    (a) Total output is increasing
    (b) Total income is increasing
    (c) Total income is increasing but total output is decreasing
    (d) Both total income and total output are increasing
12. ..... is the percentage rate of increase of the level of prices during a given period.
    (a) Gross national product
    (b) Inflation
    (c) Depression
    (d) Unemployment rate
13. A big jump in the out of an economy (a very high peak of business cycle) results in .....
    (a) Boom
    (b) Recession
    (c) Unemployment
    (d) Expansion
14. ..... represents the relationship between spending on goods and services and the level of prices.
    (a) Demand

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(b) Supply

(c) Aggregate demand

(d) Aggregate supply

15. Which of these comes under the purview of fiscal policy?

(a) Changes in interest rate

(b) Change in supply of money

(c) Change in exchange rate

(d) Change in government spending

1.4 Summary

- Macro Economics is the study of the economy in the aggregate with specific focus on unemployment, inflation, business cycles and growth".
- Macro Economic policy debates have centered on a struggle between two groups; Keynesian economists and classical economists. Later Post Keynesian economists came in with their views.
- Macro Economics is the study of the aggregate modes of the economy, with specific focus on problems associated with those modes - the problems of growth, business cycles, unemployment and inflation.

1.5 Keywords

Business Cycle: Recurring fluctuations in economic activity consisting of recession, recovery, growth and decline.

Fiscal Policy: Economic term that defines the set of principles and decisions of a government in setting the level of public expenditure and how that expenditure is funded.

Gross National Product: It is the total value of all final goods and services produced within a nation in a particular year, plus income earned by its citizens (including income of those located abroad), minus income of non-residents located in that country.

Inflation: A general and progressive increase in prices.

Macro Economics: The branch of economics that studies the overall working of a national economy.

Monetary Policy: Government or central bank process of managing money supply to achieve specific goals-such as constraining inflation, maintaining an exchange rate, achieving full employment or economic growth.

1.6 Review Questions

1. Compare and contrast the views of Classical economists, Keynes.
2. Describe the main points of Fisher's theory.
3. Do you think study of Macro Economic aggregates is useful for an individual firm? Justify your answer.
4. Contrast the views of Keynes and Post Keynesian economists.

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5. Discuss the main objectives of a Macro Economic policy.
6. Discuss the instruments of a Macro Economic policy.
7. Explain the relevance of Macro Economics in current national scenario.
8. What is the use of Macro Economic data for the government?
9. Describe monetary and fiscal policy as government's Macro Economic policy instruments.
10. Write short notes on:
    (a) Business Cycle
    (b) Unemployment

Answers: Self Assessment

1.	Say's Law	2.	money
3.	Walrus	4.	Adam Smith
5.	income	6.	True
7.	True	8.	False
9.	True	10.	False
11.	(d)	12.	(b)
13.	(a)	14.	(c)
15.	(d)		

1.7 Further Readings

Books

Dr. Atmanand, *Managerial Economics*, Excel Books, Delhi

Dr. D Mithani, *Macro Economics*, 3rd Edition, Himalaya Publication

Haynes, Mote and Paul, *Managerial Economics - Analysis and Cases*, Vakils. Feffer and Simons Private Ltd., Bombay

Misra and Puri, *Economic Environment of Business*, 5th Edition, Himalaya Publishing House

Online links

http://economics.about.com/cs/studentresources/f/Macro Economics.htm

http://www.moneyinstructor.com/art/macrooverview.asp

http://www.trcb.com/finance/economics/importance-of-macro-economics-5836.htm

Unit 2: National Income

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2.5.3 Circular Flow of Income in a 4 Sector Model

2.6 Summary

2.7 Keywords

2.8 Review Questions

2.9 Further Readings

Objectives

After studying this unit, you will be able to:

- Describe the concept of national income;
- Explain and calculate various national aggregates;
- Discuss the methods of calculating national income;
- State the problems in measuring national income;
- Realise the circular flow of income in 2, 3 and 4 sector model.

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Introduction

You have learnt in the previous unit that the study of Macro Economics is concerned with the determination of the economy's total output, the price level, the level of employment, interest rates and other variables. A necessary step in understanding how these variables are determined is "national income accounting". The national income accounts give us regular estimates of GNP - the basic measure of the economy's performance in producing goods and services.

National income is the most comprehensive measure of the level of the aggregate economic activity in an economy. It is the total income of a nation as against the income of an individual but you must note that the term national income is not as simple and self-explanatory as the concept of individual income maybe.

Example: you cannot include all the income received by individuals during a given period in the national income, similarly not all the income that is generated in the process of production in an economy during a given period is received by the individuals in the economy.

2.1 Meaning of National Income

We may define national income as the aggregate of money value of the annual flow of final goods and services in the economy during a given period.

The well-known writer, ***Paul Studenski***, writes: "National income is both a flow of goods and services and a flow of money incomes. It is therefore called national product as often as national income".

The flow of national income begins when production units combine capital and labour and turn out goods and services. We call this Gross National Product GNP. It is the value of all final goods and services produced by domestically owned factors of production within a given period.

Example: It includes the value of goods produced such as houses and food grains and the value of services such as broker's services and economist's lectures. The output of each of these is valued at its market price and the values are added together to give GNP.

At the same time, the production units which produce goods and services, distribute money incomes to all who help in production in the form of wages, rent, interest and profit - we call this as Gross National Income (GNI).

GNI comprises the total value produced within a country, together with its income received from other countries less similar payments made to other countries.

It may be noted from above that:

- ***National Income is an Aggregative Value Concept:*** It makes use of the value determined by the measuring rod of money as the common denominator for the purpose of aggregating the diverse output resulting from different types of economic activities.
- ***National Income is a Flow Concept:*** It represents a given amount of aggregate production per unit of time, conventionally represented by one year. Thus, national income usually relates to a particular year and indicates the output during that year.
- National income represents the aggregate value of final products rather than the total value of all kinds of products produced in the economy. The insistence on final goods and services is simply to make sure that we do not double count.

Notes

Example: We would not want to include the full price of an automobile producer to put on the car. The components of the car that are sold to the manufacturers are "intermediate goods" and their value is not included in GNP. Similarly, the wheat that is used to make bread is an "intermediate good". The value of the bread only is counted as part of GNP and we do not count the value of wheat sold to the miller and the value of flour sold to the baker.

Self Assessment

Fill in the blanks:

1. National product is also referred to as .....
2. Gross National Income includes the total value produced within a country, together with its income received from other countries ..... similar payments made to other countries.
3. The value of wood used to make a wardrobe is not included in the calculation of national income so as to avoid the problem of .....

2.2 National Aggregates (Important Concepts)

For the purpose of measurement and analysis, national income can be viewed as an aggregate of various component flows. Generally these component flows represent the intersectoral transactions which describe the broad structure of the economic system. Accordingly, there exist several measures of aggregate incomes varying in their scope and coverage.

To begin with let us consider the most comprehensive and broad-based measure of aggregate income widely known as Gross National Product at market prices or GNP_{MP}. It shows the market value of the aggregate final product before the deduction of provisions for the consumption of fixed capital, attributable to the factors of production supplied by the normal residents of a country.

Two important words are "gross" and "national". Similarly the phrase "at market prices" is also significant because it specifies the criterion of valuation. The main alternatives to these three specifications are 'net', 'domestic' and at 'factor cost'.

Let's discuss these important concepts first.

Gross and Net Concepts

Gross emphasises that no allowance for capital consumption has been made or that depreciation has yet to be deducted.

Net indicates that provision for capital consumption has already been made or that depreciation has already been deducted.

Caution Thus, the difference between the gross aggregate and the net aggregate is depreciation.

i.e.,

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

Notes

National and Domestic Concepts

The concept of national versus domestic arises because of the fact that the economy is not closed in the sense that it has transactions with the rest of the world in the form of exports and imports, gifts, loans, factor income flows, etc.

National income or product is that income or product which accrues to the economic agents who are resident of the country. Most of the national income is derived from economic activity within the country. But some income arises due to the activities of the residents outside the country. Similarly, some of the product or income arising in the country may be due to the activities of the non-residents. The difference between these two flows is referred to as net factor income from abroad.

The measure of production arising out of the activities of economic agents within the country is termed as domestic product even if a part of that income accrues to non-residents. When adjustments are made to this product by deducting the income of non-residents within the country and adding the income of residents abroad, the national product is obtained.

Caution Hence, the difference between the national and domestic concept is the net factor income from abroad and in a closed economy national and domestic incomes are synonymous.

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.

Market Prices and Factor Costs

The valuation of the national product at market prices indicates the total amount actually paid by the final buyers while the valuation of national product at factor cost is a measure of the total amount earned by the factors of production for their contribution to the final output.

$\mathbf{GNP_{MP}}$ = GNP at factor costs + indirect taxes-Subsidies.

(***Note:*** GNP at factor costs can also be written as GNP_{FC})

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

Caution If it's not mentioned that whether the aggregate is at market price or factor cost and simply the aggregate is mentioned, we consider it to be at market prices. For example, if only GNP is written, we consider it as GNP_{MP}.

Notes

Table 2.1: Review of the Concepts Discussed Till Now

	Category A	Category B
Type 1	GNP_{MP}	GDP_{MP}
	NNP_{MP}	NDP_{MP}
Type 2	GNP_{FC}	GDP_{FC}
	NNP_{FC}	NDP_{FC}

- Difference between the aggregates in category A and aggregates in category B is net factor income from abroad.
- Difference between the aggregates of type 1 and aggregates of type 2 is indirect taxes less subsidies.
- The difference between the two aggregates of each type in each category is depreciation.

Now after learning these concepts, let's discuss the aggregates one by one, discussed in following subsections.

2.2.1 Gross Domestic Product (GDP)

For some purposes we need to find the total income generated from production within the territorial boundaries of an economy, irrespective of whether it belongs to the residents of that nation or not. Such an income is known as Gross Domestic Product (GDP) and found as:

GDP = GNP – Net factor income from abroad

Example: If in 2010-2011, the GNP is ₹ 8,00,000 million, the income (including tax on such incomes) received and paid ₹ 60,000 million, and ₹ 70,000 million respectively, then, the GDP in 2010-2011 would be:

= 8,00,000 - (70,000 - 60,000)

= ₹ 7,90,000 million

Caselet

India GDP Growth Rate in First Quarter of 2011

The Gross Domestic Product (GDP) in India expanded 7.80 percent in the first quarter of 2011 over the previous quarter. Historically, from 2000 until 2011, India's average quarterly GDP Growth was 7.45 percent reaching an historical high of 11.80 percent in December of 2003 and a record low of 1.60 percent in December of 2002. India's diverse economy encompasses traditional village farming, modern agriculture, handicrafts, a wide range of modern industries, and a multitude of services. Services are the major source of economic growth, accounting for more than half of India's output with less than one third of its labor force. The economy has posted an average growth rate of more than 7% in the decade since 1997, reducing poverty by about 10 percentage points.

Source: http://www.tradingeconomics.com/india/gdp-growth

Notes

2.2.2 GNP as a Sum of Expenditures on Final Products

Expenditure on final products in an economy can be classified into the following categories:

- ***Personal Consumption Expenditure (c):*** The sum of expenditure on both the durable and non-durable goods as well as services for consumption purposes.
- ***Gross Private Investment (I_g)*** is the total expenditure incurred for the replacement of capital goods and for additional investment.
- ***Government Expenditure (G)*** is the sum of expenditure on consumption and capital goods by the government, and
- ***Net Exports (Exports - Imports) (X - M)*** constitute the difference between the expenditure or rest of the world on output of the national economy and the expenditure of the national economy on output of the rest of the world.

GNP is the aggregate of the above mentioned four categories of consumption expenditure. That is,

$$GNP = C + Ig + G + (X - M)$$

2.2.3 GNP as the Total of Factor Incomes

When national income is calculated after excluding indirect taxes like excise duty, sales tax, etc. and including subsidies we get GNP at factor cost as this is the amount received by all the factors of production (indirect taxes being the amount claimed by the government and subsidies becoming a part of factor income).

$$GNP_{FC} = GNP_{MP} - \text{Indirect taxes} + \text{Subsidies}$$

2.2.4 Net National Product (NNP)

The NNP is an alternative and closely related measure of the national income. It differs from GNP in only one respect. GNP is the sum of final products. It includes consumption goods plus gross investment plus government expenditures on goods and services plus net exports. Here Gross Investment (GI) is the increase in investment plus fixed assets like buildings and equipment and thus exceed Net Investment (NI) by depreciation.

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

Note: NNP includes net private investment while GNP includes gross private domestic investment.

We know that during the process of production, assets get consumed or depreciated. So, during a year the net contribution to output is the production of goods and services minus the depreciation during the year. This is known as NNP at market prices because it is the net money value of final goods and services produced at current prices during the year after depreciation.

$$\begin{aligned} NNP &= GNP - \text{Depreciation} \\ &= C + I_g + G + (X - M) - \text{Depreciation} \\ &= C + G + (X - M) + (I_g - \text{Depreciation}) \\ &= C + G + (X - M) + I_n \qquad \text{(where In = net investment)} \\ &= C + G + I_n + (X - M) \end{aligned}$$

Notes

2.2.5 NNPFC (or National Income)

Goods and services are produced with the help of factors of production. National income or NNP at factor cost is the sum of all the income payments received by these factors of production.

National Income = GNP – Depreciation – Indirect taxes + Subsidies

Since factors receive subsidies, they are added while indirect taxes are subtracted as these do not form part of the factor income.

NNP_{FC} = NNP_{MP} - Indirect taxes + Subsidies

2.2.6 Personal Income

As you have learnt earlier, national income is the total income accruing to the factors of production for their contribution to current production but it does not represent the total income that individuals actually receive.

Two types of factors account for the difference between national income and personal income. On the one hand, a part of the total income which accrues to the factors of production is not actually paid out to the individuals who own the factors of production. The obvious instances are corporate taxes and undistributed or retained profits. On the other hand, the total income that individuals actually receive generally includes some part that comes to be regarded as payment for the factor services rendered in the current year, for example, gifts, pensions, relief payments and other welfare payments. Such payments are known as "transfer payments" because they do not represent the payments made for any direct contribution to current production.

Thus, personal income is calculated by subtracting from national income those types of incomes which are earned but not received and adding those types which are received but not currently earned.

Personal Income = NNP_{FC}- Undistributed profits - Corporate taxes + transfer payments

2.2.7 Disposable Income

Disposable income is the total income that actually remains with individuals to dispose off as they wish. It differs from personal income by the amount of direct taxes paid by individuals.

Disposable Income = Personal Income - Personal taxes

DI = PI - T

So, PI = DI + T

Usually, people divide their disposable income between consumption spending and personal saving.

We therefore have the following identities,

PI = DI + T

DI = C + S

It follows

PI = C + S + T

Notes

Case Study

Rich Getting Richer

Year 2009 may have been a cruel year for much of the country with slow growth and double-digit food inflation, but India's high net worth individuals (HNWIs) prospered - just over 120,000 in number, or 0.01% of the population, their combined worth is close to one-third of India's Gross National Income (GNI).

HNWIs, in this context, are defined as those having investable assets of $1 million or more, excluding primary residence, collectibles, consumables, and consumer durables. According to the 2009 Asia-Pacific Wealth Report, brought out by financial services firms Capgemini and Merrill Lynch Wealth Management, at the peak of the recession in 2008, India had 84,000 HNWIs with a combined net worth of $310 billion. To put that figure in perspective, it was just under a third of India's market capitalization, that is, the total value of all companies listed on the Bombay Stock Exchange - as of end-March 2008. The average worth of each HNWI was ₹ 16.6 crore.

To get a fix on just how rarefied a level it puts them in, we did some simple calculations that threw up stunning numbers. It would take an average urban Indian 2,238 years, based on the monthly per capita expenditure estimates in the 2007-8 National Sample Survey, to achieve a net worth equal to that of the average HNWI. And that's assuming that this average urban Indian just accumulates all his income without consuming anything. A similar calculation shows that an average rural Indian would have to wait a fair bit longer - 3,814 years!

According to the firms' 2010 World Wealth Report, India now has 126,700 HNWIs, an increase of more than 50% over the 2008 number. While the figure for combined net worth is not available, it seems safe to assume that as a class not only have India's super-rich recouped their 2008 losses, they have even made gains over their pre-crisis (2007) positions. In 2007, 123,000 HNWIs were worth a combined $437 million.

Meanwhile, in 2009 alone, an estimated 13.6 million more people in India became poor or remained in poverty than would have been the case had the 2008 growth rates continued, according to the United Nations Department of Economic and Social Affairs (UNDESA). Also, an estimated 33.6 million more people in India became poor or remained in poverty over 2008 and 2009 than would have been poor had the pre-crisis (2004-7) growth rates been maintained over these two years.

The 2009 Asia-Pacific Wealth Report notes that the HNWI population in India is also expected to be more than three times its 2008 size by the year 2018, with emergent wealth playing a key role. Like China, relatively few among the current HNWI population (13%, compared to 22% in Japan) have inherited their wealth and even fewer (9%) are over the age of 66.

Question:

What does the case say about distribution of income in India?

Source: timesofindia.indiatimes.com

2.2.8 Value Added

The concept of value added is a useful device to find out the exact amount that is added at each stage of production to the value of the final product. Value added can be defined as the difference

Notes

between the value of output produced by that firm and the total expenditure incurred by it on the materials and intermediate products purchased from other business firms. Thus, value added is obtained by deducting the value of material inputs or intermediate products from the corresponding value of output.

Value added = Total sales + Closing stock of finished and semi-finished goods - Total expenditure on raw materials and intermediate products - Opening stock of finished and semi-finished goods

Table 2.2 summarises the relationships among all of the above national income accounting concepts.

Table 2.2: Relationship between National Income Concepts

	Gross National Product (GNP)
Less depreciation or capital consumption allowances	Net National Product (NNP)
Less indirect taxes Plus subsidies	National Income (NI)
Less government income from property and enterpreneurship Social security taxes Corporate profit taxes Retained earnings Plus transfer payments	Personal Income (PI)
Less personal taxes	Disposable Personal Income (DPI)
Which is available for Personal consumption expenditure Personal savings.	

Task Find out and compare the GDP of India and China, for last two accounting periods. Is it possible to calculate other aggregates from the GDP figures?

Self Assessment

Multiple Choice Questions:

4. …….includes total value of goods and services produced within the country, together with its income received from other countries less income paid to other countries.

   (a) Gross Domestic Product

   (b) Gross National Income

   (c) Net Domestic Product

   (d) Net National Product

5. The difference between gross and net aggregates is……

   (a) Indirect taxes

   (b) Subsidies

Notes

(c) Net factor income from abroad

(d) Depreciation

6. If disposable income is ₹ 15000 and personal taxes is ₹ 1400, then the personal income would be

(a) ₹ 16400

(b) ₹ 13600

(c) ₹ 15000

(d) ₹ 20000

7. Suppose, in 2010-2011, GNP is ₹ 20000, Net income received from abroad is ₹ 4000 and net income paid abroad is ₹ 5000. Find out GDP for 2010-2011.

(a) ₹ 19000

(b) ₹ 21000

(c) ₹ 12000

(d) ₹ 29000

8. ……=NNP_{MP} – Net Factor Income from Abroad – Net Indirect Taxes.

(a) GNP_{MP}

(b) NNP_{FC}

(c) NDP_{FC}

(d) NDP_{MP}

2.3 Methods of Measuring National Income in India (Simple Treatment)

There are three methods to calculate national income:

- Product Method
- Income Method
- Expenditure Method

Let's discuss these methods one by one in following subsections.

2.3.1 Product Method

In this method two approaches-final product approach and value added approach are adopted.

Final Product Approach

It is expressed in terms of GDP. According to final product approach, sum total of market value of all final goods and services produced by all productive units in the domestic economy in an accounting year is estimated by multiplying the gross product with market prices.

Being gross it includes depreciation, being at market price, it includes net indirect taxes and being domestic, it includes production by all production units within domestic territory of a country. It includes value of only final goods and services.

Notes

Value Added Approach

This method measures contribution of each producing enterprise to production in the domestic territory of a country in an accounting year. According to this method net value added at factor cost by all the producing units during an accounting year within the domestic territory is summed up. This gives us value of net domestic product at factor cost or domestic income.

Steps Involved

1. Identifying all the producing units in the domestic economy and classifying them into the industrial sectors such as primary, secondary, tertiary sector on the basis of similarity of activities.
2. Estimating net value added at factor cost by each producing unit deducting intermediate consumption, depreciation and net indirect taxes from value of output.
3. Estimating net value added of each industrial sector by summing up net value added at FC of all producing units falling in each industrial sector.
4. Computing domestic income by adding up NVA at FC of all industrial sectors.
5. Estimating net factor income from abroad which is added to domestic income for deriving national income.

Caution

- Imputed rent of owner occupied houses is also included in calculation of national income.
- Imputed value of goods and services produced for self consumption are included.
- Value of own account production of fixed assets by enterprises, government and the households.

Thus according to value added method,

GNP = (value of output in primary sector - intermediate consumption) + (Value of output in secondary sector - intermediate consumption) + (Value of output in tertiary sector - intermediate consumption) + Net factor income from abroad.

2.3.2 Income Method

Income Method measures national income from the side of payments made to the primary factors of production for their productive services in an accounting year. Thus according to income method, national income is calculated by summing up of factor incomes of all the normal residents of a country earned within and outside the country during a period of one year. The income generated is nothing but the net value added at factor cost by factors of production, which is distributed in the form of money income amongst them. Thus, if factor incomes of all the producing units generated within the domestic economy are added up, the resulting total will be domestic income or net domestic product at factor cost (NDPFC). By adding net factor income from abroad to domestic income we get NNPFC.

GNP is the addition of all factor incomes generated in production of goods and services. While measuring GDP we must include only those income flows that originate with the production of the goods and services within the particular time period. The components of factor income are: (i) Employees' Compensation, (ii) Profits, (iii) Rent, (iv) Interest, (v) Mixed Income, and (vi) Royalty.

Notes

Profit, rent, interest and other mixed income are jointly known as operating surplus. Thus,

National Income = compensation of employees + operating surplus.

Steps Involved

1. Identifying enterprises which employ factors of production (labour, capital and entrepreneur).
2. Classifying various types of factor payments like rent, interest, profit and mixed income.
3. Estimating amount of factor payments made by each enterprise.
4. Summing up of all factors payments within domestic territory to get domestic income.
5. Estimating net factor income from abroad which is added to the domestic income to derive national income.

Caution

- Sale and purchase of second hand goods are excluded.
- Imputed rent of owner occupied houses and production for self-consumption are included.
- Incomes from illegal activities are not included.
- Direct taxes such as Income tax are paid by employees from their salaries are included.

2.3.3 Expenditure Method

GDP can be measured by taking into account all final expenditures in the economy. There are three distinct types of expenditures as they are committed by households, firms and Government respectively. These expenditures are classified into following types:

1. Private consumption expenditure (C)
2. Government expenditure (Government purchases of goods and services) (E)
3. Investment expenditure (I)
4. Net exports (X-M)

Thus, GDP = C + I + G + (X - M)

Steps Involved

1. Identification of economic units incurring final expenditure
2. Classification of final expenditure into following components:
   (a) Private final consumption expenditure
   (b) Government final consumption expenditure
   (c) Gross final capital formation
   (d) Change in stocks
   (e) Net exports.
3. Measurement of final expenditure on the above components.
4. Estimation of net factor income from abroad which is added to NDPFC.

Notes

Caution

- Avoid double counting of goods.
- Expenditure on purchase of second hand goods is excluded.
- Expenditure on purchase of old share is excluded.
- Government expenditure on all transfer payment is excluded.

Table 2.3: Calculation of National Income by Product, Income and Expenditure Methods

Table A (Output Method)

Items	Rs. (in Crores)
Agriculture, forestry, fishing	750
Mining and quarring	300
Manufacturing	600
Construction	300
Gas, electricity and water	150
Transport and Communication	600
Distribution Trades	900
Insurance, Banking	600
Public Administration	450
Public Health and Education	450
Others Services	300
Total Domestic output	5400
Less Stock appreciation	750
Plus NFIA	300
GNP at FC	4950
Less Dep.	450
N.I.	4500

Table B (Income Method)

Items	(Rs. in Crores)
Wages, Salaries etc	3000
Profits of private and public corporation	1500
Rent	600
Interest	300
Total Domestic Income	5400
Less stock appreciation	750
Less NFIA	300
GNP	4950
Less Depreciation	450
NI	4500

Table C (Expenditure Method)

Items	(Rs. in Crores)
Consumer's Expenditure	3500
Public authorities current expenditure	1800
Gross Capital formation	1500
Domestic Expenditure at MP	6800
Plus export	1800
Less Import	750
Less Indirect Taxes	2950
Plus Subsidies	150
GNP at FC	5000
Less Dep.	450
N.I.	4500

Tasks Find out the National Income of India for last 10 years and analyse the trend.

Notes

Case Study

This Can Raise the National Income

India, with 16 per cent of the world population and just 0.5 per cent of known crude oil and 0.6 per cent of natural gas reserves, is quite unfavourably placed as far as hydrocarbon resources are concerned. Meeting the growing energy demand of a fast developing India remains a challenge and will remain so in the near future as well.

Self sufficiency in crude oil, the most convenient fuel, has always been a dream and desire of every nation as it proved itself as the foundations of prosperity. As far as achieving self sufficiency in energy supply for India is concerned, it has two dimensions. First, finding and producing new reserves of hydrocarbons (oil and gas), as well as maintaining production levels from the existing fields; second, developing non-conventional and alternate sources of energy in a sustainable and cost effective manner for reducing the demand pressure on oil.

First tasks first. There is no other option than to intensify technology driven exploratory efforts for locating new oil and gas reserves, wherever it is located. New plays will require huge capital investment and an innovative set of technical solutions. In this regard, the nation will have to be self sufficient in technology also; not only for the oil industry but for the entire energy sector. The existing fields also require technology and capital interventions to maintain production levels. For all these endeavours, financial strength of the oil and gas companies will play a crucial role and the government will have to support these companies with enabling regulations.

As far as the second task is concerned, there is a need to optimise production from various available sources like conventional gas, unconventional gas (CBM, UCG, shale gas and gas hydrate), coal, nuclear, hydro, etc. Natural gas production will go up in the near future and so will the demand.

It is good for the nation, but the issue here is attractive pricing so that sufficient investment can be made in the future to locate and develop new gas assets. Unconventional gas sources have tremendous potential. However, technology is an issue for environmentally sustainable and cost effective production. Similarly, coal, nuclear, and hydro also have huge potential for supplementing the energy needs of the country and we need to harness these sources with green solutions.

Besides these, renewal energy sources require focussed attention. Intensive R&D is required to make renewal sources cost effective and consumer friendly. In totality, I perceive, a linear linkage of all energy sources is a must for which we need to establish a synergy in efforts and collective and collaborative intellectual pursuits. Thirdly, another significant dimension of self sufficiency in energy is effective demand management.

Increasing the efficiency of transportation, residential, commercial, and industrial uses is a must. We need to improve both supply-side and demand-side energy efficiencies to improve India's energy intensity comparable to the international levels.

Self sufficiency in oil means an additional 105 million metric tonnes of crude oil production capacity i.e., more than three times the present production level. It translates to saving ₹ 241,539 crore worth of imports i.e., 45 per cent of the balance of trade for the country (₹ 538,568 crore). This single miracle may help in increasing the net national product (at factor cost and current price) by almost 13 per cent to more than ₹ 4,800,000 crore.

Question:

Do you think that national income can be raised and managed?

Source: www.mydigitalfc.com

Notes

Self Assessment

State whether the following statements are true or false:

9. The final product method of national income calculation includes values of only final goods and services.
10. The value added method gives us the Net Domestic Product at market prices.
11. $NDP_{FC} = NNP_{FC}$ – Net Factor Income from Abroad.
12. The proceeds from sale of a second hand car will be included in the national income.
13. Expenditures incurred by the firms are termed as investment expenditures.

2.4 Problems in Measuring National Income

The problems in measurement of national income are:

- National income measures domestic economic performance and not social welfare. For real economic growth, there should be strong positive correlation between the two.
- National Income understates social welfare-non-market transactions like home-makers service and do-it-yourself projects are not counted.
- National Income does not measure an increase in leisure or work satisfaction or changes in product quality.
- National Income does not accurately reflect changes in environment like oil spills cleanup is measured as positive output but increased in pollution is not measured as negative.
- Per capital income is a more meaningful measure of living standards than total national income.
- There is a problem of double counting. However, problem of double counting could be avoided by utilizing the value added approach.

Example: The wheat that is used to make bread is an "intermediate good". The value of the bread only is counted as part of GNP and we do not count the value of wheat sold to the miller and the value of flour sold to the baker.

- Problems of depreciation estimation as there are different methods of calculating or estimating depreciation.
- Inclusion or exclusion of certain items in national income accounting can cause confusion:
  - Imputed rent of owner occupied houses is also included in calculation of national income.
  - Imputed value of goods and services produced for self consumption are included.
  - Sale and purchase of second hand goods are excluded.
  - Imputed rent of owner occupied houses and production for self-consumption are included.
  - Incomes from illegal activities are not included.
  - Direct taxes such as Income tax are paid by employees from their salaries are included.

Notes

- ❖ Expenditure on purchase of old share is excluded.
- ❖ Government expenditure on all transfer payment is excluded.

- Challenges like difficulties in getting information especially those related to underground economy (illegal activities).

Self Assessment

State whether the following statements are true or false:

14. Government expenditure on transfer payments is included in national income calculation.
15. National income estimation doesn't consider the value of services of housewives.

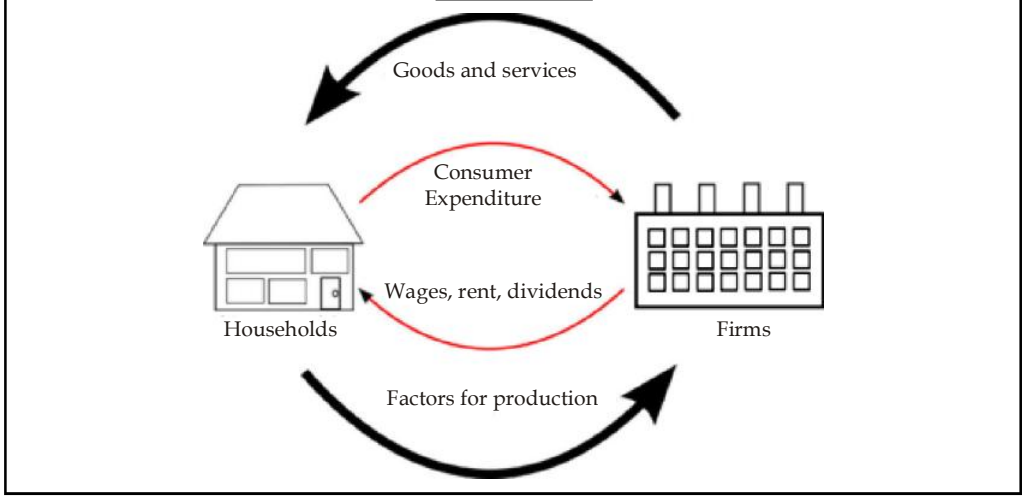
2.5 Circular Flow of Income

Circular flow of income model shows the flow of income between the producers and the households who buy their goods or services. Income moves from households to producers as the households purchase goods or services and income moves from producers to households in the form of wages or profits.

2.5.1 Circular Flow of Income in a 2 Sector Model

One of the most important insights about the aggregate economy is that it is a circular flow in which output and input are interrelated (Figure 2.1). Household's expenditures (consumption and saving) and firm's expenditures (wages, rents, etc.) are household's income.

Figure 2.1



Source: www.medlibrary.org/medwiki/Circular_flow

The circular flow of income model is a model used to show the flow of income through an economy. Through showing the leakages in the economy and the injections, the different factors affecting the economic activities are apparent. Just like a leakage in a bucket leads to decrease in the level of water, a leakage in the economy leads to a decrease in economic activity. And just like an injection into the bucket where the water level rises, an injection in an economy leads to an increase in economic activity.

Notes

Basic Assumptions of a Simple Circular Flow of Income Model

- The economy consists of two sectors: households and firms.
- Households spend all of their income (Y) on goods and services or consumption (C). There is no saving (S).
- All output (O) produced by firms is purchased by households through their expenditure (E).
- There is no financial sector.
- There is no government sector.
- There is no overseas sector.

In the simple two sector circular flow of income model the state of equilibrium is defined as a situation in which there is no tendency for the levels of income (Y), expenditure (E) and output (O) to change, that is: Y = E = O.

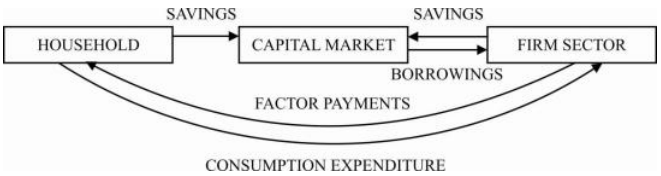
This means that all household income (Y) is spent (E) on the output (O) of firms, which is equal in value to the payments for productive resources purchased by firms from households.

Example: This can be shown in an example where John earns ₹ 100.00, he doesn't save it and spends it all on the goods and services (O) provided by the firms.

2 Sector Model with Financial Market

Financial institutions act as intermediaries between savers and investors. All the lending and borrowings are carried on in the financial or capital market. All that is earned by the households is not spent on consumption; a part of it is saved. This saving is deposited in the financial market leading to a money flow from the household to the financial market. On the other hand, the firm saves to meet its depreciation expenses and expansion. The savings of the firm going into the financial market and borrowings made by the firm from the financial market also create money flows.

Figure 2.2: Circular Flow of Income in 2 Sector Model with Financial System



Therefore, we can say that the savings by households and firms are leakages and borrowings by the firms act as injections into the circular flow of income.

2.5.2 Circular Flow of Income in a 3 Sector Model

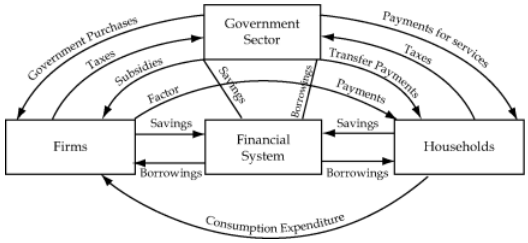
In this model, we introduce the government sector as well that purchases goods from firms and factors services from households. Between households and the government money flows from government to the household when the government makes transfer payments. Like old age pension, scholarship and factors payments o the households. Money flows back to the government when it collects direct taxes from the households.

Similarly, there are flows of money between the government sector and firm sector. Money flows from firms to government when the government realises corporate taxes from the firms.

Notes

Money flows from the government to the firms in form of subsidies and payment made for the goods purchased.

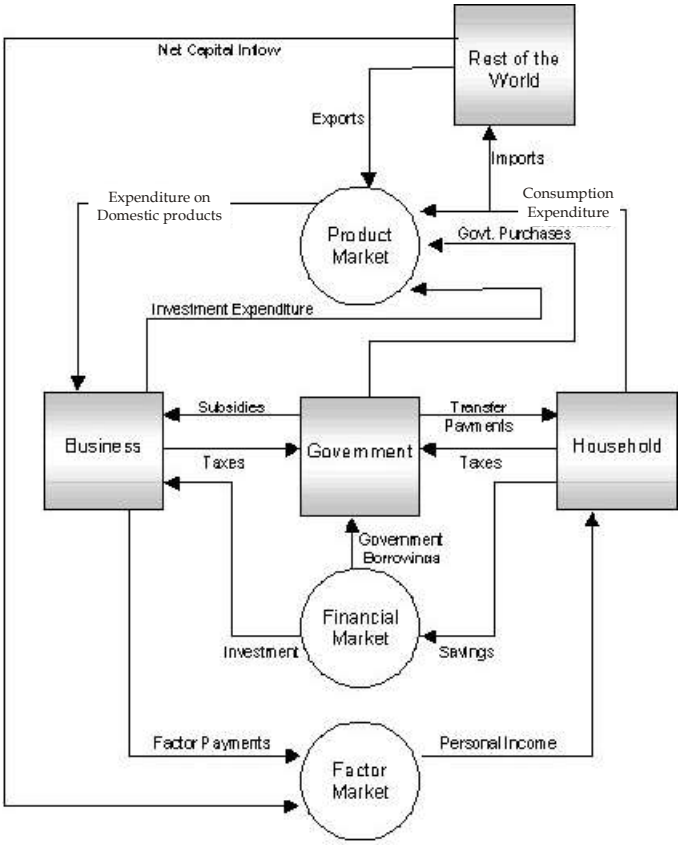
Figure 2.3



2.5.3 Circular Flow of Income in a 4 Sector Model

In a four sector model, an economy moves from being a closed economy to an open economy. In an open economy imports and exports are made. You must understand that one country's exports are other country's imports. In case of a country imports, money flows to the rest of the world and in case of exports, money flows in from the rest of the world. An economy experiences a trade surplus if its exports exceed its imports. On the other hand, there is a trade deficit if imports exceed exports. Imports act as leakages and exports as injection into the circular flow of income in an economy.

Figure 2.4: Circular Flow of Income in a 4 Sector Model



Source: www.maeconomics.web.com

Notes

In a 4 sector model, we have,

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

Where, Y = Income or Output

C = Household consumption expenditure

I = Investment expenditure

G = Government expenditure

X-M = Exports minus Imports

Self Assessment

Fill in the blanks:

16. The two sectors in the 'circular flow of income in two sector model' are represented by ..... and .....
17. In a ..... sector model, an economy moves from being a closed economy to an open economy.
18. Imports and exports happen in ..... economy.

2.6 Summary

- National income can be defined as the aggregate of money value of the annual flow of final goods and services in the national economy during a given period.
- GNI comprises the total value produced within a country, together with its income received from other countries less similar payments made to other countries.
- GNP at market price/factor cost = NNP at market price/factor + depreciation
- 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.
- GNP_{MP} = GNP at factor costs + indirect taxes-Subsidies.
- NNP_{MP} = NNP_{FC} + indirect taxes-Subsidies.
- GDP = GNP - Net factor income from abroad
- GNP = C + Ig + G + (X - M)
- GNP_{FC} = GNP_{MP} - Indirect taxes + Subsidies
- GNP = NNP + Depreciation
- National Income = GNP - Depreciation - Indirect taxes + Subsidies
- Personal income is calculated by subtracting from national income those types of incomes which are earned but not received and adding those types which are received but not currently earned.

Notes

- Disposable income is the total income that actually remains with individuals to dispose off as they wish. It differs from personal income by the amount of direct taxes paid by individuals.
- Value added can be defined as the difference between the value of output produced by that firm and the total expenditure incurred by it on the materials and intermediate products purchased from other business firms.
- There are three approaches to the calculation of national income- product approach, income approach and expenditure approach.
- In Product method, two approaches are adopted- final product approach and value added approach. In Final product approach, sum total of market value of all final goods and services produced by all productive units in the domestic economy in an accounting year is estimated by multiplying the gross product with market prices.
- In value added method net value added at factor cost by all the producing units during an accounting year within the domestic territory is summed up.
- As per the income method, National Income = compensation of employees + operating surplus.
- As per the expenditure method, GDP= C + I + G + (X - M).
- Circular flow of income model shows the flow of income between the producers and the households who buy their goods or services.

2.7 Keywords

Disposable income: It is the total income that actually remains with individuals to dispose off as they wish.

Gross Domestic Product: It is a measure of a country's overall economic output.

Gross National Income: The total value produced within a country, together with its income received from other countries less similar payments made to other countries.

Gross National Product: It is the value of all final goods and services produced by domestically owned factors of production within a given period.

National Income: Aggregate of money value of the annual flow of final goods and services in the economy during a given period.

Value added: Difference between the value of output produced by a firm and the total expenditure incurred by it on the materials and intermediate products purchased from other business firms.

2.8 Review Questions

1. Given the following data about the economy:

	₹
Consumption	7000
Investment	5000
Proprietor's income	2500
Corporate income taxes	2150
Govt expenditure	3000

Notes

Profits	2500
Wages	7000
Net exports	2750
Rents	250
Depreciation	250
Indirect business taxes	1000
Undistributed corporate profits	600
Net foreign factor income	30
Interest	1500
Social security contribution	0
Transfer payments	0
Personal taxes	1650

(a) Calculate GDP and GNP with both the expenditure and income approach.

(b) Calculate NDP, NNP, NI and domestic income.

(c) Calculate PI.

(d) Calculate disposable personal income.

2. In an economy the following transactions have taken place:

   A sells to B for ₹ 50 and to C for ₹ 30; B sells to private consumption for ₹ 40 and to export for ₹ 80; C sells to capital formation for ₹ 50. Calculate GNP (a) by category of final demand at market prices and (b) industry of origin at factor cost. (Since no mention of taxes is there, market price and factor cost valuations are identical).

3. Suppose capital stock of an economy is worth ₹ 200 million and it depreciates at the rate of 10 per cent per annum. Indirect taxes amount to ₹ 30 million, subsidies amount to ₹ 15 million. Its GNP at market prices is ₹ 1200 million. Calculate the national income. (NNP at factor cost is termed national income).

4. What is the impact (if any) on the national income of India in each of the following cases?

   (a) Shyam receives ₹ 5000 as a gift from his father who is also a resident of India.

   (b) Aggregate inventories in Indian companies go down by ₹ 20,000.

   (c) A receives 100 dollars as dividend from a company based in the USA.

   (d) A sells shares and reaps capital gains worth ₹ 1,000. Give reasons for your answers.

5. Suppose that furniture production encompasses the following stages:

Stage 1:	Trees sold to timber companies	₹ 1,000
Stage 2:	Timber sold to furniture company	₹ 1,700
Stage 3:	Furniture company sells furniture to retail store	₹ 3,200
Stage 4:	Furniture store sells furniture to consumers	₹ 5,995

Notes

(a) What is the value added at each stage?

(b) How much does this output contribute to GDP?

(c) How would answer (ii) change if the timber were imported from Bangladesh?

6. (a) Calculate national income from the following figures (in ₹ crores):

Consumption	200
Depreciation	20
Retained earning	12
Gross investment	30
Import	40
Provident fund contributions	25
Exports	50
Indirect business taxes	15
Government purchases	60
Personal income taxes	40

(b) If there were 10 crores people in this country

(c) If all prices were to double overnight, what would happen to the value of real and nominal GDP per capita?

7. Use the following data to compute GNP, NNP and NI. If NI computed at factor cost is 3,387 crores, what is the statistical discrepancy?

(***Note:*** All figures are in ₹ crores; any omitted items are zero).

Depreciation	₹ 455
Indirect business taxes	349
Gross investment	675
Consumption	2,762
Net exports	106
Government purchase	865

8. Use the following information to compute national income, personal income and disposable personal income for the year. (Note: All figures are in billions; any omitted items are zero).

Corporate profits	₹ 300
Net interest	295
Provident fund contributions	376
Wages and salaries	2,499
Income of self-employed	279
Rental income	16
Dividends	88
Corporate profit taxes	103
Government transfers	491
Undistributed profits	46
Personal tax	513
Business transfers	23

Notes

9. Define NNP, GNP, GDP and disposable income. Discuss the relation between them.
10. What is the relevance of national income statistics in business decisions? What kinds of business decisions are influenced by the change in national income?
11. Explain the concept of value added. What role does it play in national income estimation?
12. Discuss the Circular Flow of Income in a 2 and 4 sector economy.

Answers: Self Assessment

1.	National Income	2.	Less
3.	Double counting	4.	(b)
5.	(d)	6.	(a)
7.	(b)	8.	(c)
9.	True	10.	False
11.	True	12.	False
13.	True	14.	False
15.	True	16.	household, firm
17.	four	18.	open

2.9 Further Readings

Books

Bibek Debroy, *Managerial Economics*, Global Business Press, Delhi

Dr. Atmanand, *Managerial Economics*, Excel Books, Delhi

Mishra & Puri, *Indian Economy*, Himalaya Publishing House

Online links

http://www.tradechakra.com/indian-economy/national-income.html

http://www.economywatch.com/world-country/national-income.html

http://www.wisegeek.com/what-is-a-circular-flow-of-income.htm

http://tutor2u.net/economics/content/topics/macroeconomy/circular_flow.htm

Notes

Unit 3: Theories of Income, Output and Employment: Classical Theory

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Objectives

After studying this unit, you will be able to:

- State the basic features of the classical system;
- Describe the Say's Law;
- Explain the equilibrium in labour, product and capital market;
- Determine the overall price level;
- Discuss the effects of changes.

Introduction

Classical economics dominated the mainstream of economic thinking from the late 18th century until the 1930's. Its chief proponents were Adam Smith, J.B. Say and David Ricardo. The classical scheme of thinking assumes operation of free enterprise and free price mechanism leading to automatic adjustments in all the markets.

Notes

The classicists believed in the existence of full employment in the economy and a situation less than full employment was regarded as abnormal necessary to have a special theory of employment. The classical analysis was based on Say's Law of Markets that "supply creates its own demand." They thus ruled out the possibility of over production. The classical economics was based on the laissez-faire policy of a self · adjusting economic system with no government intervention. In this unit you will learn about the Classical Theory of Income, Output and Employment.

3.1 Concepts Related to Classical Theory

The main concepts used in the classical model are:

- ***Full Employment:*** An economy is said to be in full employment when its entire labour force is gainfully employed. Labour force is that part of the population of the country which is physically and mentally able and at the same time willing to work.
- ***Nominal Wage vs. Real Wage:*** Nominal wage is what a worker receives in the form of money. Real wage is what a worker can buy from the nominal wage.

$$\text{Real wage} = \frac{\text{Nominal wage}}{\text{Price level}} = \frac{w}{p}$$

- ***Real Rate of Interest:*** Nominal rate of interest is the rate which the lender receives from the borrower in money. Real rate of interest is rate accruing after adjustment of inflation. (Rate of interest = ROI, ROI in figures)

$$\text{Real ROI} = \text{Nominal ROI} - \text{rate of inflation}$$

- ***Value of Marginal Product of Labour (VMPL):*** VMPL equals MPL multiplied by the price of the product (P) the labour produces.

$$VMP_L = MP_L \times P = MP_L \times AR$$

  It is distinguished from 'Marginal Revenue Product of Labour (MRPL), which equals MPL ×MR. Since in case of perfect competition in the product market MR=AR, $VMP_L = MRP_L$.
- ***Aggregate Demand and Aggregate Supply:*** Aggregate demand is the total value of final goods and services that all sections of the economy taken together are planning to buy at a given level of income during a period of time. Aggregate supply is the value of final goods and services planned to be produced in an economy during a period.
- ***Supply of Money:*** Money supply of a country is the stock of money on a specific day. This is the sum of currency held outside banks and chequable deposits. This is the money which can be directly used for transactions.

3.1.1 Say's Law

Say's law of market states that ' supply creates its own demand'. If goods are produced then there will automatically be a market for them. This means that there cannot be a general 'overproduction' or 'glut' in an economy that is based on a market system of production and exchange. Correspondingly, there cannot be a deficiency in aggregate demand.

Each person's production constitutes his or her demand for other goods; hence, for the entire community, aggregate demand equals aggregate supply.

Notes

Caution **Assumptions of Say's Law**

Say's law is based upon the following assumptions:

- The amount of labour and capital can be raised in a free enterprise system based on price mechanism.
- In an expanding economy new firms and labourers can have easy entry by offering their products in exchange without dislocating the position of existing firms and labourers.
- The size of market is capable of expansion.
- All savings are automatically invested, i.e., savings always equals investment.
- The Government does not interfere in the functioning of the economy.

Implications of Say's Law

- Since there is automatic adjustment between production and consumption, there is no need for the government to interfere in the functioning of economic system. Any interference by the government in the automatic functioning of the economic system will simply create imbalances and disequilibria.
- When the unemployed resources are employed, they lead to more production which covers their own costs. Hence, the economy will operate at the level of full employment.
- The mechanism of interest flexibility brings about an equality between savings and investment.
- The mechanism of wage- flexibility brings about full employment.

Task Prepare a brief profile of economist Jean Baptiste Say.

3.1.2 The Basic Features of the Classical System

There are three basic features. First, the classical model is called full employment model. Second, the labour, product and capital markets are interrelated markets. Third, there is simultaneous equilibrium in all the markets.

Why called a Full Employment Model

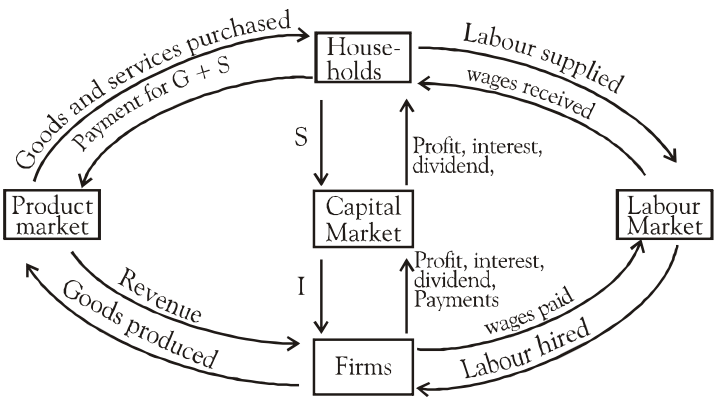
It is called "full employment model" because the classical economists believed that free market forces of demand and supply lead to full employment of resources through automatic adjustments in overall price level (output market), wage rates (labour market) and interest rate (capital market). The entire economy is in full employment equilibrium because all markets are interrelated and what happens in one market will have impact in other markets.

The interrelation between Markets

The interrelation is depicted through the "circular flow of income" diagram.

Notes

Figure 3.1



Assuming a closed economy and no government, households and firms interact in the labour, product and capital markets. Households supply labour to firms that use that labour to produce goods and services. Firms compensate workers by paying wages. Households use their income to purchase goods and services firms produce. Households also save and their savings finance firms' investments. Households earn interest and dividend in return.

Simultaneous Equilibrium in Markets

Since all markets are interrelated, what happens in one market will have impact in other markets. Assuming free enterprise and free price mechanism automatic adjustment in overall price level, wage rates and interest rates lead to simultaneous equilibrium in all the markets. To know how it happens, let us first study how the equilibrium is reached in the individual markets.

Caselet

Geo-classical Economics

Henry George was an American classical economist, but was also very critical of much of classical thought and presented alternative theories. His major work was Progress and Poverty, written in 1879. Thus he and his Georgist followers form a school of their own, which I call "geo-classical," the term "geo" standing for both George and for land. It has elements in common with both the Physiocrat and the classical school. But George rejected the classical notion of Malthus that population will tend to outrun production, and he also argued against the classical "wages fund" theory that wages are paid from some fixed amount of capital fund.

Instead, George theorized that wages are set at the margin of production, where the best free land is available, and production of better land, after paying wages and capital yields, constitutes land rent. Land rent is increased and wages lowered by land speculation, which pushes the margin to less productive land. The remedy for the resulting poverty is the collection of land rent for public revenue and the abolition of the taxation of labor and capital. This will not only increase the margin to more productive land, but also remove the stifling effects of taxing and restricting labor. George also advocated free trade just as the classicals and physiocrats did.

Contd...

Notes

Hence, while socialists advocate the replacement of markets with central planning and redistribution, the geo-classical school recognizes that markets are not truly free if restricted and taxed, and it is these interventions that cause unemployment and poverty. Prosperity can be attained by removing these barriers, not erecting others.

Source: www.foldvary.net

Self Assessment

Fill in the blanks:

1. ..... wages are adjusted for inflation.
2. ..... rate of interest is the rate which the lender receives from the borrower in money.
3. ..... is the value of final goods and services planned to be produced in an economy during a period.
4. The main point of the ..... is that 'supply creates its own demand'.
5. Classical model is also called the ..... model.

3.2 Equilibrium in Markets

3.2.1 Labour Market Equilibrium

Adjustment in 'real' wages ensures full employment. The equilibrium is when demand for labour equals supply of labour.

(a) ***Demand for Labour (D_L):*** The aggregate D_L depends upon real w, prices firms receive for goods and services, and prices firms have to pay for non-labour inputs. With prices of goods and non-labour inputs held constant, D_L becomes the function of real w:

$$D_L = f\,(\text{real } w) = f\,(w/p)$$

Caution There is inverse relation between real w and D_L. There are two reasons: (i) As wages fall relative to the cost of machines, it pays the firm to substitute workers for machines; and (ii) as wages fall, VMP_L becomes greater than w. (VMP_L equals $MPP_L \times P$). A firm employs labour upto the point where VMP_L = real w. A firm goes on employing additional labour so long as VMP_L is greater than real w. As more labour is employed MPP_L falls, and so VMP_L falls. The firm employs labour upto when VMP_L is once again equal to real w.

(b) ***Supply of Labour (S_L):*** When w changes, it produces two effects: SE and IE.

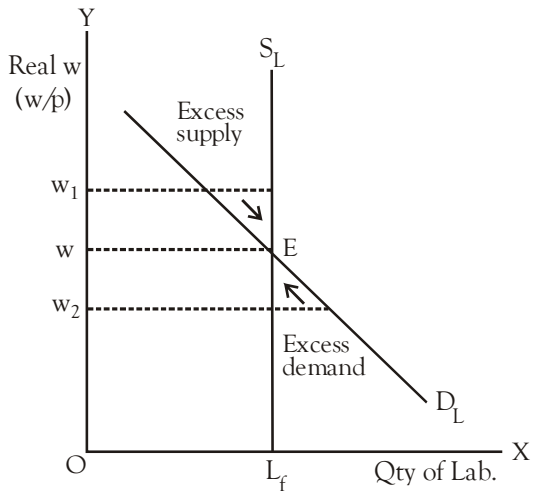
SE: w rises, opportunity cost of labour rises. Therefore, D for leisure falls which means S_L rises.

IE: w rises, demand for leisure rises. S_L falls.

The two effects work in the opposite directions. Let us assume that the two effects offset each other, so that S_L remains unchanged. (We can also conceive of backward sloping supply curve.)

Notes

Figure 3.2



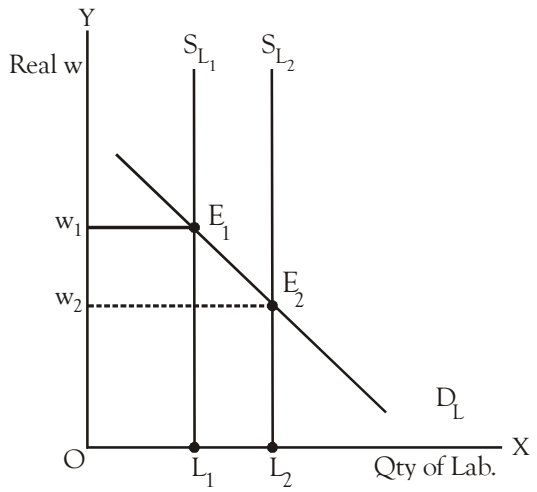
(c) ***Market Equilibrium:*** Equilibrium occurs where D_L and S_L curves intersect. Ow is the equilibrium real w and O_L the equilibrium quantity of labour. At real w, higher than Ow, there will be excess supply. At real w below Ow, there will be excess demand. In both situations, real w will adjust to reach Ow.

Shifts in D_L and S_L

S_L can shift due to higher population growth, new immigrants, more women entering into labour force, etc. This shifts S_L to the right. Real w falls.

D_L curve can shift, to the left, on account of fall in investment etc, and to the right, due to technological progress, etc. Downward shift reduces real w and upward shift increases real w.

Figure 3.3



Notes

Figure 3.4

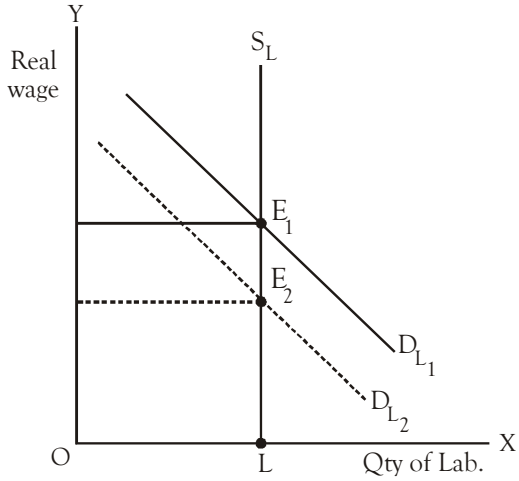
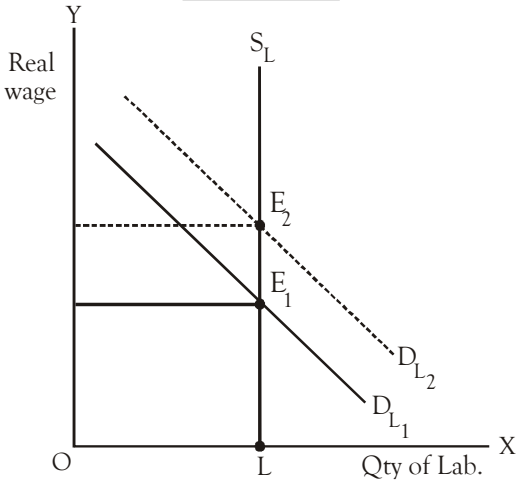


Figure 3.5



3.2.2 Product Market Equilibrium

The product market equilibrium is attained at that 'overall price level' at which Aggregate Demand (AD) equals Aggregate Supply (AS). What is the behaviour of AD and AS with respect to price level?

Let us first take AS. In the classical scheme of things, AS has nothing to do with price level. How is AS determined? Labour market is in equilibrium at the full employment of labour (Figure 3.2). Given full employment of labour, the production function determines full employment level of output. Refer to the figure 3.6. The TP curve represents the production function of the variable input labour. Note that it is concave throughout because it is based on the assumption that the Law of Diminishing Returns is operating from the very beginning. (There is no increasing returns to a variable factor). It means that TP increases at a decreasing rate until it reaches maximum.

Given OL_f, the full employment quantity of labour, the total output produced by OL_f is OY_f. This is the potential GDP at full employment of labour, also called 'aggregate supply'.

Notes

Figure 3.6

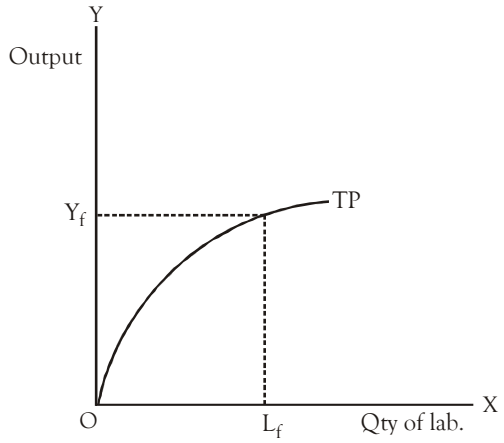
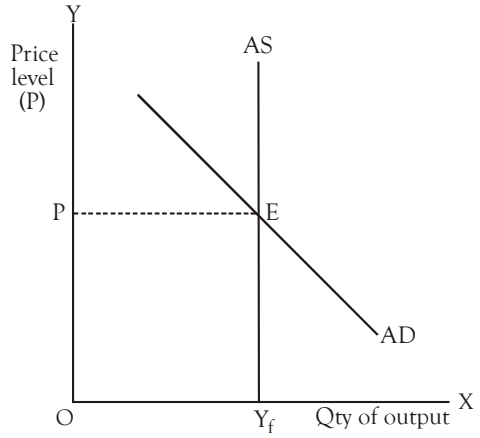


Figure 3.7



Since AS has nothing to do with the overall price level, the AS curve (Figure 3.7) is vertically parallel. The relation between the price level (P) and AD is the usual inverse relation. This makes the AD curve downward sloping . The equilibrium is achieved at E, the intersection of the AD and the AS curves. This is product market equilibrium at full employment level.

Product market equilibrium is full employment output equilibrium. To maintain this, it is necessary that AD equals AS. AD is the sum of consumption demand (C) and investment demand (I). AS, being the value of final goods and services produced, is GDP. GDP can be used for spending on consumption (C) and for saving (S).

Caution Putting the two together:

AS = C + S

AD = C + I

Since at full employment equilibrium AD=AS,

C + S = C + I

S = I

Notes

Saving is the leakage out of the spending stream. Investment is the injection into the spending stream. So long as the leakages (S) equal injections (I), AS will be equal to AD, and the product market will be in full employment equilibrium.

In the classical model, adjustments in the real rate of interest in the capital market ensure equality of saving and investment.

3.2.3 Capital Market Equilibrium

Generally speaking, capital market refers to the borrowing and lending activities of the financial institutions. It is the market in which there are suppliers of funds and demanders of funds. It is also called loanable funds market. The price at which the funds are lent and borrowed is rate of interest. In the classical model, it is the real rate of interest.

The capital market is in equilibrium at that 'real rate of interest' (real ROI) at which the supply of funds (saving) equals demand for funds (investment).

Real ROI and Saving

Saving is a function of disposable income and real ROI. In the classical model, disposable income is full employment income and is fixed. With disposable income fixed saving depends on real ROI. How does saving behave as ROI changes?

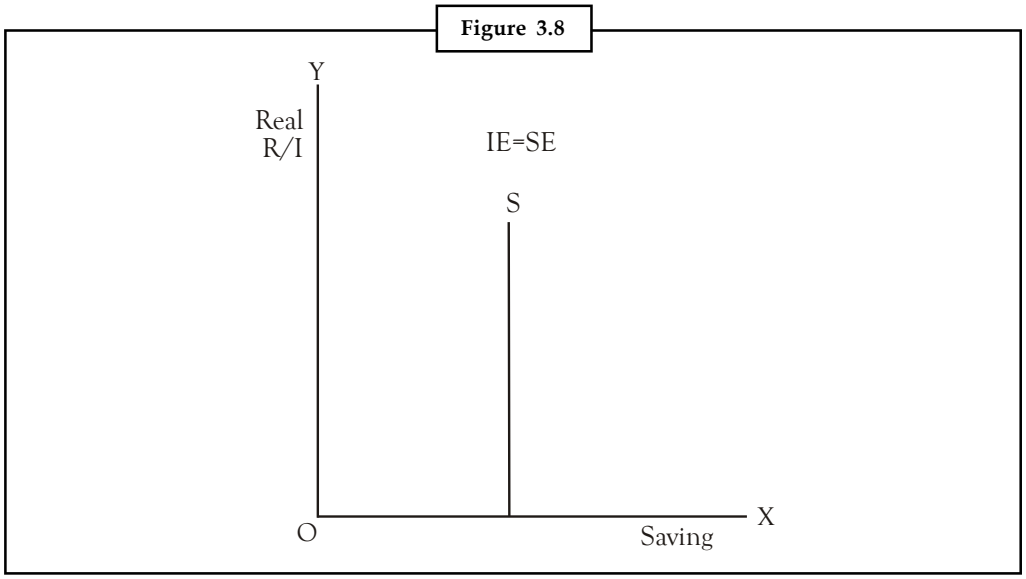
A change in real ROI has income effect (IE) and substitution effect (SE). Suppose real ROI rises. The two effects are:

IE: Real ROI rises. Income from interest rises. Since income rises consumption rises. Since consumption rises, saving falls.

SE: Real ROI rises. Opportunity cost of saving rises. Consumption falls. Saving rises.

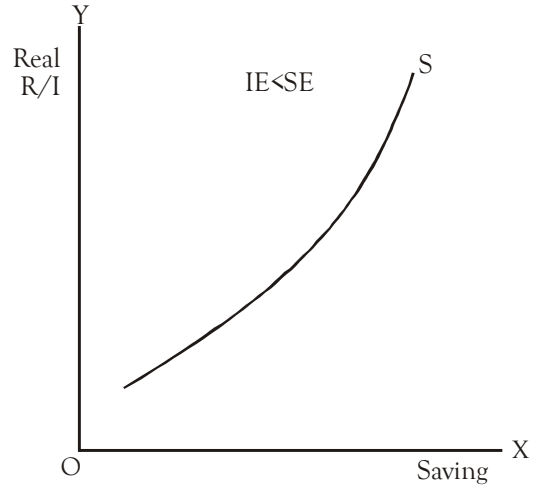
The two effects work in opposite directions. The evidence suggests that IE and SE offset each other. This makes the saving curve a vertical straight line (Figure 3.8)

Figure 3.8



Notes

Figure 3.9



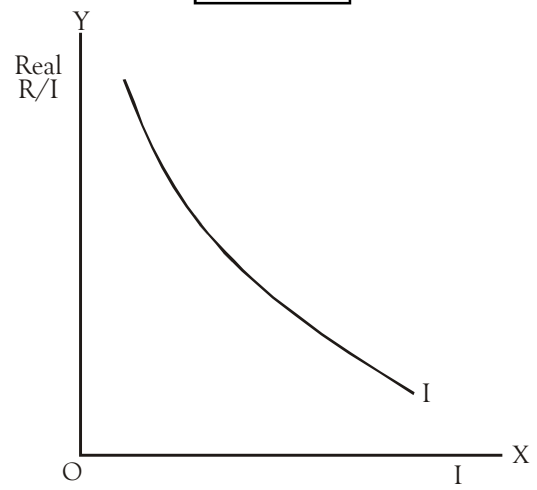
If, however, SE outweighs IE the saving curve is upward sloping (Figure 3.9).

Real ROI and Investment

There are two determinants of investment (in capital goods) – expected future earning and real ROI. Future earning is the return and ROI is the cost. The investor while taking investment decision compares return with cost. It is desirable to invest so long as future earning is greater than, or at least equal to, real ROI.

The model assumes future earning to be fixed. This makes investment as a function of real ROI. Since ROI is the cost, lower the real ROI more profitable it is to undertake investment. This establishes inverse relation between real ROI and investment. It means that the investment function curve is downward sloping (Figure 3.10).

Figure 3.10



Notes

Equilibrium

The capital market equilibrium is attained at that real ROI at which saving equals investment. Graphically, it is attained where the saving and investment curves intersect.

In the Figure 3.11, the saving curve is vertically parallel because it is assumed that IE=SE. The equilibrium is at E. In the Figure 3.12 the saving curve is upward sloping because it is assumed that IE is less than SE. The equilibrium is at E. The equilibrium real ROI is Or.

Figure 3.11

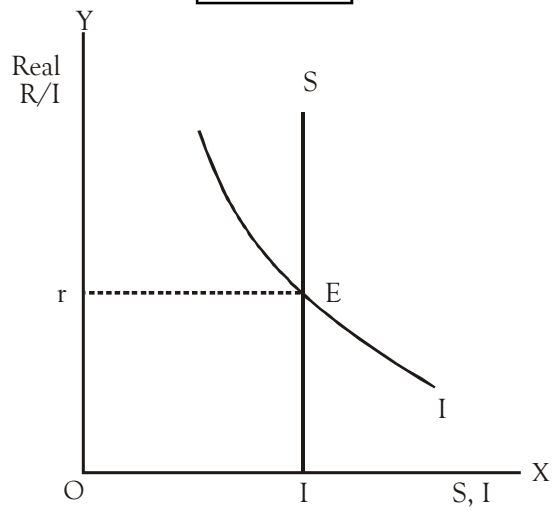
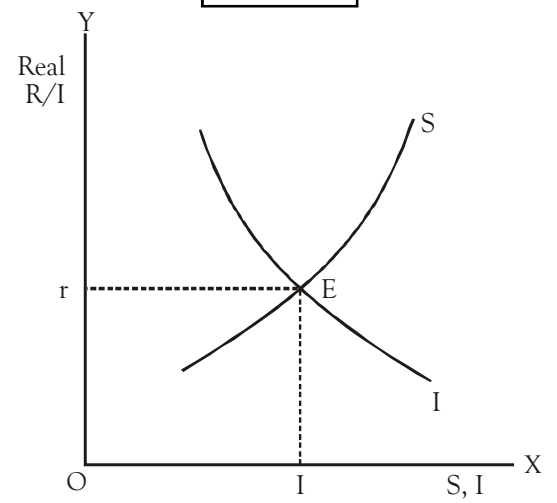


Figure 3.12



Shifts in S and I and Real ROI

Given capital market equilibrium, if the saving curve shifts rightwards (Figure 3.13), real ROI falls; if shifts leftwards (Figure 3.14) real ROI rises. If the investment curve shifts rightwards (Figure 3.15), real ROI rises; if shifts leftwards real ROI falls. (Figure 3.16)

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Figure 3.13

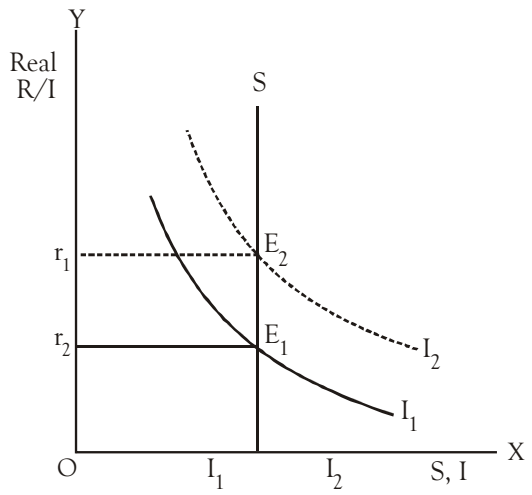
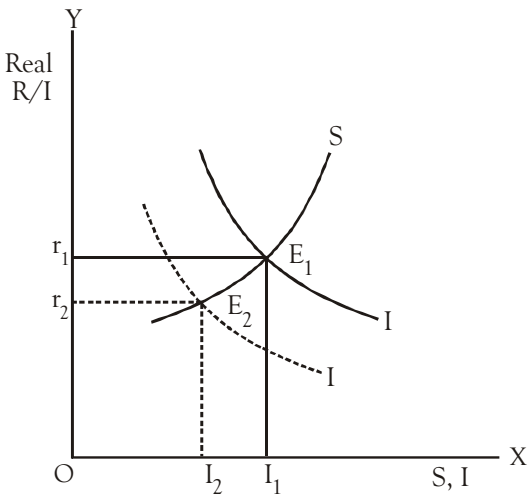


Figure 3.14



To show that if the capital market is in equilibrium the product market is also in equilibrium; the capital market equilibrium ensures the product market equilibrium by equalizing leakages (saving) from and injections (investments) into the spending stream. We can show that if saving equals investment at the full employment level of output, then AD must equal AS. It is assumed that there is no government and no foreign trade. Let the subscript 'f' denote full employment.

Notes

Figure 3.15

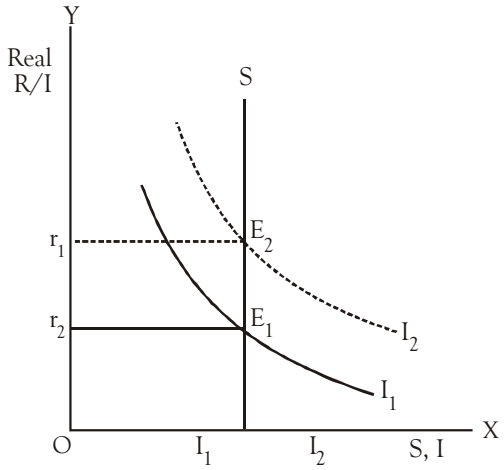
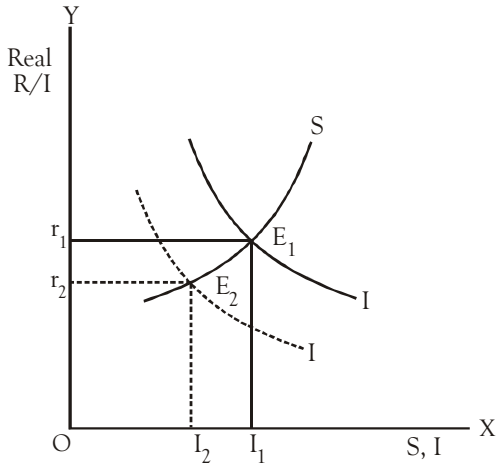


Figure 3.16



Given $S_f = I$ (Capital market eq.).....(i)

$AD = C + I$ .....(ii)

$AS = Y_f = C + S_f$

or $S_f = Y_f - C$ .....(iii)

Substitute (iii) in (i),

$Y_f - C = I$ .....(iv)

Substitute (iv) in (ii),

$C + (Y_f - C) = C + I$

$Y_f = C + I$

$AS = AD\ (Y_f = AS)$

Notes

3.2.4 Simultaneous Equilibrium in all the Markets

The basic features of the classical model of full employment are that (a) all the markets are interlinked and change in one market brings changes in other markets and (b) all the markets are simultaneously in equilibrium. This makes the classical model a general equilibrium model.

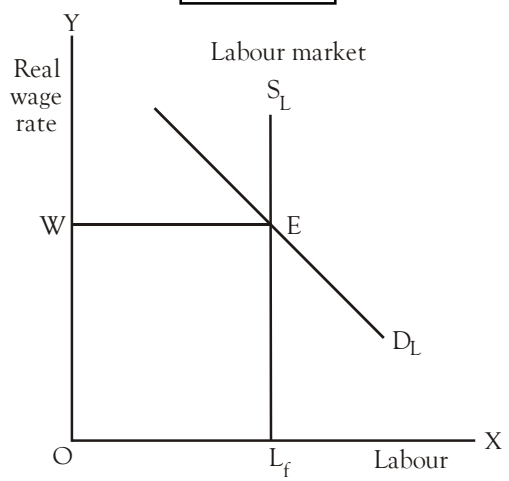
The three markets are simultaneously in equilibrium in the following manner:

Labour Market

The equality of demand for labour and supply of labour determines 'real wage rate' and the level of full employment. Refer to the Figure 3.17.

The level of full employment is OL_f at the equilibrium wage rate Ow.

Figure 3.17



Product Market

The production function TP (Figure 3.18) and the full employment level OL_f together determine the full employment output OY_f.

Figure 3.18

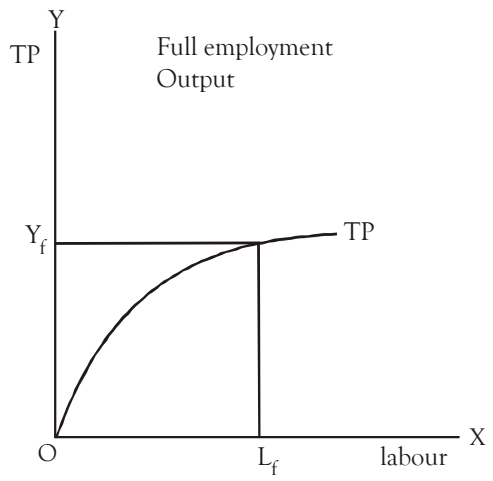


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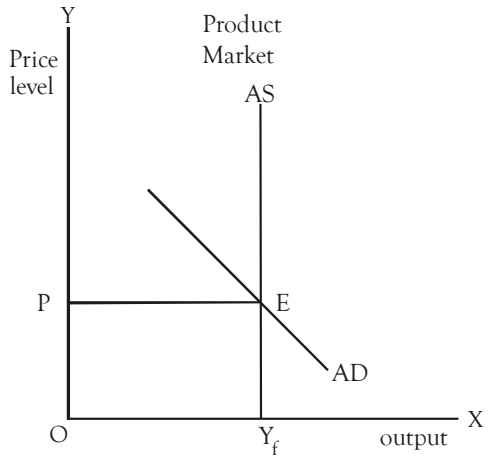
Figure 3.19

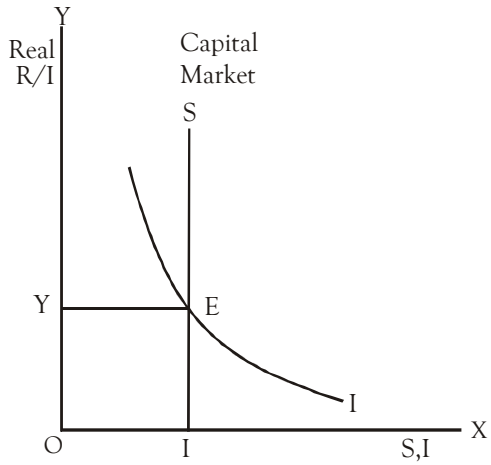


The full employment output OY_f is same as 'aggregate supply'. Since aggregate supply is already determined, the 'aggregate demand' determines the price level at which aggregate demand equals supply. The price level at which the product market is in equilibrium is OP. (Figure 3.19).

Capital Market

The capital market brings equality between saving (leakages) and investment (injections) through adjustments in the real ROI. The capital market ensures that the product market is in full employment equilibrium. (Figure 3.20)

Figure 3.20



Self Assessment

Multiple Choice Questions:

6. Supply of labour curve will shift to the right in all these cases, except:
   (a) Increase in population
   (b) Increase in the number of immigrants

Notes

(c) More women joining labour force

(d) Fall in investment

7. The ..... curve represents the production function of the variable input labour.

(a) Aggregate demand

(b) Aggregate supply

(c) VMP_L

(d) Total Product

8. Which of these equations is not true, considering there is full employment?

(a) S= AS - C

(b) I= AD - C

(c) AD = AS

(d) C -S = C + I

9. The price at which the funds are lent and borrowed is .....

(a) Wage

(b) Monetary price

(c) Rate of interest

(d) Real income

3.3 Determination of the Overall Price Level

In the classical model the 'overall price level' (P) is determined by the forces of demand for money and supply of money.

Demand for Money

Demand for money means holding of money by the people for carrying out transactions. The people hold a proportion of nominal income as money. Nominal income equals the price level (P) multiplied by real income (Y). The nominal income thus equals PY. It means that transactions worth the nominal income PY are carried out by the amount of money M held by the people. Since M is a proportion of PY it means that a unit of M is used again and again to carry out transactions during the year. The average number of times a unit of money is used for carrying out transactions is called 'velocity of circulation of money' (V).

Caution The relation between demand for money (M) and nominal income (PY) is summarized by the following equation:

$$MV = PY$$

The equation is called the 'Quantity Equation of Exchange'. By rearranging the equation, we get:

$$M = \left(\frac{Y_f}{V}\right) P \quad (\because Y = Y_f \text{ in the model})$$

Notes

Y_f is full employment real income and is fixed in the model. Since Y_f is fixed, V is also unchanged. Because both Y_f and V are unchanged, M becomes a direct and proportional function of P.

Example: If P changes by 10%, M also changes by 10%. It is because when P rises people require more money to carry out transactions. So, higher the overall price level higher the demand for money.

Supply of Money

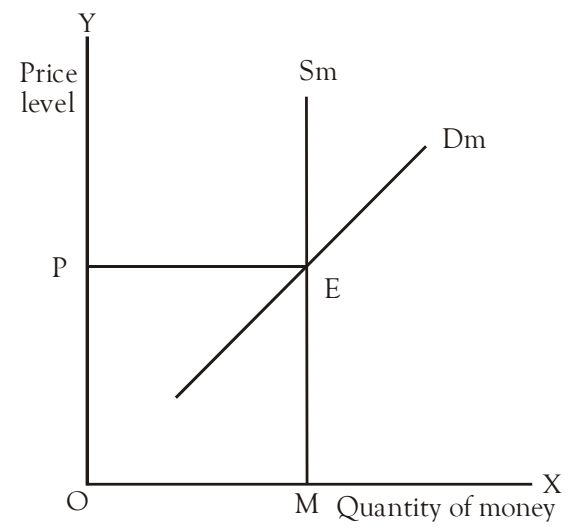
The supply of money is determined by the monetary authorities of the countries. It is not influenced by the change in the overall price level P. It is independent of P.

Determination of Overall Price Level

Given supply of money, the overall price level P is determined at that level at which people decide to hold the entire money supply. P is determined where money supply equals demand for money.

Refer to the Figure 3.21. The demand for money curve Dm is upward sloping and straight line because there is a direct and proportional relation between Dm and P. Since the supply of money is fixed and has nothing to do with P, the supply of money curve Sm is parallel to the y-axis. The intersection of the Dm and Sm curves determines the price level at which the people will hold the entire money supply OM_o. The price level is OPo.

Figure 3.21



The effect of change in Dm and Sm

Since the P is determined by Dm and Sm, any change in Dm or Sm, can bring change in P.

Suppose Supply of Money Changes: Sm increases from OM_o to OM_1. (Figure 3.22). The Sm curve shifts to the right. At OP_o people were holding OM_o of money. When supply of money increase to OM_1 people are now holding more money at OP_o than that want to. The excess money holding is EoA (=M_oM_1). People will like to reduce holding.

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Figure 3.22

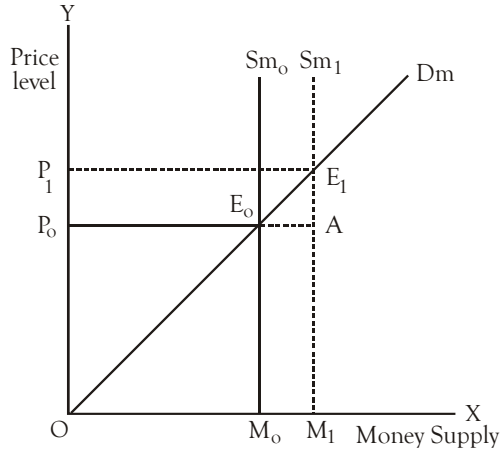
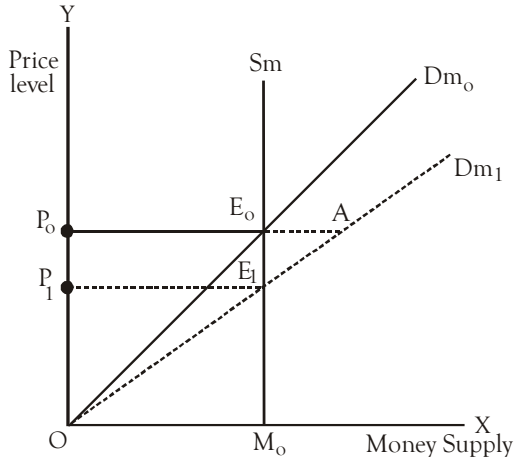


Figure 3.23



The easiest way to reduce M is to spend it. The increased spending starts raising prices. As prices rise, people now need to hold more money to carry out transactions. This raises demand for money. The Dm-Sm equality is restored when the price level has risen enough to make rise in Dm equal to the increased Sm. The Dm-Sm is restored at OP_1.

Now suppose demand for money changes: People hold OM_o (=P_oE_o) of money at OP_o. Suppose now they want to hold P_oA. This rotates the demand for money curve to the right. People are now holding less money at OP_o than they want to hold. Dm exceeds Sm by E_oA. To hold more money people cut back on spending. As a result, the price level falls. As P falls people now need to hold less money to carry out transactions. This reduces demand for money. The Dm-Sm equality is restored when the price level has fallen enough to make fall in Dm equal to the initial increase in Dm. The Dm-Sm equality is restored at OP_1.

Neutrality of Money (Classical Dichotomy)

When price level rises, nominal GDP rises but the real GDP remains unchanged. In the labour market, nominal wage rises but the real wage remains unchanged. In the capital market only nominal saving, nominal investment and nominal ROI increase but real saving, investment and

Notes

ROI remain unchanged. Since there is no change in any of the real variable there is no change in full employment.

In the full employment model, change in supply of money has no real effect on the economy. The money is neutral. The relationship between the real variables is completely independent of changes in the nominal variables. This independence is called classical dichotomy.

Self Assessment

State whether the following statements are true or false:

10. Real income equals the price level (P) multiplied by nominal income.
11. 'Velocity of Circulation of Money' refers to the average number of times a unit of money is used for carrying out transactions.
12. Supply of money is independent of the price level.
13. The relationship between the real variables is completely independent of changes in the nominal variables. This independence is called classical dichotomy.

3.4 Effects of Changes

In the classical model, all the markets are interlinked and a change in one market brings changes in all other markets. The model can thus be used to understand the effects of various changes in the economy.

3.4.1 Technological Changes

The effects on different markets are:

1. ***Labour Market:*** Technological changes increase marginal product of labour (MP_L). The rise in MP_L in turn increases demand for labour. Supply of labour remaining the same, this raises the real wage rate. Refer to the Figure 3.24. The demand for labour curve D_L shifts upwards. The real wage rate rises from w_1 to w_2.

Figure 3.24

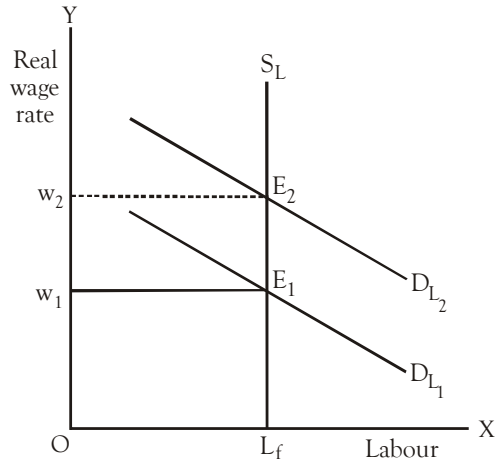


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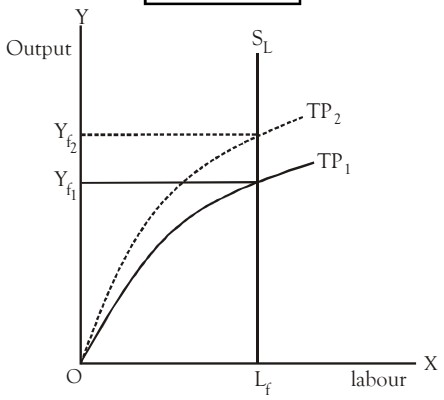
Figure 3.25



2. ***Product Market:*** Increase in MP_L raises total product of labour (TP_L) at all levels of employment. The full employment level of output also rises. The behaviour of aggregate demand remaining unchanged, the overall price level falls. AD must also rise to reach new equilibrium. Refer to the Figure 3.25. The TP curve shifts upwards. This raises the full employment level of output. Now refer to the Figure 3.26. The AS curve shifts rightwards. AD curve remaining the same, the price level falls to reach new equilibrium.

Figure 3.26

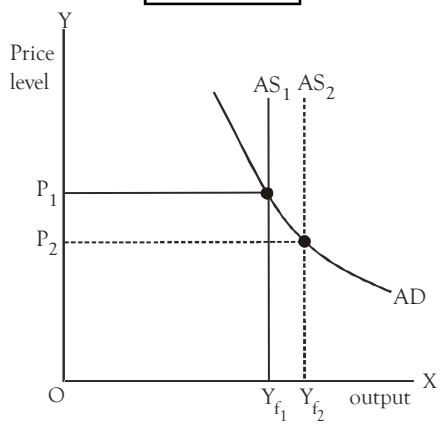
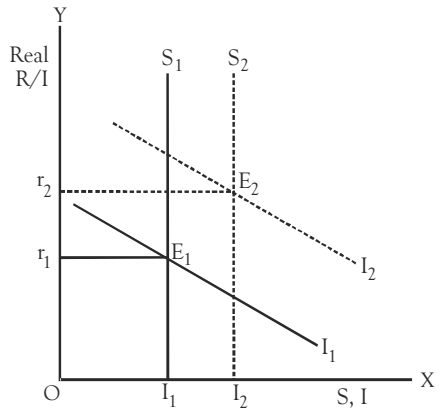


Figure 3.27



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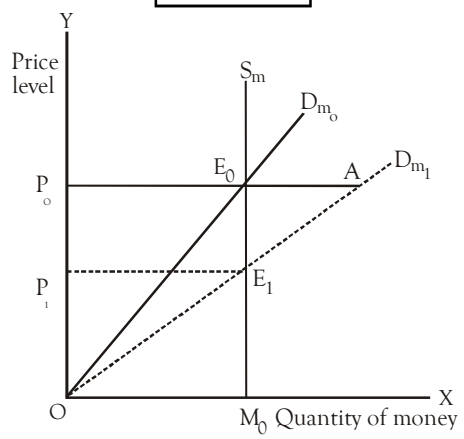
3. ***Capital Market:*** Producers raise investment to take advantage of new technology. This raises income and in turn savings. Since both investment and saving rise, real ROI may rise, fall or remain unchanged depending upon the relative increases in the two. Whatever happens to the real ROI, the change in the real ROI brings in saving and investment equality once again. Refer to the Figure 3.27. The investment curve shifts upwards and the saving curve shifts rightwards. The new equilibrium is E_2 and real ROI r_2. In this example, r_2 is greater than r_1. But r_2 may also be less than or equal to r_1 depending upon the relative shifts of the I and S curves.

4. ***On Price Level:*** Technological change raises full employment level of output. Aggregate demand remaining the same price level falls. The same result can be shown with the help of demand and supply of money (Figure 3.28).

Figure 3.28



Given Dm = $P\frac{Y_f}{V}$, when

Y_f rises demand for money Dm also rises. The Dm curve rotates downwards. At Po, Dm now exceeds supply of money Sm by E_oA. It means that people want to hold more money. To do so they cut back on spending. As a result price level falls till the new equality between Dm and Sm is reached at E_1. The price level falls to OP_1.

Task Explain with the help of examples, the effect of technological change on labour market.

3.4.2 Increase in Supply of Labour

Suppose more women enter into workforce. It means that the labour force participation rate rises. The chain of effects are:

1. ***Labour Market:*** Supply of labour increases. This leads to fall in the real wage rate. Refer to the Figure 3.29. The supply curve of labour S_L shifts to the right. Demand for labour curve remaining unchanged, the real wage rate falls to w_2.

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Figure 3.29

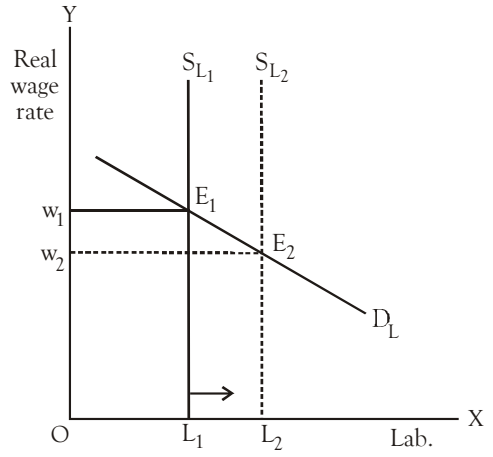

Figure 3.30

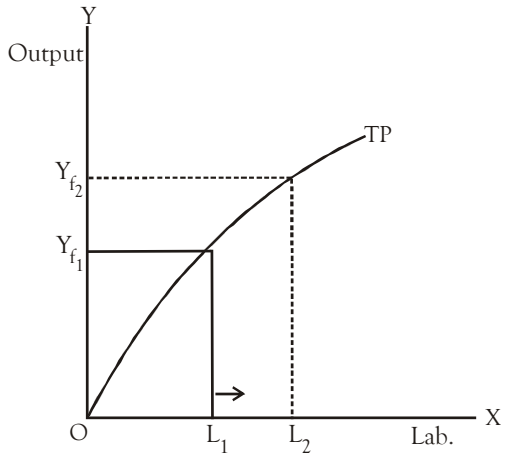

Figure 3.31

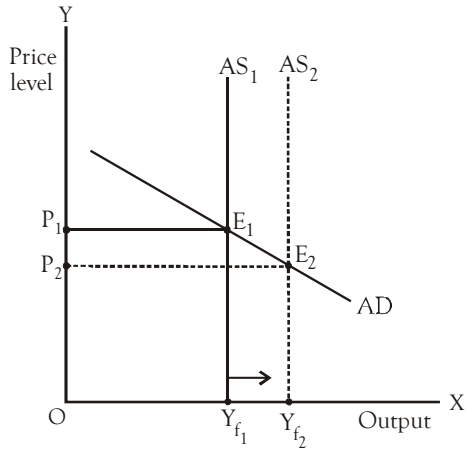

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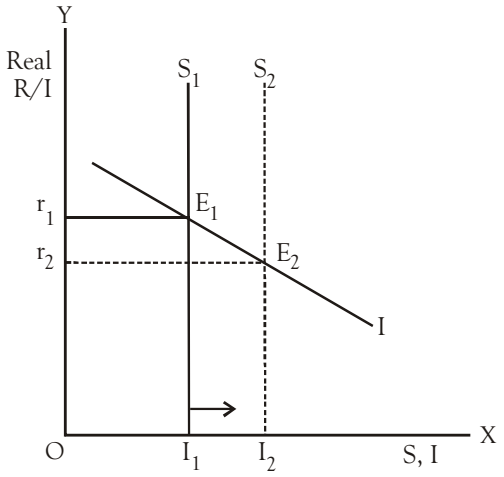
Figure 3.32



2. ***Product Market:*** With rise in full employment level from OL_1 to OL_2, (Figure 3.30) the full employment GDP rises from OY_{f1} to OY_{f2}. The AS curve shifts to the right. AD curve remaining unchanged price level falls (Figure 3.31) from P_1 to P_2.

3. ***Capital Market:*** With rise in real GDP, saving rises. The saving curve shifts to the right. Investment curve remaining the same real, ROI falls from r_1 to r_2 (Figure 3.32). The new saving and investment equality are at E_2. Investment rises.

Effect on the price level can also be shown through the demand and supply of money by using Figure 3.28

Case Study

A Radical Reinterpretation of Labor's Right to the Whole Produce

The fact that profits are an income attributable to the labor of businessmen and capitalists, and the further fact that their labor represents the provision of guiding and directing intelligence at the highest level in the productive process, suggests a radical reinterpretation of the doctrine of labor's right to the whole produce. Namely, that that right is satisfied when first the full product and then the full value of that product comes into the possession of businessmen and capitalists (which is exactly what occurs, of course, in the everyday operations of a market economy). For they, not the wage earners are the fundamental producers of products.

By the standard of attributing results to those who conceive and execute their achievement at the highest level, one must attribute to businessmen and capitalists the entire gross product of their firms and the entire sales receipts for which that product is exchanged. Such, indeed, is the accepted standard in every field outside of economic activity. For example, one attributes the discovery of America to Columbus, the victory at Austerlitz to Napoleon, the foreign policy of the United States to its President (or at most a comparative handful of officials). These attributions are made despite the fact that Columbus could not have made his discovery without the aid of his crewmen, nor Napoleon have won his victory without the help of his soldiers, nor the foreign policy of the United States be

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carried out without the aid of the employees of the State Department. The help these people provide, is perceived as the means by which those who supply the guiding and directing intelligence at the highest level accomplish their objectives. The intelligence, purpose, direction, and integration flow down from the top, and the imputation of the result flows up from the bottom.

By this standard, the product of the old Ford Motor Company and the Standard Oil Company are to be attributed to Ford and Rockefeller. (In many cases, of course, the product must be attributed to a group of businessmen and capitalists, not just to a single outstanding figure.) In any event, labor's right to the full value of its produce is fully satisfied precisely when a Rockefeller or Ford, or their less known counterparts, are paid by their customers for their products. The product is theirs, not the employees'. The help the employees provide is fully remunerated when the producers pay them wages.

This view of the nature of labor's right to the full produce leads to a very different view of the payment of incomes to capitalists whose role in production might be judged to be passive, such as, perhaps, most minor stockholders and the recipients of interest, land rent, and resource royalties. If the payment of such incomes did represent an exploitation of labor, it would not be an exploitation of the labor of wage earners. Such incomes are paid by businessmen-by the active capitalists; they are not a deduction from wages but from profits. If any exploitation were present here, it would be this group, not the wage earners, who were the exploited parties. What this would mean in practice is that individuals like Rockefeller and Ford were exploited by widows and orphans, for it is such individuals who make up a large part of the category of passive capitalists.

In fact, however, the payment of such incomes is never an exploitation, because their payment is a source of gain to those who pay them. They are paid in order to acquire assets whose use is a source of profits over and above the payments which must be made. Furthermore, the recipients of such incomes need not be at all passive; they may very well earn their incomes by the performance of a considerable amount of intellectual labor. Anyone who has attempted to manage a portfolio of stocks and bonds or real estate should know that there is no limit to the amount of time and effort which such management can absorb in the form of searching out and evaluating investment possibilities, and that the job will be better done the more such time and effort one can give it. In the absence of government intervention in the form of the existence of national debts, loan guarantees, and deposit insurance, (not to mention "transfer payments"), the magnitude of truly unearned income in the economic system would be quite modest, for almost every other form of investment would require the exercise of some significant degree of skill and judgment. Those not able or willing to exercise such skill and judgment would either rapidly lose their funds or would have to be content with very low rates of return in compensation for safety of principal and, possibly, reflecting the deduction of management fees by trustees or other parties.

It should also be realized that in a laissez faire economy, without personal or corporate income taxes (a real exploitation of labor) and without legal restrictions on such business activities as insider trading and the award of stock options, the businessmen and active capitalists are in a position to own an ever increasing share of the capitals they employ. With their high incomes they can progressively buy out the ownership shares of the passive capitalists.

In this way, under capitalism, those workers-the businessmen and active capitalists-who do have a valid claim to the ownership of the industries in fact come to own them. Again and again, penniless newcomers appear on the scene and by virtue of their success secure a growing influence over the conduct of production and ultimately obtain the ownership of vast personal fortunes. An ironic consequence of Adam Smith's errors in this area, to be

Contd...

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counted among all the other absurdities of socialism, is that the socialists want to give the ownership of the industries to the wrong workers!And to do so, they want to destroy the economic system which gives it to the right workers. They want to give it to the manual laborers, while capitalism gives it to those who supply the guiding and directing intelligence in production.

Not surprisingly, the socialists and their fellow travelers, the contemporary "liberals," denounce capitalism's giving ownership to the right workers. They denounce it when they denounce large salaries and stock options for key executives.

Question:

Compare classical theory vis-à-vis exploitation.

Source: www.mises.org

Self Assessment

Fill in the blanks:

14. Technological changes ..... marginal product of labour.
15. An increase in labour supply leads to a fall in .....
16. When the real GDP increases, savings .....

3.5 Summary

- The classicists believed in the existence of full employment in the economy and a situation less than full employment was regarded as abnormal necessary to have a special theory of employment.
- Say's law of market states that 'supply creates its own demand'. If goods are produced then there will automatically be a market for them. This means that there cannot be a general 'overproduction' or 'glut' in an economy that is based on a market system of production and exchange.
- There are three basic features. First, the classical model is called full employment model. Second, the labour, product and capital markets are interrelated markets. Third, there is simultaneous equilibrium in all the markets.
- Demand for money means holding of money by the people for carrying out transactions. The people hold a proportion of nominal income as money. Nominal income equals the price level (P) multiplied by real income (Y). The nominal income thus equals PY.
- Given supply of money, the overall price level P is determined at that level at which people decide to hold the entire money supply. P is determined where money supply equals demand for money.
- In the full employment model, change in supply of money has no real effect on the economy. The money is neutral. The relationship between the real variables is completely independent of changes in the nominal variables. This independence is called classical dichotomy.
- In the classical model, all the markets are interlinked and a change in one market brings changes in all other markets.

Notes

3.6 Keywords

Aggregate Demand: It is the total value of final goods and services that all sections of the economy taken together are planning to buy at a given level of income during a period of time.

Aggregate Supply: It is the value of final goods and services planned to be produced in an economy during a period.

Classical Dichotomy: It refers to an idea attributed to classical and pre-Keynesian economics that real and nominal variables can be analyzed separately.

Full Employment: An economy is said to be in full employment when its entire labour force is gainfully employed.

Loanable Funds Market: It is a hypothetical market that brings savers and borrowers together, also bringing together the money available in commercial banks and lending institutions available for firms and households to finance expenditures, either investments or consumption.

Nominal Wages: Wages stated in terms of money paid, not in terms of purchasing power.

Real Wages: Income of an individual, organization, or country, after taking into consideration the effects of inflation on purchasing power.

Velocity of Circulation of Money: The average number of times a unit of money is used for carrying out transactions.

3.7 Review Questions

1. Show interrelation between markets through the 'circular flow of income'.
2. Explain labour, product and capital market equilibrium in the classical model.
3. Show that when capital market is in equilibrium the product market is also in equilibrium.
4. Explain how the labour, product and capital markets are simultaneously in equilibrium in the classical model.
5. Show how there is direct and proportional relation between price level and demand for money.
6. Explain how change in supply of money brings change in the price level.
7. Trace the effects of introduction of new technology (which increases labour productivity) on labour, product and capital markets in the classical model characterized by full employment and perfect wage price flexibility.
8. Define 'neutrality of money'.
9. Draw a labelled diagram to show the circular flow of payments among the four sectors of an economy.
10. Sustained migration leads to an increase in labour stock in a certain economy. Analyze its impact on long run levels of output, employment and real wages. How does the capital market ensure the equilibrium in the product in this case?

Answers: Self Assessment

1.	Real	2.	Nominal
3.	Aggregate supply	4.	Say's Law

Notes

5.	Full employment	6.	(d)
7.	(d)	8.	(d)
9.	(c)	10.	False
11.	True	12.	True
13.	True	14.	increase
15.	real wage rate	16.	rise

3.8 Further Readings

Books

R. L. Varshney, K. L. Maheshwari, *Managerial Economics,* Sultan Chand & Sons, New Delhi

S K Agarwala, *Principles of Economics*, 2nd Edition, Excel Books

Thomas F. Dernburg, *Macro Economics,* Mc Graw-Hill Book Co.

Online links

http://www.ehow.com/facts_5318449_classical-theory-economics.html

http://www.interzone.com/~cheung/SUM.dir/econthyc1.html

http://economics.wikia.com/wiki/Classical_Theory_of_Employment_and_Output_Determination

Notes

Unit 4: Theories of Income, Output and Employment: Keynesian Theory

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Objectives

After studying this unit, you will be able to:

- Explain the concepts of aggregate demand;
- Discuss the aggregate supply;
- Discuss the Keynesian theory of income and employment;
- Contrast the Classical and Keynesian theory.

Introduction

After learning about the Classical Theory in previous unit, we now move to the Keynesian version of the theory. The classical economists failed to explain the persistent high levels of unemployment and the low levels of business productivity in those times so Keynesian Model gained prominence.

Did u know? Keynes published a book titled '*General Theory of Employment, Interest and Money*' in the year 1936, in which he attacked the classical views for not dealing with the economic problems of the real world properly.

Notes

No doubt that the Keynesian economics is built on the classical economics but it still differs drastically from the latter in terms of assumptions, presentation of tools of analysis and policy measures. Keynes possessed great intuitive power of economic analysis. Undoubtedly, the Keynesian analysis has significantly influenced policy matters in the capitalist economies of the world.

In this unit, you are going to learn about the basic concepts of aggregate demand and supply in the economy along with the major concepts of Keynesian Theory of Income and Employment.

4.1 Keynesian Theory of Income, Output and Employment

Historically, the Keynesian model follows the classical model. The basic difference between the two is:

The classical held that unemployment cannot exist. Even if there is any unemployment, it is self correcting. The complete flexibility in real variable-wage, price level and rate of interest-ensures full employment level.

Keynes believed that it is the 'aggregate demand', not wages, price level and rate of interest, which determine unemployment. Keynes also believed that government can step in to influence the level of output and employment.

4.1.1 Concepts

Planned Output (Income)

It is also called **'aggregate supply'**. It is the ***value of final goods and services planned to be produced in an economy during a period***. Assuming a closed economy without government, the value of planned output is nothing but national income.

Planned Aggregate Expenditure (AE)

It is the ***value of final goods and services planned to be purchased by people in an economy during a given period***. The expenditure is classified into consumption spending (C) and investment spending (I). This is on the assumption that the economy is a closed economy without government. It means there is no government expenditure (G), no exports (X), no imports (M). In an open economy with government AE is the sum of C,I,G and net exports.

Planned Consumption Spending

The main factors determining consumption spending are:

1. ***Household's Income:*** It is held that as income of the households rises, people do spend a proportion of the income on consumption. Higher the income higher the consumption spending.
2. ***Household's Wealth:*** Higher the amount of wealth a household possesses higher is the expected flow of future income. Higher the expected flow higher the spending on consumption.
3. ***Interest Rate:*** Interest paid is the cost of borrowing. People do borrow to spend on consumption. Lower the rate of interest lower the cost of borrowing. This stimulates spending. The higher rate of interest discourages spending.

Notes

4. ***Household's Expectation about Future:*** If there is a positive expectation about the future flow of income the current spending may rise. Uncertainty about future income decreases current spending.

Consumption Function

The relation between income and consumption spending is called consumption function, assuming all other factors influencing consumption are unchanged. It is expressed as:

$$C = a + bY$$

Where C = Consumption spending

a = Consumption spending at zero income

b = The proportion of the increased income spent on consumption

Y = Income

In the function 'a' is constant. 'b' equals change in consumption (ΔC) divided by the change in income (ΔY). The value of 'b' is also called Marginal Propensity to Consume (MPC).

$$b = \frac{\Delta C}{\Delta Y} = MPC$$

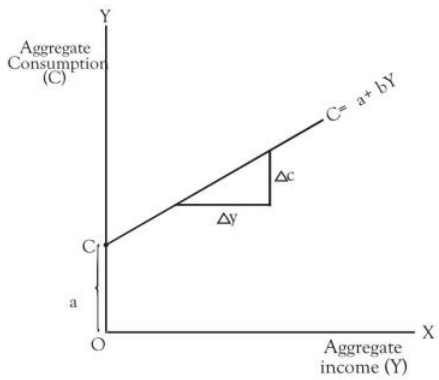
Graphically, if we show aggregate income (Y) on the x-axis and the aggregate consumption (C) on the y-axis, the straight line starting from c on the y-axis is the consumption function line. Here,

$$a = OC$$

$$b = \text{slope} = MPC = \frac{\Delta C}{\Delta Y}$$

It is upward sloping because as income rises C rises. It is a straight line because the slope is constant. The slope is constant because MPC is assumed to be constant. This is depicted in Figure 4.1.

Figure 4.1



Planned Investment Spending (I)

Investment refers to the purchases of new capital goods like machines, buildings, equipments, inventories of inputs and finished products. The theory of income determination assumed

Notes

planned-investments to be fixed and not changing with change in income. This makes the investment curve parallel to the x-axis. (Figure 4.2)

By combining Figure 4.2 with the Figure 4.1, we can get the 'aggregate spending' (C+I) curve. The two are combined in the Figure 4.3.

Figure 4.2

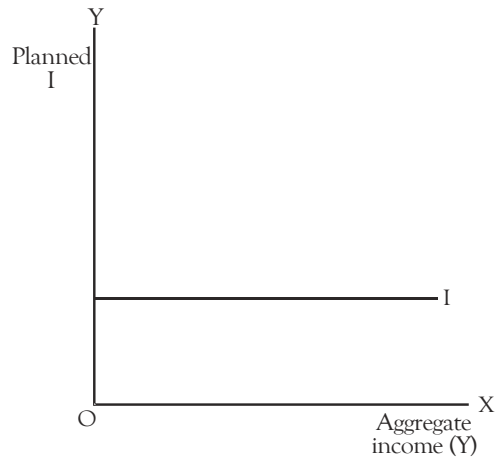
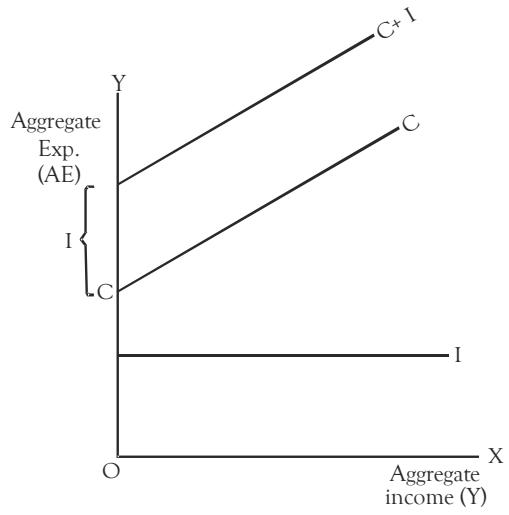


Figure 4.3



C+I curve is the Aggregate Expenditure (AE) curve. It is the vertical sum of I and C curves. The C+I curve is parallel to the C curve because investment spending is imagined to be constant and does not change with the change in aggregate income (Y).

Saving Function

The relationship between income (Y) and saving (S) is referred to as the saving function. Since Y = C + S and S = Y - C, the saving function can be derived in the following manner:

Given $S = Y - C$

and $C = a + bY$

Notes

Therefore, $S = Y - (a + bY)$

$= Y - a - bY$

$= -a + (1 - b) Y$

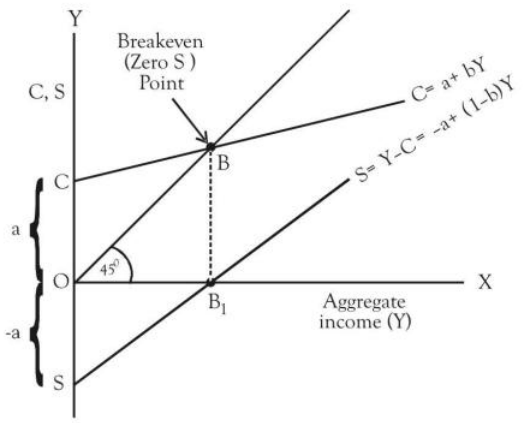
where $-a$ = saving at zero income

$(1 - b)$ = the proportion of increase in income saved.

Caution In the function, -a is constant. (1-b) equals change in saving (S) divided by change in income (Y). It is also called Marginal Propensity to Save (MPS).

$$1 - b = \frac{\Delta S}{\Delta Y} = MPS$$

Figure 4.4



The saving curve (Figure 4.4) can be derived from the consumption curve with the help of 45° line from the origin. Given Y on the x-axis and C on the y-axis, all the points on the 45° line represent C = Y or S = O. The C curve intersects the 45° line at B which means that at B, Y equals C and S is zero. To derive a straight line curve, we need only two points. One point is B_1 on the x-axis derived from point B on the C curve. The other point, is S on the extended y-axis. At this point OS must be equal to OC. Joining S and B1, we get the S curve. Here:

$-a$ = OS

$1-b$ = slope = MPS = $\Delta S/\Delta Y$

Note that the sum of MPC and MPS must be equal to one because that part of increased income which is not spent on consumption is saved.

4.1.2 Equilibrium Level of National Income

The equilibrium is determined where planned aggregate expenditure (AE) equals planned income or output (Y) AE.

Planned income = Planned aggregate expenditure.

$Y = AE$

Notes

This is the basic approach. From this, we can derive another approach. Since Y equals C+S and the AE equals C+I, the equilibrium is determined where:

$$Y = AE$$

or $$C + S = C + I$$

or $$S = I$$

The two approaches are explained below:

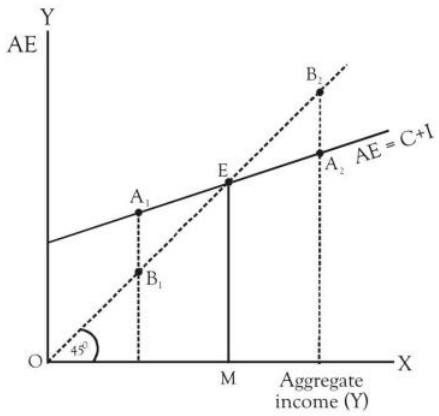
$$Y = C + I \text{ approach}$$

National income is in equilibrium when income (Y) equals AE (C+I).

$$Y = C + I$$

Graphically (Figure 4.5), the equilibrium is at the intersection of the AE curve and the 45° line. The 45° line represents all the points on the graph where Y equals C+I. Therefore, the intersection at E shows equality of Y and C+I. This intersection is sometimes called ***Keynesian Cross***. The equilibrium level of income is OM.

Figure 4.5



What happens if Y is not equal to C+I ?

If planned income is not equal to planned AE, adjustment takes place to make them equal again.

Suppose Y is less than AE. This is the situation to left of E in the diagram, at A_1 on the AE curve. It means that output produced is less than the output purchased. It is possible only when a portion of the accumulated stock of goods and services, called inventories is also sold. The inventories decline. This is an unplanned decline. To raise the inventory level again, the producers increase output. They make more purchases of inputs including labour. This leads to rise in income of those from whom the inputs are purchased. National income rises and also rises along with it is the consumption. Income and consumption continue to rise till the equilibrium is reached again.

Now suppose Y is more than AE. It means that output produced is more than the output purchased. The unsold portion goes to increase the inventory level. This is unplanned increase in inventory. To eliminate the unplanned increase, producers reduce output. They make less purchases of inputs. This leads to fall in income of the input producers. Consumption also falls along with it. Income and consumption continue to fall till the equilibrium is reached again.

$$S = I \text{ approach}$$

Notes

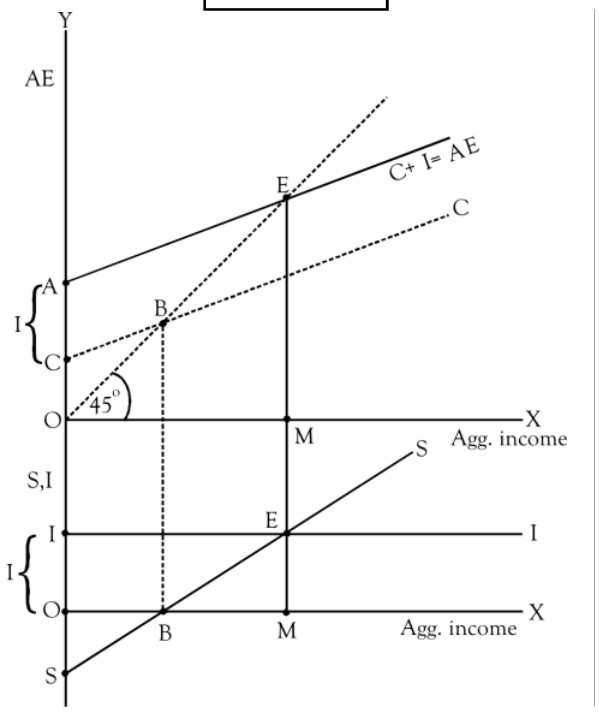
The approach is also called leakage/injection approach. In this approach, the equilibrium is reached when:

Planned S = Planned I

Leakages = Injections

Leakages are the outflows from the expenditure stream while injections are the fresh inflows into the expenditure stream. The equilibrium is at the intersection of the S and I curves at E. (Figure 4.6)

Figure 4.6



What happens if S is not equal to I?

Suppose S is less than I. It means that a part of I is made out of accumulated past inventory. This leads to unplanned decrease in inventory. The producers make up the decrease by producing more output. To produce more they purchase inputs. The income of the input owners rises, and their savings also rise. The income and savings continue to rise till the equality between S and I is achieved.

Now suppose S is greater than I. It means that only a part of the saving is used for investment. The remaining part is added to inventory. This is unplanned increase in inventory. To eliminate the unplanned increase the producers produce less. Obviously now, they purchase less inputs. As a result the overall income of the input owners fall, and also fall their savings. The income and savings continue to fall till the equality between S and I is achieved again.

Task Find out more about the origin of Keynesian Theory. Seek answers to questions like when it became popular? Why it became popular? etc.

Notes

4.1.3 Paradox of Thrift

The word 'paradox' means a self-contradictory statement. Thrift means habit of saving. It is often stated that 'a rupee saved is rupee earned'. According to the theory of income determination a rupee saved is a rupee 'leakage' from the expenditure stream. According to the principal of multiplier a rupee leakage will lead to multiple decreases in national income. Fall in income will ultimately lead to less saving. On the basis of same reasoning less saving by a rupee will lead to multiple increase in income, and ultimately to more saving. The paradox then is that more saving means ultimately less saving, and less saving means ultimately more saving. We can restate the paradox in another way: more saving results in less national income and less saving results in more national income.

Caution The paradox is based on the assumption that money saved is money stocked and not invested. If a rupee saved (leakage) is invested (injection), the paradoxical fall in saving will not take place. The saving, in fact, will increase due to multiple increases in income.

4.1.4 Equilibrium of National Income with Government

The above analysis is based on the assumption of no government and no foreign trade. We now relax the 'no government assumption', and assume that government participates in the economy. Government participates directly through fiscal policy, and indirectly through monetary policy. We analyse the participation through fiscal policy.

Fiscal policy refers to the taxation and expenditure policy. Government collects taxes, makes transfer payments and incurs expenditure.

Aggregates

With the introduction of government, the variables aggregate income (Y) and aggregate expenditure (AE) are modified in the following way:

Aggregate Income (Y)

Let T = Net tax = Tax - Transfer payments

G = Government expenditure

Y = Households income before tax

Yd = Households disposable income = Y - T

Households spend disposable income on consumption and saving. Therefore,

$$Yd = C + S \qquad \text{.....(1)}$$

Given $$Yd = Y - T \qquad \text{.....(2)}$$

From (1) and (2), we get

$$Y - T = C + S$$

$$Y = C + S + T$$

Notes

Aggregate Expenditure (AE)

Given AE = C + I without government, add government consumption expenditure to it to get AE with government.

AE = C + I + G

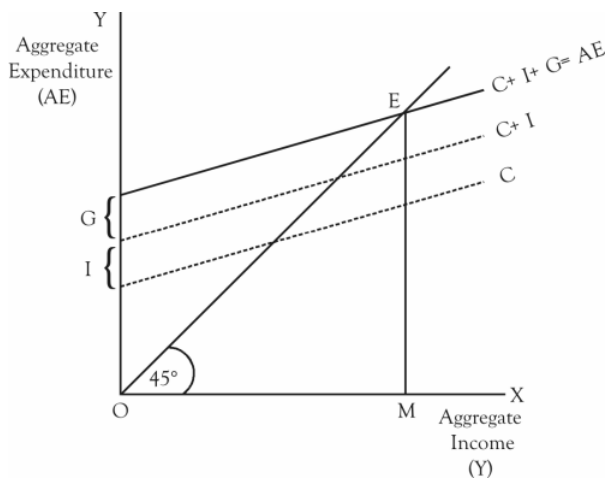
Equilibrium Y = AE approach

With inclusion of government sector, AE is now the sum of C, I and G. The equilibrium level of national income is where

Y = C + I + G

Government expenditure is assumed to be an autonomous expenditure. It implies that G is not influenced by Y and remains the same at all the levels of income.

Figure 4.7



Graphically (Figure 4.7) it means that AE curve is now C+I+G curve and is parallel to the C+I curve. The equilibrium level of Y is determined at the intersection of AE curve and the 45° line. It is at E with OM equilibrium level of Y.

Leakages/Injections Approach

With inclusion of government sector this approach is no longer the saving investment equality approach. It is so because aggregate income is now disposed on C, S and net taxes (T).

Net taxes = taxes - transfer payment by government.

Therefore, Y = C+S+T

The leakage/injections approach is derived as follows:

Given Y = C+I+G (AE) ...(1)

Y = C+S+T (Agg. Y) ...(2)

From (1) and (2), we get

C+S+T = C+I+G

or S+T = I+G

or Leakages = Injections

Notes

Caselet

The Case of Borrowing Born Out of the Great Depression

At the core of Keynesian economics is the idea that fiscal policy (government taxing and spending) should be used as a tool to control an economy.

It was a theory espoused by one of the 20th century's greatest thinkers, British economist John Maynard Keynes, whose ideas helped shape the modern world economy and are still widely respected and followed today.

Keynes's magnum opus – *The General Theory of Employment, Interest and Money* (1936) – was a direct response to the Great Depression. He argued that governments had a duty, one that had hitherto been neglected, to help keep the economy afloat in times of trauma. It was a rebuke to an idea from Frenchman Jean-Baptiste Say (1767-1832) that in the economy as a whole "supply creates its own demand", meaning that merely producing goods would create demand.

The assumption until the Great Depression had been that the economy was in large part self-regulated - that the invisible hand, left to itself, would automatically raise employment and economic output to optimal levels. Keynes strongly disagreed.

During a downturn, he said, the drop in demand for goods could cause a serious slump, causing the economy to contract and pushing up unemployment. It was the responsibility of government to kick-start the economy by borrowing cash and spending it, hiring public-sector staff and pouring cash into public infrastructure projects - for example, building roads and railways, hospitals and schools. Interest-rate cuts can go some way towards lifting an economy, but they are not the whole answer.

According to Keynes, the extra cash spent by the state would filter through the economy. For example, building a new motorway creates work for construction firms, whose employees go out and spend their money on food, goods and services, which in turn helps keep the wider economy ticking over. Key to his argument was the idea of the multiplier.

Say the US government orders a $10bn (£6bn) aircraft carrier. You might assume the effect of this would be merely to pump $10bn into the US economy. Under the multiplier argument, the actual effect would be bigger. The shipbuilder takes on more employees and generates more profits; its workers spend more on consumer goods. Depending on the average consumer's "propensity to consume", this could raise total economic output by far more than the amount of public money actually injected.

If the $10bn increase caused total United States economic output to rise by $5bn, the multiplier would be 0.5; if it rose by $15bn, the multiplier would be 1.5.

Keynesianism has always been controversial. On what basis, ask many of its critics, should we assume that governments know best how to run an economy? Is economic volatility really such a dangerous facet?

Despite this, Keynes's arguments appeared to provide a solution to the Great Depression in the 1930s, and Franklin D. Roosevelt's New Deal - unveiled in response to the crisis - is seen as a classic example of a government "priming the pump" of its economy by spending billions amid a recession. Arguments still rage over whether it was this or the Second World War that eventually brought the Depression to an end, but the powerful message was that state spending worked.

Contd...

Notes

In the wake of *The General Theory*, governments around the world dramatically increased their levels of public spending, partly for social reasons - to set up welfare states to deal with the consequences of high unemployment - and partly because Keynesian economics underlined the importance of governments having control of significant chunks of the economy.

For a considerable time it seemed to work, with inflation and unemployment relatively low and economic expansion strong, but in the 1970s Keynesian policies came under fire, particularly from monetarists. One of their main arguments was that governments cannot "fine-tune" an economy by regularly adjusting fiscal and monetary policy to keep employment high. There is simply too long a time lag between recognising the need for such a policy (tax cuts, say) and the policy taking effect. Even if policy-makers speedily identify the problem, it takes time for laws to be drafted and passed, and more time still for the tax cuts actually to drip through the wider economy.

Ironically, however, Keynes enjoyed a major comeback in the wake of the 2008 financial crisis. As it became clear that cuts in interest rates would not be enough to prevent the US, UK and other economies falling into a recession, economists argued that governments should borrow money in order to cut taxes and boost spending. That is precisely what they did, in what was widely seen as a serious break with the previous 25 years. Against all odds, Keynes was back.

Source: www.telegraph.co.uk

Self Assessment

State whether the following statements are true or false:

1. In a consumption function, C= a+ bY, the value of b represents the autonomous spending.
2. Sum of MPC and MPS must always be equal to 1.
3. Injections are fresh inflows into expenditure stream.
4. The value of the multiplier is equal to 1/MPC.
5. The government participates in the economy directly through monetary policy and indirectly through the fiscal policy.
6. Expenditure by the government is assumed to be an autonomous expenditure.

4.2 Effective Demand

In the Keynesian theory, employment depends upon effective demand. Effective demand results in output. Output creates income and income provides employment. Since Keynes assumes all these four quantities, viz. effective demand (ED) output (O), income (Y) and employment equal to each other, he regards employment as a function of income.

Effective demand is determined by two factors, the aggregate supply function and the aggregate demand function. The aggregate supply function depends on a number of production conditions, which do not change in the short run. Since Keynes assumes the aggregate supply function to be stable, he concentrates his entire attention upon the aggregate demand function to fight depression and unemployment. So, employment depends on aggregate demand, which in turn is determined by consumption demand and investment.

Aggregate Demand (AD) is simply total demand for final goods and services in the economy.

Notes

Aggregate Supply (AS) is the total supply of the final goods and services in the economy.

AD Curve shows the relationship between aggregate income (Y) and the overall price level.

AS Curve shows the relationship between the aggregate quantity of output supplied by all the firms in the economy and the overall price level.

AD curve shows the relationship between P and Y. When P changes AE also changes. When AE changes equilibrium Y changes. AD curve is the locus of different equilibrium aggregate incomes (or equilibrium AEs) at different overall price levels. This establishes negative relationship between P and equilibrium Y at each P. We will study the derivation of this negative relationship.

AS curve shows the relationship between P and aggregate output. It shows how aggregate output responds to change in the overall price level. Therefore, it is also called **'price-output response' curve**. Overall the AS curve is upward sloping establishing positive relation between P and aggregate output, but there are different phases in its slope. We will explain these phases.

4.2.1 Aggregate Demand Curve

The AD curve shows inverse relationship between the change in the overall price level (P) and the consequent change in the equilibrium aggregate income (Y). A change in P not only displaces goods market equilibrium, it also displaces money market equilibrium. But the change in P also releases forces leading to establishment of new equilibrium in both the money market and the goods market. In this way each point on the AD curve is a point at which both the goods market and the money market are in equilibrium. How? We will learn this during the explanation of the process of derivation of the AD curve.

Assumptions

During the process of derivation it is assumed that government expenditure (G), net taxes (T) and money supply (MS) remain unchanged. G and T are the fiscal policy measures and MS the monetary policy measure which can be taken to offset the effects of changes in P so that there is either no change in equilibrium Y or the extent of change is reduced.

Derivation of Inverse Relation between P and Equilibrium Y

Suppose the overall price level (P) rises. This leads to the following changes in the money market and the goods market:

- Demand for money (Md) increases because with the rise in P people require more money to carry out transactions.
- Increase in Md leads to rise in the rate of interest. How? Ms remaining unchanged. Md becomes higher than Ms. It means that people do not have enough money to facilitate ordinary transactions. They start selling bonds to hold more money. In this environment when people are shifting out of bonds, the corporations can sell new bonds only at a higher rate of interest to make people buy bonds.
- Rise in the rate of interest leads to fall in investment.
- Rise in the rate of interest also leads to fall in consumption expenditure (C). It is on account of two reasons. First, the opportunity cost of consumption rises, leading to fall in consumption. Second, rise in rate of interest leads to fall in the real value of the money wealth, called the real wealth affect or the real balance effect. To compensate the fall in assets the asset holder tries to save more which suggests spending less on consumption.
- Fall in investment (I) and consumption expenditure (C) decrease AE.

Notes

- Decrease in AE, aggregate supply remaining unchanged, leads to rise in inventories.
- Rise in inventories leads to fall in equilibrium output/income (Y).
- This establishes inverse relation between P and equilibrium Y.

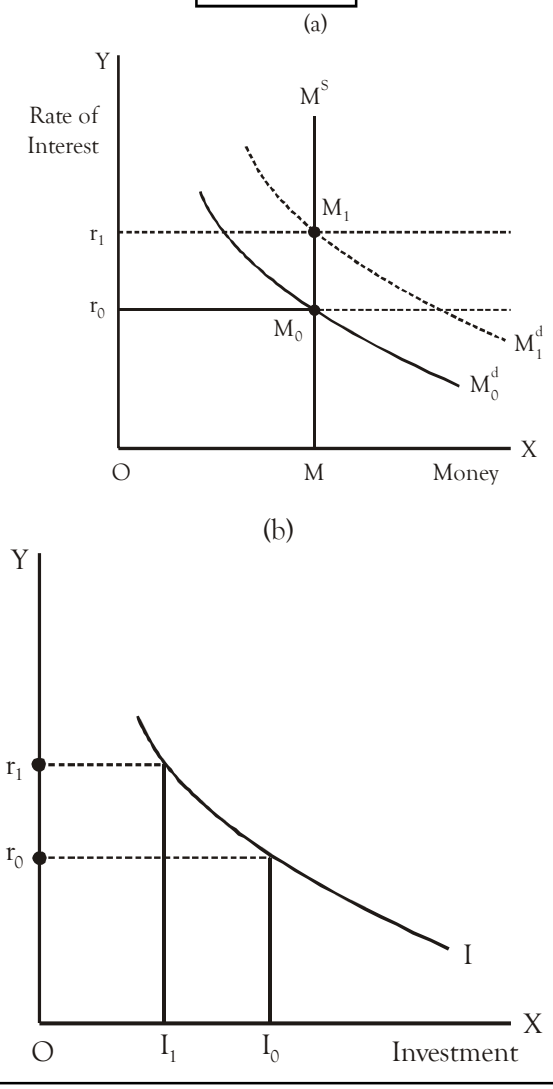
Derivation of the AD Curve

AD curve is derived in the following way. Refer to the Figure 4.8 having two parts (a) and (b).

Part (a) shows money market equilibrium determined by the intersection of the demand for money (Md) curve and supply of money (Ms) curve. The equilibrium before the change in the overall price level (P) is at M0. The equilibrium rate of interest is ro. With rise in P demand for money increases. This shifts the Md curve from M_0^d to M_1^d. The new equilibrium is now at M1 with equilibrium rate of interest rising to r_1.

Part (b) shows the level of investment corresponding to the rates of interest determined by the money market. Rise in rate of interest from r_0 to r_1 leads to fall in investment from I_0 to I_1.

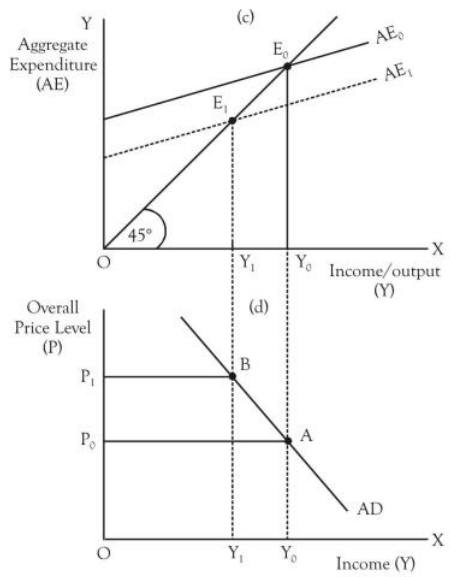
Figure 4.8



Notes

Now refer to the Figure 4.9 which also has two parts (c) and (d).

Figure 4.9



The upper part shows income determination at the intersection of AE_0 and the 45° line. This is before the change in P. The equilibrium is at E_0. The equilibrium income is Y_0 with rise in P, both C and I fall. This shift AE curve downwards from AE_0 to AE_1. The new income equilibrium is at E_1 and income Y_1. Rise in P leads to fall in Y.

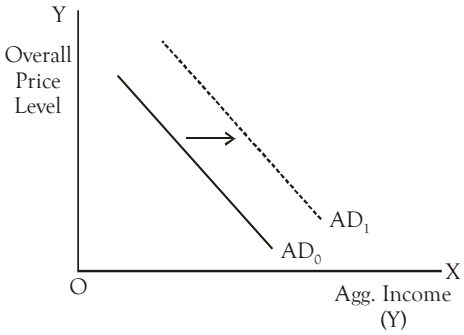
The lower part (part-d) shows the derivation of the AD curve. The overall price levels are shown on the Y-axis. The income level is shown on the X-axis. Points A and B correspond to E_0 and E_1. Joining A and B we get the AD curve.

At every point along the AD curve aggregate quantity demanded is equal to equilibrium AE. Each equilibrium AE on the AD curve is consistent with the equilibrium in the goods market (upper part of the Figure 4.9) and the money market (part-'a' of the Figure 4.8). The AD curve is downward sloping from left to right indicating inverse relation between P and Y.

When will AD Curve Shift?

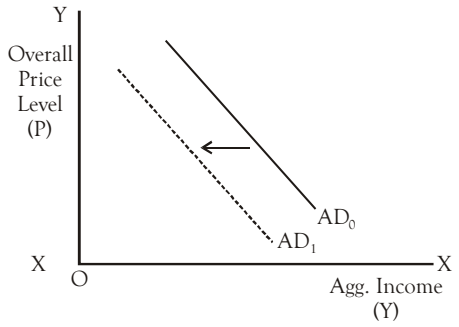
AD curve assumes that G, T and Ms remain unchanged as we move along the curve. If any one of these changes AD curve will shift.

Figure 4.10



Notes

Figure 4.11



Suppose money supply (Ms) is increased. The AD curve will shift to the right because of the following changes:

- Rise in Ms makes the existing Md less than Ms at the existing rate of interest(r). To get rid of surplus money people start buying bonds. In this environment companies issue new bonds at a lower r. Thus rise in Ms leads to fall in r.
- Fall in r leads to rise in investment.
- Fall in r also leads to rise in C.
- Rise in both C and I increases AE.
- Increase in AE shift AD curve to the right (Figure 4.10).

Now suppose Net Taxes (T) are reduced. Net taxes mean taxes less transfer payments. This also leads to shift of AD curve to the right. How?

- Reduction in T leads to rise in disposable income (Yd)
- Rise in Yd raises C.
- Rise in C raises AE.
- Rise in AE shifts AD curve to the right.

Suppose Government Rises G. Rise in G also leads to shift of the AD curve to the right due to the following.

- Rise in G raises AE
- Rise in AE shifts AD curve to the right.
- The same kind of reasoning applies to decrease in Ms, increase in T, and decrease in G leading to the shift of the AD curve to the left (Figure 4.11).

Case Study

Composition of AD in Times of Slowdown

The slowdown had taken a big hit on the private consumption whose contribution to GDP growth reduced to half from 53.8% of GDP in 2007-08 to 27% in 2008-09, while that of government has increased four times from 8% to 32.5% in the same period.

Contd...

Notes

Table 1: Demand Side Growth in GDP, Growth Contribution and Relative Share

(figures in per cent at 1990-00 market prices)

	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
	Growth of GDP					
GDP at market t prices	8.4	8.3	9.3	9.7	9.1	6.1
Consumption (pvt.)	5.9	5.2	7.1	6.3	8.5	2.9
Consumption (Govt)	2.6	3.6	6.2	5.5	7.4	20.2
Gross capital formation	17.6	21.8	19.5	13.2	14.7	na
Gross fixed capital formation	13.6	18.9	17.6	14.5	12.9	8.2
Change in stocks	-8.0	140.1	61.9	5.4	51.7	2.9
Exports	9.6	27.2	17.6	21.1	2.1	12.8
Imports	13.8	22.2	41.1	24.5	6.9	17.9
	Contribution to growth (per cent)					
Consumption (pvt.)	45.1	38.8	46.3	38.7	53.8	27.0
Consumption (Govt)	3.6	4.8	7.1	5.8	8.0	32.5
Gross capital formation	52.4	71.3	63.8	45.6	55.7	na
Gross fixed capital formation	38.4	56.4	51.3	43.9	43.6	42.5
Net exports	-6.3	10.1	-41.1	-13.2	-14.0	-29.5
	Relative share (per cent)					
Consumption (pvt.)	62.3	60.5	59.3	57.5	57.2	55.5
Consumption (Govt)	11.1	10.6	10.3	9.9	9.8	11.1
Gross capital formation	27.1	30.5	33.3	34.4	36.2	na

Source : Central Statistical Organisation.

Note : Does not add to 100 because only major items are included in the table.

Table 2: Demand Side Growth in GDP, Growth Contribution and Relative Share

	2003-04	2004-05	2005-06	2006-07	2007-08
Gross domestic saving	**29.8**	**31.7**	**34.2**	**35.7**	**37.7**
Public sector	1.1	2.2	2.4	3.3	4.5
Private sector	28.7	29.5	31.8	32.4	33.2
Household sector	24.1	22.8	24.1	24.1	24.3
Financial saving	11.4	10.1	11.7	11.7	11.7
Saving in physical assets	12.7	12.7	12.4	12.4	12.6
Private corporate sector	4.6	6.7	7.7	8.3	8.8
Gross capital formation (investment)	**27.6**	**32.1**	**35.5**	**36.9**	**39.1**
Public sector	6.3	6.9	7.6	8.0	9.1
Private sector	19.6	23.4	26.1	27.2	28.5
Corporate sector	6.8	10.8	13.7	14.8	15.9
Household sector	12.7	12.7	12.4	12.4	12.6
Gross fixed capital formation	**25.0**	**28.4**	**31.0**	**32.5**	**34.0**
Stocks	0.9	1.9	2.6	2.6	3.6
Valuables	0.9	1.3	1.2	1.2	1.1
Saving investment gap					
Public sector	-5.3	-4.7	-5.2	-4.6	-4.6
Private sector	9.2	6.1	5.7	5.2	4.7
Household sector	11.4	10.1	11.7	11.7	11.7
Private corporate sector	-2.2	-4.0	-6.0	-6.5	-7.0

Source : Central Statistical Organisation.

Note : Totals may not tally due to adjustment for errors and omissions

There is another disconcerting longer term trend here, as the share of private consumption has been continuously falling from a healthy 63.7% in 2002-03 to 55.5% in 2008-09. On the positive side, the share of gross capital formation in the GDP was on a rising trend, increasing from 27% in 2003-04 to 36.2% in 2007-08, mainly on the back of robust growth in fixed capital formation which has risen from 25% to 34% in the same period.

On the savings and investment front, the encouraging trend was the consistent increase in Gross Capital Formation (GCF), which rose from 25.2% of the GDP in 2002-03 to 39.1% in 2007-08. It is mainly because of the increase in the rate of investment by the corporate sector.

Contd...

Notes

Household sector formed 65% of the Gross domestic savings at 24.3% of the GDP in 2007-08, whereas private corporate sector formed 23% and public sector 12% of the share. Encouragingly, public sector savings have been on the up, growing from 1.1% to 4.5% in the 2003-04 to 2007-08 period.

Question:

Analyse the trend in AD during the economic slowdown in 2007-2008.

Answer: There was a fall in private consumption and increase in gross capital formation. People were more willing to save and invest than to consume.

Source: Interesting trends in aggregate demand from the Economic Survey 2008-09

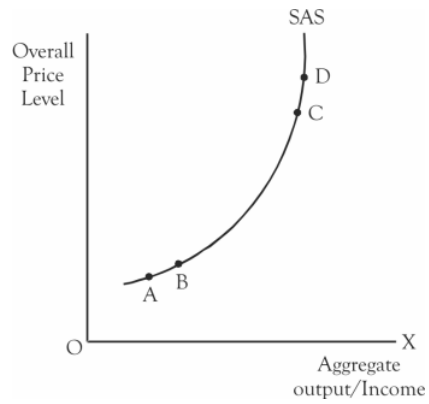
4.2.2 Aggregate Supply Curve

The aggregate supply (AS) curve shows relationship between the overall price level (P) and the aggregate output (Y). It is also 'price-output response' curve. In the short run, it is taken to be upward sloping, fairly flat at low levels of output and vertical when the economy is producing the maximum it can. In the long run, the AS curve is taken to be vertical throughout, i.e. parallel to the Y-axis. The reasons for the assumed shapes are explained below.

Short Run as Curve

Shape: The short run AS (SAS) curve (Figure 4.12) is taken to be upward sloping with two distinct characteristics: (i) fairly flat at the low levels of output and (ii) vertical when economy is producing the maximum. First let us see why it is upward sloping.

Figure 4.12



Why upward sloping?: When P rises, both the output prices and the input prices rise. But, in the short run, output prices rise first and the input-prices follow with a time lag. This raises profits of the firms during time lag and induces them to produce more. This makes the SAS curve upward sloping.

Why fairly flat at the low levels of output?: When there is downturn in the economy the output level is low and the firms tend to reduce output. But when output level is very low, the firms may not reduce inputs, e.g. labour and capital already employed. There are two reasons for this behaviour:

- First, the expectations among the firms are that downturn is a temporary phase and will be over soon.

Notes

- Second, there is cost associated with reducing inputs. For examples, when downturn is over and more workers are employed additional expenditure has to be incurred in training them.
- On account of these reasons though the firms may produce less but may not reduce inputs already employed. They may have surplus labour and capital.
- With surplus labour and capital with the firms and excess capacity in the economy as a whole, as AS starts increasing, output may increase with little or no increase in price level.

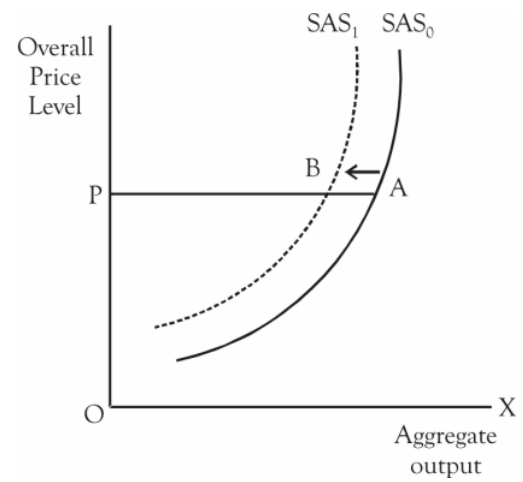
Example: in Figure 4.12 between A and B aggregate supply is considerably higher but the overall price level only slightly higher. This makes the SRAS curve fairly flat at the low levels of output.

Why vertical when producing maximum?: As aggregate supply rises the firms and the economy approach to their capacity. If in the economy aggregate demand is still rising, it may result in less and less rise in output and more and more rise in input prices. It will force the firms to increase their output prices. This happens between B and C in Figure. At C the economy is producing the maximum it can. From C onwards thus the SAS curve becomes vertical, parallel to the Y-axis.

Shift of the SRAS curve: Shift of the SAS curve means change in aggregate supply at a given P.

Example: in Figure 4.13, when the SRAS curve shifts to the left, the aggregate supply at the given price is reduced from PA and PB. What leads to the shift?

Figure 4.13



When P changes, both the output prices and the input prices change. Such changes in input prices which are on account of change in output prices cause only movement along the SAS curve. The changes in costs which are not on account of changes in output prices cause shift of the SAS curve. Besides, other changes like growth of resources, decrease in resources, government policies, etc. can also cause the shift. Some of the factors which cause the shift are:

- ***Change in costs not resulting from change in output prices:*** The costs which change in response of change of output prices are built into the short run AS curve. The costs which do not result from changes in output prices shift the SAS curve.

Notes

Example: One such example is change in oil prices. A rise in oil price shift SRAS curve to the left. Such cost changes are called cost stocks or supply stocks.

- ***Economic Growth:*** Aggregate supply curve is based on the assumption that resources are fixed. But when economic growth takes place resources increase. This causes rightward shift of the SAS curve.
- ***Decrease in Resources:*** Resources may decrease due to many reasons, economic or non-economic. One economic reason is deterioration and wearing out of capital if not properly maintained. If it is not replaced by new capital, the stock of capital will decrease. This will shift the SAS curve to the left.

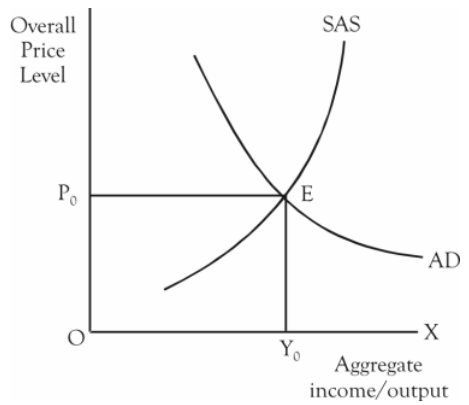
  Non-economic factors like bad weather, wars, natural disasters, etc. destroy resources and lead to the leftward shift of the SAS curve.
- ***Government Policies:*** Governments do take policy measures to increase incentives to work and invest. For example, policy measures taken in India recently aimed at liberalization, privatization and globalization. Some examples are reduction in taxes, delicensing, removing trade barriers, etc. These shift the SAS curve to the right.

Equilibrium Overall Price Level

The equilibrium overall price level (P) is the one at which AD equals AS. It is determined at the intersection of the AD and the SRAS curves (at E in the Figure 4.14). The equilibrium represents three things:

1. Equilibrium in the money market.
2. Equilibrium in the goods market.
3. A set of price-output decisions of all the firms in the economy.

Figure 4.14

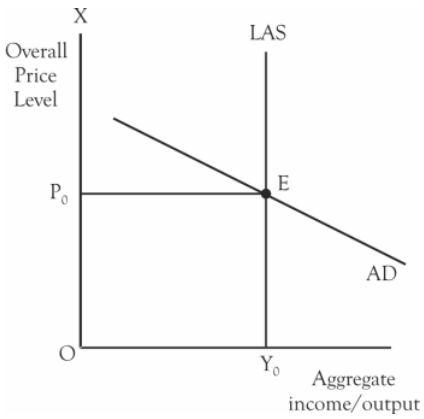


Long run as Curve

Shape: In the case of SRAS curve the assumption was that there is a time lag between output price change and input price change. In the long run the assumption changes. It is assumed that output prices and input prices determining costs move together. There is no time lag. When there is no time lag profits remain where they were. The firms have no incentive to raise output. This makes the long AS (LAS) curve vertical, parallel to the Y-axis, throughout. (See Figure 4.15).

Notes

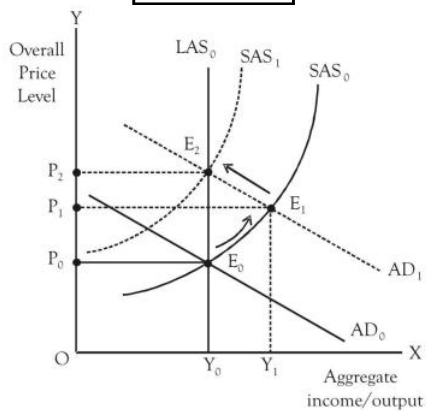
Figure 4.15



Equilibrium: The equilibrium is at E with the price level P_0 and the income level Y_0. The equilibrium aggregate income (Y_0) is called the Potential GDP. It is defined as that level of aggregate output which can be sustained in the long run. Note that it may not necessarily be the full employment GDP. Y_0 may lie to the left of full employment GDP or to the right of it.

Long run effects of change in AD: Given that the economy is in long run equilibrium and aggregate demand increases, what are its effects on P and Y.

Figure 4.16



Refer to the Figure 4.16. Given that economy is in long run equilibrium at E_0. Suppose AD increases leading AD curve to shift upwards from AD_0 to AD_1. The economy will first move to the short run equilibrium and then to the long run equilibrium. Since in the short run input prices adjust with the output prices with a time lag the economy moves along the short AS curve SAS_0. The economy reaches short run equilibrium at E_1 with income Y_1 and price level P_1.

The economy will continue to move but now towards long run equilibrium. In the long run input prices adjust with output prices fully. Since, this adjustment comes in later periods and is not built into the short run AS curve SAS_0, the curve shifts from SAS_0 to SAS_1. The new long run equilibrium is now E_2 with the income level back to Y_0. The overall price level, however, rises further to P_2.

Task Find out the trends in AD and AS in India and in US and compare them.

Notes

Self Assessment

Fill in the blanks:

7. ……curve is also referred to as price-output response curve.
8. Increase in demand for money leads to……..in rate of interest.
9. Increase in aggregate expenditure shifts AD curve to the……
10. Long run AS curve is…….
11. AS curve assumes that the resources are…….
12. Equilibrium in the goods and money markets is reached at point where……..

4.3 Classical vs. Keynesian Theory

The following are some of the basic comparisons for a Keynesian economics vs. Classical economics study:

- 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.
- Classical economists believe that the best monetary policy during is a crisis is no monetary policy. The Keynesian theorists on the other hand, believe that Government intervention in the form of monetary and fiscal policies is an absolute must to keep the economy running smoothly.
- Classical economists believed in the long run and aimed to provide long run solutions at short run losses. Keynes was completely opposed to this, and believed that it is the short run that should be targeted first.
- Keynes thought of savings beyond planned investments as a problem, but Classicalists didn't think so because they believed that interest rate changes would sort this surplus of loanable funds and bring the economy back to an equilibrium. Keynes argued that interest rates do not usually fall or rise perfectly in proportion to the demand and supply of loanable funds. They are known to overshoot or undershoot at times as well.
- Both Keynes and the Classical theorists however, believed as fact, that the future economic expectations affect the economy. But while, Keynes argued for corrective Government intervention, Classical theorists relied on people's selfish motives to sort the system out.

Self Assessment

State whether the following questions are true or false:

13. Keynesian theorists believed in 'no monetary policy' idea.
14. Classical theorists believed that short run should be targeted first.
15. Keynesian theorists didn't believe in the concept of invisible hand.

Notes

4.4 Summary

- Keynes in his arguments dropped the microeconomic principles of the supply and demand as they did not apply at the national level.
- In national level, Keynes said, the consumption of the nation will also affect their income. He formulated his analysis for the closed economy with no government, but the theory could be extended.
- So all income is either spent or saved. Y=C+S, whereas the income of the nation will be the investment expenditure + consumption. Y=C+I, it follows that the country is in equilibrium if S=I, but this is just stating an identity.
- In practice the time lags are involved and C+S comes from the previous time period, whereas C+I forms the income for the next period.
- The aggregate demand curve shows the total demand for goods and services in an economy. By defining the aggregate demand curve in terms of the price level and output or income, it is possible to analyze the effects of other variables, like the interest rate, on aggregate demand through the aggregate demand equation.
- The aggregate supply curve represents the total supply of goods and services in an economy.
- By defining the aggregate supply curve in terms of the price level and output or income, we can analyze the effects of other variables, such as the interest rate, on aggregate supply.
- Aggregate supply and aggregate demand show the effects of economic changes on the economy as a whole.

4.5 Keywords

Aggregate Demand: It is the total demand for final goods and services in the economy (Y) at a given time and price level.

Aggregate Supply: It is the total supply of goods and services produced by a national economy during a specific time period.

Consumption Function: A relationship between consumption demand and its various determinants.

Effective Demand: The demand in which the consumer are able and willing to purchase at conceivable price.

Investment: An asset or item that is purchased with the hope that it will generate income or appreciate in the future.

Marginal Propensity to Consume: An economic term for the amount that consumption changes in response to an incremental change in disposable income.

Paradox of Thrift: Economic concept that if everyone tries to save an increasingly larger portion of his or her income, they would become poorer instead of richer.

4.6 Review Questions

1. Explain the concept of Planned Aggregate Expenditure and its components.
2. Describe the Consumption Function. Explain by using graph.
3. Describe the Saving Function? Explain by using graph.

Notes

4. Explain Y=C+I approach of determination of equilibrium level of national income.
5. Explain S=I approach of determination of equilibrium level of national income.
6. Discuss the features of aggregate demand (AD). Explain the derivation of AD curve.
7. Discuss the short run and long run aggregate supply curves.
8. Given the following information:

   Consumption: $C = 100 + .8Y_d$

   Taxes: $T = 10$

   Investment: $I = 50$

   Government expenditure: $G = 70$

   (i) Find equilibrium level of income.

   (ii) If full employment level of income is 1,100 what should the increase be in government expenditure to achieve this income level?
9. Suppose we have the following information for an economy:

   $M_d = 5{,}000 - 10{,}000\ r + 0.5\ Y$

   $M_s = 7{,}000$

   $Y = 6{,}000$

   where Md is the demand for money, Ms is the supply of money, r is the interest rate and Y is the aggregate income. Calculate the equilibrium rate of interest for this economy.
10. You are given the following information about an economy:

    Consumption function, C = 1000 + 0.5 (Y – T)

    Investment, I = ₹ 2,000 crores.

    Government expenditure = ₹ 1,000 crores

    Taxes = ₹ 1,000 crores

    (i) Find the equilibrium level of GDP without taxes.

    (ii) Find the equilibrium level of GDP with taxes.

Answers: Self Assessment

1.	False	2.	True
3.	True	4.	False
5.	False	6.	True
7.	AS	8.	increase
9.	right	10.	vertical
11.	fixed	12.	AD =AS
13.	False	14.	False
15.	True		

Notes

4.7 Further Readings

Books

Dr. Atmanand, *Managerial Economics,* Excel Books, Delhi.

R. L. Varshney, K. L. Maheshwari, *Managerial Economics,* Sultan Chand & Sons, New Delhi

S K Agarwala, *Principles of Economics*, 2nd Edition, Excel Books

Thomas F. Dernburg, *Macro Economics,* Mc Graw-Hill Book Co.

Online links

http://www.peoi.org/Courses/Coursestu/mac/fram8.html

http://www.futurecasts.com/Keynes,%20The%20General%20Theory%20(I).htm

http://www.interzone.com/~cheung/SUM.dir/econthyk1.html

Unit 5: Consumption Function

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5.4 Summary

5.5 Keywords

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Objectives

After studying this unit, you will be able to:

- Realise the concept of consumption function;
- State the assumptions of Keynes' Psychological Law;
- Explain the concept of Propensity to Consume;
- Identify the factors that affect propensity to consume.

Introduction

Consumption function refers to the functional or causal relationships between consumption on the one hand and the various factors determining it on the other. Your income is considered to be the chief determinant of your consumption, so the consumption function conventionally refers to the functional relationship between income and consumption.

Did u know? The relationship between income and consumption has always been a subject of intense study ever since Ernst Ergel, a German statistician, formulated the "laws of consumption expenditure in 1857". On the basis of statistical data pertaining to the consumption expenditures of the sample of German households, Angel formulated a set of three generalisations which are popularly known as "Engel's laws of consumption".

Engel's laws may be stated as follows: As the level of income increases, households tend to spend:

- a decreasing percentage of income on food,
- an increasing proportion of income on things such as education, medical facilities, recreation, etc.

Notes

- roughly a constant proportion of income on essential consumption items such as rent, fuel, clothing and lighting.

These generalisations broadly hold from the basis of the law of consumption or propensity to consume subsequently formulated by J M Keynes. Keynes was the first to stress the importance of the relationship between income and consumption and to make it one of the central parts of Macro Economics.

5.1 Concept of Consumption Function

The consumption function – the relationship between consumption and income – is largely a Keynesian contribution. Keynes postulated that consumption depends mainly on income. In regard to the relationship, he argued that consumption increases as income increases but by an amount less than the increase in income. It is, however, assumed that by income Keynes meant the "disposable income of the consumer". Keynes designated tendency of consumption varying directly with disposable income as the Fundamental Psychological Law. According to this law, "men are disposed, as a rule and on the average, to increase their consumption as their income increases but not by as much as the increase in their income. This law is known as propensity to consume or consumption function".

This law consists of three propositions:

1. When aggregate income increases, consumption expenditure also increases but by a somewhat smaller amount. The reason is that as income increases, more and more of our wants get satisfied and therefore lesser and lesser amounts are spent out of subsequent increases in income.
2. When income increases, the increment of income will be divided in a certain proportion between consumption and saving. This follows from the first proposition that what is not spent is saved.
3. As income increases both consumption spending and saving will go up.

Assumptions of the Law

- It is assumed that habits of people regarding spending do not change or propensity to consume remains the same. Normally, the propensity to consume is more or less stable and does remain unchanged. This assumption implies that only income changes whereas other factors like income distribution, price movement, growth of population, etc. remain more or less constant.
- The conditions are normal in the economic system.
- The existence of a capitalistic laissez faire economy. The law may not hold good in an economy where state interferes with consumption or productive enterprise.

Explanation of the Law

The most important determinant of consumption is income. In technical language consumption is a function of (determined by) income. This relationship between consumption and income is termed as "consumption function" or " the propensity to consume".

$C = f(Y)$

Where, C is consumption

f is function

Y is income

Self Assessment

Notes

Multiple Choice Questions:

1. The consumption function shows the relationship between consumption and .....
   (a) Savings
   (b) Income
   (c) Demand
   (d) Supply
2. Which of the following is not one of the propositions of the Psychological Law?
   (a) When aggregate income increases, consumption expenditure also increases but by a somewhat smaller amount.
   (b) When income increases, the increment of income will be divided in a certain proportion between consumption and saving.
   (c) As income increases both consumption spending and saving will go up.
   (d) When income is consistent, consumption must be equal to savings.
3. Which of the following is not a requisite for Psychological law?
   (a) Habits of people regarding spending do not change.
   (b) The conditions are normal in the economic system.
   (c) Existence of a capitalistic laissez faire economy.
   (d) State should have some degree of interference in productive enterprise.
4. Which of the following represents the consumption function?
   (a) C= f(Y)
   (b) Y=f(C)
   (c) C= f(1/Y)
   (d) C= f(C/Y)

5.2 Propensity to Consume

Keynes has made use of four concepts in analysing consumption-income relationship.

These are:

- Average propensity to consume
- Marginal propensity to consume
- Average propensity to save
- Marginal propensity to save

Consider the following data of a hypothetical economy.

Columns 1 and 2 in Table 5.1 indicate the amount of consumption expenditures of this society at various income levels. In this schedule, just as demand curve shows the purchases that will be made at different prices. Column 3 shows the savings of the society at various income levels.

Notes

This example shows that this society begins to make positive savings only when it reaches an income of 250.

Table 5.1: Data of a Hypothetical Economy

Y (Income)	C (Consumption)	S (Savings)	APC	MPC	APS	MPS
0	60	-60	-	-	-	-
100	150	-50	1.5	0.90	-0.5	0.10
200	220	-20	1.1	0.70	-0.1	0.30
250	250	0	1	0.60	0	0.40
350	300	50	0.89	0.50	0.11	0.50
450	345	105	0.77	0.45	0.23	0.55

The above numerical example has been presented diagrammatically in Figure 5.1 where the horizontal axis measures income and the vertical axis measures consumption expenditures. The consumption function indicating the consumption expenditures at various income levels is shown by the line cc. Draw a 45° line through the origin. Every point on this line is equidistant from the two axes. The difference between the 45° line and consumption function measures planned saving at each income level of 25°, consumption exceeds income resulting in negative savings. Beyond that income there are positive savings. Figure 5.2 draws the saving-function as corresponding to the consumption function cc in figure 5.3.

Figure 5.1

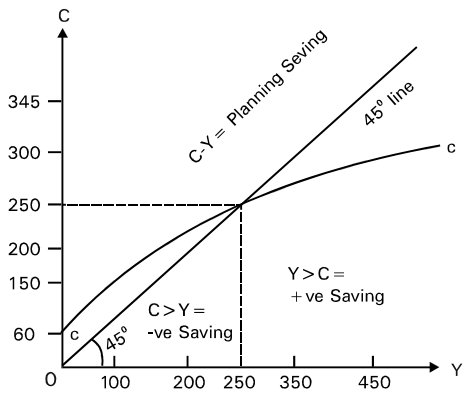
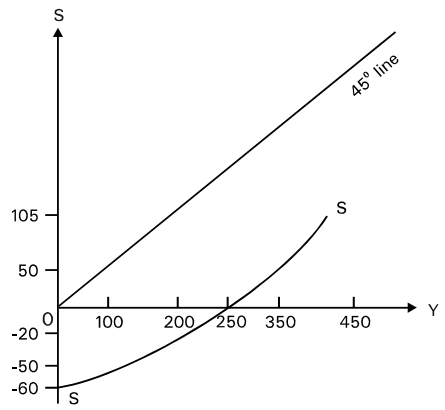
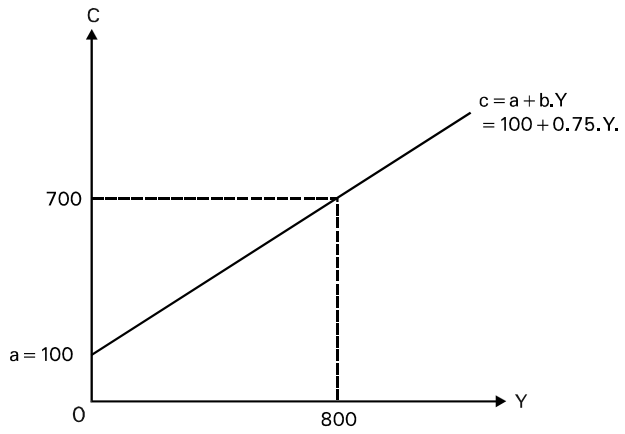


Figure 5.2: Consumption and Saving Functions



Notes

Figure 5.3



As the level of income increases, households generally increase consumption expenditure but less than proportionally. On the contrary, when the level of income decreases, households are constrained to reduce consumption, but by a smaller amount. The reason for this 'tendency' or 'propensity' is not far to seek. The satisfaction of the immediate basic needs of households is usually a stronger motive than the motive toward accumulation. Hence, at lower income levels, households are constrained to spend almost the entire income and sometimes spend more than the income on the consumption needs.

Caution As a result, saving, which is the difference between income and consumption, tends to be either "zero" or even "negative". Negative saving is also called dissaving, which means that at low incomes households may have to use up their past savings or borrow in order to keep their consumption expenditure in excess of their income. But as the income level rises, since most of the basic consumption needs are satisfied, the households do not find it essential to increase the consumption expenditure in the same proportion. As a result, savings tend to rise more than proportionately when income rises.

Since saving is the difference between income and consumption and since consumption depends on income it follows that saving also depends on income. This relationship between saving and income is called the "propensity to save" or the "saving function".

The nature of relationship between the disposable household income on the one hand and the household consumption and saving on the other can be explained with the help of a simple linear equation (as stated earlier):

$$Y \text{ is } C + S \qquad ...(1)$$

Where Y is disposable income

C is consumption

S is saving

This equation says that a household, disposable income is partly consumed and partly saved. The income-consumption relationship can be specified by the equation:

$$C = a + b.Y \ (a>0, 0<b<1) \qquad ...(2)$$

Notes

Where 'a' is autonomous consumption and 'b.Y' is induced consumption. So, the equation says that the consumption of a household comprises autonomous consumption and induced consumption. Autonomous consumption is constant and is determined independently of income. This may be considered as the "critical maximum consumption" or the "basic minimum need" of a household that should be met by it irrespective of the household income.

Induced consumption is the consumption induced or generated by income and hence it is a positive function of income. The parameter 'b' in the term 'b.Y' is the rate at which induced consumption changes when there is a change in income. It is otherwise called the "marginal propensity to consume" or MPC and it is the slope of the consumption function. If ΔY denotes a change in income and C denotes the change in consumption associated with the change in income, b, the MPC equals $\Delta C/\Delta Y$ [MPC/ (b) = $\Delta C/\Delta Y$] and the value of b MPC changes between 0 and 1 ($0<b<1$).

Example: If b = 0.8, it means that a ₹ 100 rise in disposable income leads to ₹ 80 rise in consumption.

The parameter "a" is the portion of consumption which does not vary with income or to put it differently 'a' represents the consumption which would occur if income were zero.

The consumption function may be depicted graphically by specifying various levels of income, determining the corresponding levels of consumption and then plotting the combinations of income and consumption. Once the intercept and slope are specified, a straight line is completely determined.

Example: If a equals 100 and b equals 0.75, then, consumption function is C = 100+0.75Y. The function will start at a = 100 and have a slope 'b' equal to 0.75. Should 'a' change, the consumption function will shift so that the new function is parallel to the old. Should 'b' change, the function will rotate about the intercept, a.

Caselet

Indians Consuming More Coffee and Tea Now

Despite the fast growth of bottled juices and aerated drinks, consumption of tea and coffee is going up in India. Coffee consumption is up by 6% in the last few years while tea consumption has been showing a 3% annual growth.

Product innovation and better marketing strategy have helped coffee demand to spread to north India. Tea continues to be the common man's drink throughout the country.

Widespread popularity of carbonated beverages supported by intense promotional campaigns has not made a dent in the consumption of tea and coffee. Mushrooming coffee bars and cafes have made coffee drinking fashionable in cities. With the rising disposable incomes, these cafes are big hits in metros. Coffee consumption has been aided by increasing urbanization and greater disposable income. Admittedly, south India as a region has the largest number of coffee drinkers.

But a recent survey by Coffee Board shows that of late more than 50% growth has come from non-south regions. Coffee Board Chairman Jawaid Akthar said the coffee consumption has shown an annual average growth of 6% since 2000. In the previous decades, the growth was just 2%. "Apart from the high-end outlets, the consumption of instant coffee is increasing in north India. Our attempt is to popularise filter coffee in the region by removing the notion that it is difficult to make," he said.

Contd...

Notes

The proportion of occasional coffee drinkers has increased in the last few years in the non-south regions. The board is keen on exploiting this potential of non-south states. Tea consumption is growing by 3% every year. "It is more of a common man's drink and used in 90% of the households in the country," said Sujit Patra, Joint Secretary of Indian Tea Association.

The higher consumption of coffee and tea is happening at a time when India is fast emerging as a major market for soft drink and fruit juices. "India is a focus market for the Coca-Cola company. The India business has now been growing for the last 19 quarters," said the official spokesmen of the company.

Source: www.indiacoffee.org

Savings function can be derived inserting equation (2) into equation (1) and rearranging it so that

$$Y = C+S$$

$$S = Y-C$$

$$= Y-(a+bY)$$

$$= Y-a-bY$$

$$S = -a+(1-b).Y \{0<(1-b)<1\}$$

Where, S and Y represent real saving and real income, respectively.

The parameter (1-b) referred to as the "marginal propensity to save" or MPS is the slope of the saving function. If ΔY denotes change in income and S denotes change in saving associated with the change in income, (1-b), MPS = $\Delta S/\Delta Y$ is (1-b) = $\Delta S/\Delta Y$ and its value ranges between 0 and 1.

Example: If the marginal propensity to consume is 0.8, the marginal propensity to save is 0.2. This means that a ₹ 100 rise in income leads to ₹ 20 rise in saving; obviously, MPC + MPS = 1.

Two other important concepts used by Keynes to explain the income-consumption and income-saving relationships are the Average Propensity to Consume (APC) and the average propensity to save (APS). The average propensity to consume (APC) is the ratio of consumption to income, i.e., $APC = \frac{C}{Y}$

While the APS is the ratio of savings to income, i.e., APS = $\frac{S}{Y}$

The APC tells us the proportion of each income level that a household will spend on consumption. Similarly, the APS tells us the proportion of each income level that the household will save, i.e., not spend on consumption.

Caution Note that as income rises, the APC decreases while the APS increases.

Note also that APC and APS add up to 1, i.e., APC + APS = 1

Task Given C= 1200+ 0.8 Yd, where Yd= Y-T and T=100, find MPC.

Notes

The foregoing relationships can be illustrated with the help of a numerical example. Suppose the consumption function for a household is given by the equation C = 1000 + 0.8Y. This means that autonomous consumption of the household is ₹ 1000 and the induced consumption rises at the rate of 80 per cent for every increment in income. Table 5.2 shows how the consumption, savings, APC and APS change as income changes.

It may be observed from the table that at income levels below ₹ 5000, consumption exceeds income and, hence, saving is negative. From this one can understand that at lower income levels households tend to consume more than they earn. In other words, they find their incomes rather too low to meet their consumption needs. As a result, low income households are constrained to dissave, i.e., to meet the excess of consumption over income through borrowing or using up the past savings.

Table 5.2: A Household's Consumption and Savings Schedule

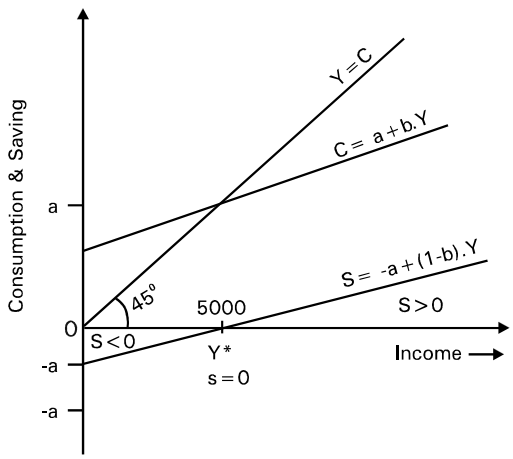
(Consumption Function: C=1000 + 0.8 Y)

Disposable Income (₹)	Autonomous	Consumption Induced	Total	Savings (₹)	APC	APS
3000	1000	2400	3400	-400	1.13	-0.13
4000	1000	3200	4200	-200	1.05	-0.05
5000	1000	4000	5000	0	1	0
6000	1000	4800	5800	200	0.97	0.03
7000	1000	5600	6600	400	0.94	0.06
8000	1000	6400	7400	600	0.93	0.07
9000	1000	7200	8200	800	0.91	0.09
10000	1000	8000	9000	1000	0.90	0.10

As the table also reveals, households with income levels above ₹ 5000 are able to save since their consumption needs are fully satisfied by these income levels.

The consumption function analysed above is basically derived from the relationship expressed by the household's "propensity to consume". This fundamental law states, as learned above, that as income increases, consumption increases but not as fast as income. When a consumption function is derived from actual data, however, it may not turn out exactly as expected. This is because various theoretical and statistical problems are encountered along the way.

Figure 5.4



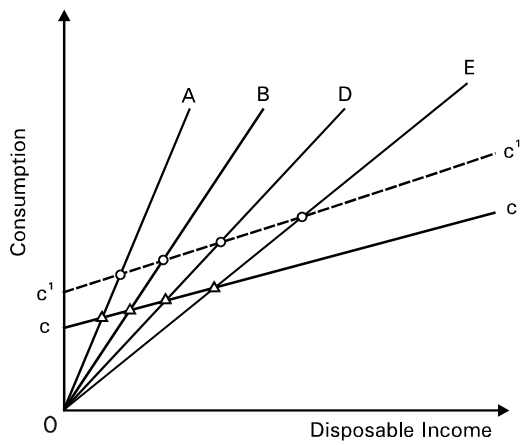
Notes

Short run analysis based on family budget studies covering a large sample or cross-section of households conclude that

- Savings tend to be negative at low levels of income,
- The APC decreases as income increases, and
- The MPC probably decreases as income increases, although the decline may be relatively slight depending on other factors, especially the distribution of income among households. This suggests that the short run consumption function of the economy is best represented by equation 2 yielding a consumption curve with a vertical intercept and a slope (i.e., b) less than that of the 45° diagonal. This means that in a short period, say a year, the APC tends to be greater than the MPC.

On the contrary, long run studies based on historical or time-series data covering many years have concluded that both the APC and MPC tend to remain constant and equal as income rises. This suggests that in the long run consumption function, the autonomous consumption tends to disappear and all the consumption turns out to be induced consumption. Thus in the long run C=b.Y. The consumption curve representing long run income consumption relationships in the economy tends to be a range from the origin and runs close to the 45° diagonal (Figure 5.5).

Figure 5.5



5.2.1 Absolute Income Hypothesis

Keynes and his early followers placed primary emphasis on the influence of a household's absolute level of income on its consumption. Keynes assumed that the consumption expenditure of an individual or a household depended solely on the absolute level of his income. The resulting theory of consumption later become known as the absolute income hypothesis, named because the theory explicitly assumes that consumption is the function of either a household's or a nation's absolute income.

The consumption function is based on the assumption that the absolute income hypothesis is linear; the MPC is therefore constant but less than the APC, because the intercept is a positive term and the APC diminishes as disposable income increases. This is the essence of the absolute income hypothesis.

The post-Keynesian studies on consumption function have attempted to distinguish between the short run consumption function and long run consumption function and found that most of the postulates of Keynes consumption function hold good in the short run only and not in the long run.

Notes

5.2.2 Relative Income Hypothesis

One of the earliest attempts to derive a theory of consumption on the basis of new empirical evidence in the 1940s was James Duesenberry's theory known as relative income hypothesis. This hypothesis comprises two parts: the first part does not assume that a household's consumption is a function of its absolute income. Instead, the household's position in the income distribution of all households is considered to determine the relative income of the household. Duesenberry maintains that if a household's relative income remains constant as its income increases, then it will continue to spend the same proportion of its additional income on consumption that it did prior to the increase. In other words, the household's APC remains constant.

Caution The relative income hypothesis focuses on the imitative or emulative nature of consumption. Households tend to emulate the consumption standards of their rich neighbours although their own incomes do not, in fact, permit these standards. This is what Duesenberry calls the "demonstration effect". This means that, in effect, the consumption of a household in a locality is determined not so much by its own income as by the income of its richest neighbours.

The second part of the relative income hypothesis is used to explain the non-proportionality over the course of a business cycle. Duesenberry holds that it is much easier for households to adjust to rising incomes than to falling incomes. As the household's absolute income rises, its standard of living also rises and this higher standard soon becomes the "expected" standard of living. Thus, as a household's income begins to decline in a recession, its attempt to maintain this standard of living results in a less rapid decline in consumption than income.

Because consumption does not decline in proportion to the decline in national income, the aggregate consumption function observed over a period of falling income will have a smaller MPC than the MPC of a consumption function that has a continuously rising income.

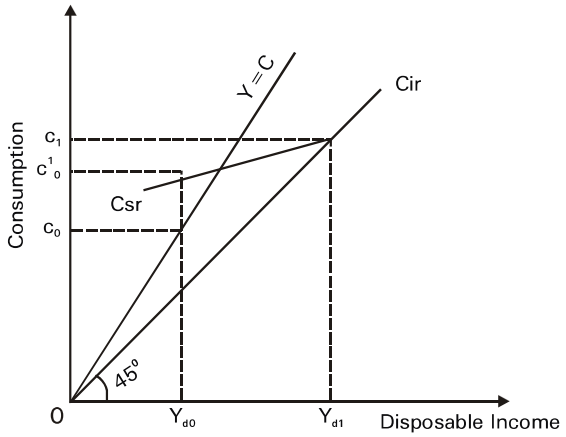
Caution This notion was corroborated by the empirical data according to which the MPC in the US during the Great Depression of 1929-33 was approximately 0.77 while the MPC of the long run aggregate consumption function derived from Kurnet's data was about 0.89. The relative income hypothesis states that this difference between the long run MPC and the short run MPC results from the fact that the peak disposable income of 1929 was not surpassed until 1939.

This phenomenon in Duesenberry's theory is referred to as the "ratchet effect". Ratchet is a mechanical device consisting of a set of teeth on a base or a wheel allowing motion in one direction only, for example, pre-wheel of a bicycle. This effect is illustrated in Figure 5.6.

The long run consumption function 'C_{ir}' is drawn as a ray from the origin, meaning that consumption is proportional to disposable income and therefore APC=MPC. Suppose that a recession hits the economy at income Y_{d1} and that the disposable income falls to Y_{d0} and that due to the ratchet effect, consumption does not fall back, but instead falls back along the short run consumption function C_{sr}. Consumption well therefore be C^1_0 rather than Co. MPC be lower. As the economy recovers from the recession and disposable income begins to rise again, consumption rises along C_{sr} until the previous peak level of disposable income, Y_{dl}, is reached. At this point consumption once again moves along C_{ir}.

Notes

Figure 5.6



Duesenberry's explanation has some obvious appeal and appears to capture some elements of the psychological behaviours of consumers. It is easier to adjust consumption habits while the level of income is rising and it is not unrealistic to assume that these habits are formed through emulation and the desire for social acceptance and approval. Moreover, income declines do pose problems for consumers and the hypothesised behaviour that they tend to retain the old habits for as long as possible is quite plausible. Thus, Duesenberry's introduction of socio-psychological motivations makes his consumption theory more impressive than the simple Keynesian absolute income hypothesis.

Other economists have also tried to reconcile the inconsistent empirical consumption functions and their explanations too lead to the conclusion that the long run income-consumption relation is more basic and stable, although their reasons differ somewhat from Duesenberry's. At least three important alternative empirical studies on consumption function deserve discussion. They are: permanent income hypothesis by Milton Friedman, life cycle income hypothesis by Albert Ando, Franco Modigliani and Richard Brumberg and drift hypothesis by Arthur Smithies and James Tobin.

Case Study

India's Consumer Evolution

India is poised for a dramatic expansion of domestic consumption that will make the country one of the largest consumer markets in the world. However, many voices in the country have expressed concern that this explosion of spending power will compromise India's ability to invest for the future. New research by the McKinsey Global Institute (MGI) finds that these fears are misplaced.

If overall economic growth remains on a long-term path of 7 to 8 percent, as most economists expect, then consumption will soar. We estimate that real consumption will grow from 17 trillion Indian rupees today to 70 trillion Indian rupees by 2025, a fourfold increase. This will vault India into the premier league among the world's consumer markets. Today its consumer market ranks 12th. By 2015 it will be almost as large as Italy's market. By 2025, India's market will be the fifth largest in the world, surpassing Germany. In short, we believe that India has now entered a virtuous long-term cycle in which rising incomes lead to increasing consumption, which, in turn, creates more business opportunities and employment, further fuelling GDP and income growth.

Contd...

Notes

Our results show that a significant expansion in consumption is not dependent on an equally significant decline in savings. There are three major factors driving increased consumption, by far the most important being rising incomes, which we estimate will account for 80 percent of total growth over the next two decades. The second driver will be population growth, which we find will account for a further 16 percent of the overall rise in consumption.

The third factor will be savings but developments on this front will play a relatively minor role. We expect India's household savings rate to peak and gradually decline from its current level of 28 percent of disposable income to 22 percent in 2025 as India's demographics become more youthful. However, this change will account for just four percent of future consumption growth. Even if household savings were to remain flat, consumption would still grow substantially.

The primary driver of India's growth as a consumer economy will thus be increasing incomes. Our analysis shows that average real household disposable income is set to grow from 113,744 Indian rupees in 2005 to 318,896 Indian rupees by 2025, a compound annual growth rate of 5.3 per cent. This is much more rapid than the 3.6 percent annual growth of the past 20 years and, with the exception of China, much quicker than income growth in other major markets.

Income growth is, in turn, dependent on sustaining overall economic growth in the years ahead. We are optimistic on this front because of the substantial scope for Indian businesses to increase their productivity, the growing openness and competitiveness of the Indian economy, and favorable demographic trends. Our income estimate assumes real compound GDP growth of 7.3 percent a year from 2006-2025, acceleration from the 6 percent growth of the previous two decades, but in line with most estimates of India's long-run sustainable growth path.

India's economic reforms, and the increased growth that has resulted, have already proved to be the most successful anti-poverty program in India's history. In 1985, 93 percent of the population had an annual household income of less than 90,000 Indian rupees-an income bracket we categorize as deprived. By 2005, this had dropped by about two-fifths to 54 percent of the population. By 2025, we see the deprived segment shrinking even further to only 22 percent of the total population.

Rising incomes will also create a sizeable and largely urban middle class. We define the middle class as spanning real annual household disposable incomes of 200,000 Indian rupees to 1,000,000 Indian rupees. In 2005, the Indian middle class was still relatively small with 50 million people or some 5 percent of the population. However, if India achieves the growth we assume, its middle class will swell to 583 million people or 41 percent of the population. In addition, households with real earnings more than 1,000,000 Indian rupees a year, which we refer to as global, will comprise nearly 2 percent of the population, but earn almost a quarter of its income.

Widespread concern that India does not save enough and that investment will suffer if consumption becomes the driving force of the economy is not warranted, in our view. Negative comparisons about India's level of savings are usually made against China whose gross national savings rate has risen from 33.6 percent in 1985 to 50.4 percent in 2005-arguably too high a rate and driven by inefficiencies in China's financial sector. Against other high-saving countries such as South Korea and Japan, India's savings rate is actually relatively high.

Contd...

Notes

The issue with Indian savings is not the trade-off with consumption, but rather the composition and total level of Indian national savings. National savings are made up of three sources: households, businesses, and government. Indian households are among the most frugal in the world, saving even more than their Chinese counterparts. The slight decline in their savings rate that we predict would merely bring them closer to levels seen in other fast-growing economies.

But India's businesses and government save far less than they should and this leaves the country's national savings skewed and heavily dependent on households. While India's services-driven economy has not been as capital-hungry as China's manufacturing-based one, and household savings have been sufficient for the required investments so far, rectifying this imbalance offers the key to accelerating India's growth rate in the future.

There are three issues that need to be addressed in order to rebalance the composition of Indian savings. First, as other MGI work has shown, reforming India's financial system will be critical to making the allocation of capital in India more efficient, increasing the depth of its capital markets, and raising real returns in the economy, thus encouraging capital formation. Poor capital allocation coupled with India's heavy regulation of many industries continues to discourage the formation of medium and large-size enterprises. This leaves much of India's capital inefficiently tied up in small-scale, informal businesses and classified as household savings. Both the financial system and regulations on industry need to be reformed over time. Second, the Indian government needs to play its part in maintaining fiscal responsibility and growing its own contribution to net national savings. Finally, it will be important to acknowledge that Foreign Direct Investment (FDI) can also play a growing role in supplying India with investment capital and should be encouraged. While FDI is still modest relative to the size of India's economy (and dwarfed by the flows of FDI going to China and other parts of Asia), it has increased almost 18-fold from $315 million in 1992 to about $15 billion in 2006. We expect FDI to continue to increase significantly, especially if the regulatory and business environment continues to evolve in directions that welcome it.

Growth in Indian incomes and consumption will deliver substantial societal benefits, with further declines in poverty and the growth of a large middle class. The good news for the long-term health of the economy is that India's growth as a consumer superpower doesn't depend on Indians saving less, but rather on high overall growth continuing to translate into rising incomes. However, this positive outcome does depend on Indian businesses making their contribution by saving more, and the government being fiscally responsible while continuing to reform the economy to ensure that India has sufficient capital to invest in its future growth.

Question:

Compare savings vis-à-vis consumption scene in India.

Source: Subbu Narayanswamy & Adil Zainulbhai, May 7, 2007, Business Standard (India)

Self Assessment

Fill in the blanks:

5. Negative savings are also called .....
6. Difference between income and consumption is represented by .....
7. ..... consumption represents the basic minimum need of a household.
8. In equation, C= a + b.Y, b.Y represents ..... consumption.

Notes

9. .....also represents the slope of the consumption function.
10. In equation, C= a + b.Y, a represents the level of consumption that would be there even when the income is .....
11. If MPC is 0.6, MPS would be .....
12. ..... represents the proportion of each income level that a household will spend on consumption.
13. The relative income hypothesis was given by .....
14. If MPS = 0.3, it means that a ₹ 100 rise in disposable income leads to ..... rise in consumption.

5.3 Factors Determining Propensity to Consume

The amounts of consumption depend solely upon the level of disposable income. Many other factors help determine how any given level of disposable income will be divided between consumption and saving. Moreover, changes in these other factors can shift the consumption function up or down. This can lead to more less consumption at each level of income. Some of the more important of these factors are enumerated below.

- ***The Stock of Wealth:*** Wealth has been regarded as the most important determinant of consumption. Other things being constant, a wealthy community might be expected to consume a larger part of its income than a group with the same income but less wealth. The larger the wealth possessed by a person, the lower would be the desire to add to future wealth, by reducing consumption spending. Consumption, therefore, will be higher wealth. Windfall capital gains losses also have an impact on aggregate consumption.
- ***Expectations:*** The consumption of a person is also influenced by expectations regarding future movements in income and prices. For example, when future levels of income are expected to be higher than present levels, the consumer community is likely to consume more out of its current disposable income.
- ***Taxation Policy:*** Taxation measures of the government may influence the average propensity to consume (APC), i.e., C/YD and bring about shifts in consumption function. An increase in direct taxes will reduce disposable income at all levels of income and the reverse may occur when taxes are reduced. Similarly, a tax structure based on progressive taxation leads to increase in the level of consumption expenditure.
- ***Distribution of Total Household Income by Size of Household Income:*** For example, total saving out of a given level of total household income is likely to be higher if a greater part of the total income accrues to high income classes, rather than to low income groups.
- ***Age Composition of the Population:*** Both elderly and young families have higher propensities to consume than families in their middle years. A shift in age composition could shift consumption and saving functions.

Task Discuss what would happen to consumption function if,

(a) Consumer experience an increase in wealth

(b) Taxes are increased

(c) Consumer expect prices to rise rapidly in future

(d) Interest rates fall

Self Assessment

Notes

State whether the following statements are true or false:

15. The amount of consumption depends entirely on the disposable income.
16. A rise in direct rate of taxation would lead to more consumption.
17. A shift in age composition could shift consumption and saving functions.

5.4 Summary

- The consumption function – the relationship between consumption and income – is largely a Keynesian contribution. Keynes postulated that consumption depends mainly on income.
- In regard to the relationship, he argued that consumption increases as income increases but by an amount less than the increase in income.
- Marginal Propensity to Consume is a component of Keynesian theory that represents the proportion of an aggregate raise in pay that is spent on the consumption of goods and services, as opposed to being saved.
- On the other hand, Marginal Propensity to Save is the proportion of a small change in disposable income that would be saved, instead of being spent on consumption.
- It is computed by dividing the change in savings by the change in disposable income that caused the change.

5.5 Keywords

Autonomous Consumption: The minimum level of consumption that would still exist even if a consumer had absolutely no income.

Average Propensity to Consume: Fraction or percentage of disposable (after tax) personal income spent for consumer goods.

Average Propensity to Save: The proportion of total disposable income (individual, household or national) which represents income used for savings as opposed to expenditure.

Consumption Function: A mathematical function that emphasizes the relationship between consumption and income (factors determining consumption).

Disposable Income: The amount of money that households have available for spending and saving after income taxes have been accounted for.

Induced Consumption: Consumption expenditure by households on goods and services which varies with income.

Marginal Propensity to Consume: Proportion of a small change in the disposable income that would be spent on consumption instead of being saved.

Marginal Propensity to Save: Proportion of a small change in disposable income that would be saved, instead of being spent on consumption.

Propensity to Consume: The proportion of total income or of an increase in income that consumers tend to spend on goods and services rather than to save.

Savings Function: The relationship between an individual's total savings and his or her income.

Notes

5.6 Review Questions

1. The marginal propensity to consume is 8. Autonomous expenditures are ₹ 42000. What is the level of income in the economy? Demonstrate graphically.
2. The marginal propensity to save is 0.33 and autonomous expenditures have just fallen by ₹ 200/-. What will likely happen to income?
3. The marginal propensity to save is .5 and autonomous expenditures have just risen to ₹ 2000. The economy is at its potential level of income. What will likely happen to income? Why?
4. For each of the following consumption functions, find the marginal propensity to consume, MPS = dc/dy.
   (a) $C = C_0 + bY$
   (b) $C = 1500 + 0.75Y$
5. What is the MPC when (a) C= ₹ 40+0.75Y; (b) C= ₹ 60+0.80Y; and (c) C= ₹ 20+0.90Yd?
6. Suppose planned consumption is given by the equation C= ₹ 40+0.75Yd. Find planned consumption when disposable income is ₹ 300, ₹ 400 and ₹ 500.
7. Explain the Engel's law of consumption.
8. Analyse the consumption-income relationship and explain the terms APC, MPC, APS and MPS.
9. Discuss the factors that affect the propensity to consume.
10. Explain, with the help of examples, that MPS + MPC = 1.

Answers: Self Assessment

1.	(b)	2.	(d)
3.	(d)	4.	(a)
5.	dissavings	6.	savings
7.	Autonomous	8.	induced
9.	Marginal Propensity to Consume	10.	Zero
11.	0.4	12.	Average Propensity to Consume
13.	James Duesenberry	14.	₹ 70
15.	True	16.	False
17.	True		

5.7 Further Readings

Books

Dr. Atmanand, *Managerial Economics,* Excel Books, Delhi.

H L Ahuja, *Macro Economics Theory and Policy*, S Chand Publications

Shapiro and Edward, *Macro Economic Analysis*, Galgotia, New Delhi

W H Branson, *Macro Economic Theory and Policy*, AITBS Publishers and Distributors, New Delhi

Notes

Online links

http://tutor2u.net/economics/content/topics/consumption/consumption_theory.htm

http://www.britannica.com/EBchecked/topic/134598/consumption-function

http://www.amosweb.com/cgi-bin/awb_nav.pl?s=wpd&c=dsp&k=marginal+propensity+to+consume

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Unit 6: Investment

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Objectives

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Objectives

After studying this unit, you will be able to:

- Define the term 'investment';
- Describe different types of investment;
- Differentiate between autonomous and induced investment;
- Discuss the factors that affect investment decisions;
- Explain the Accelerator theory of investment.

Introduction

The survival of a business in the competitive market involves a lot of monetary and non-monetary effort. One of the major strategies adopted by the firms is investing in new opportunities. Firms make investments, the long run, by generating capital from their own resources and borrowing. However, for firms, capital may be a scarce resource so they have to allocate it in such a manner that they get the maximum return from their investment.

As capital is expensive, the basic objective of the investor is to maximise the net return, i.e., revenue minus costs. Capital would then be invested in only those products where there is an

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excess of revenue over (capital) expenditure or return is the maximum over the period of that investment. In setting up a management consultancy firm, for example, investment will be made in acquiring professionals. In most cases, they are very expensive. The product, here would be the service provided by these professionals in solving a client's problem. Revenue will come from the sale of their services. Accordingly, capital would be required to set up such an organisation. In this unit, you are going to learn about various types of investments and factors that affect investment decisions.

6.1 Meaning and Types of Investment

Investment refers to that part of current output which makes a new addition to the existing stock of capital. It is a flow variable because it is not the total stock of capital but the net addition made thereto, with respect to time.

Like consumption, investment depends on many variables. For simplifying our analysis we assume that investment is given independently of the level of income. Thus investment is a constant, I_0.

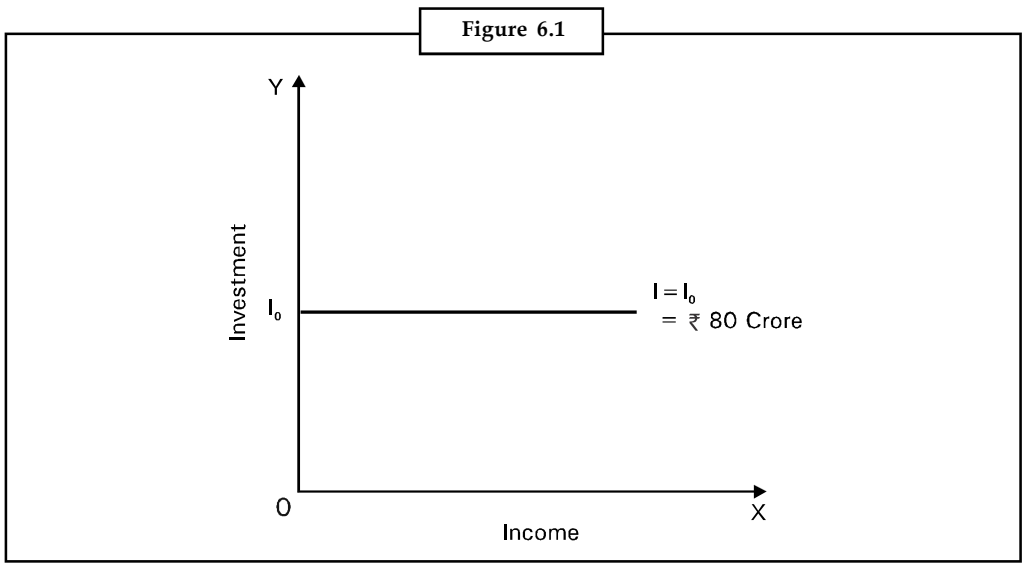
Since investment is assumed to be constant at the I_0 level, the investment function is

$$I = I_0 (I_0 > 0)$$

Where I_0 represents a given positive level of investment.

Example: Suppose investment equals ₹ 80 crores. With investment on the vertical axis and income on the horizontal axis, the investment function is plotted as a straight line parallel to the horizontal axis as in Figure 6.1 which shows that investment does not vary with the level of income. Thus, investment is ₹ 80 crores regardless of the level of income.

Figure 6.1



Types of Investment

The various types of investment are:

- ***Gross Investment:*** Total addition to capital stock.
- ***Replacement Investment***: A part of gross investment which is used for replacing old capital equipment.

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- ***Net Investment:*** gross investment minus replacement investment.
- ***Ex-ante Investment:*** investment which is intended or planned.
- ***Ex-post Investment:*** actual or realised investment.
- ***Autonomous Investment:*** investment taken generally for social welfare. It is independent of income, output or profit.
- ***Induced Investment:*** investment induced by a change in level of income or output.

Private business investment is often divided into two categories:

- Autonomous investment
- Induced investment

Investment which is brought about by any changes in the level of income (i.e., GNI) or output (i.e., GNP) is called induced investment. However, major portion of private investment does not depend on national income or output.

Example: Suppose a new invention of 3D television becomes popular. It is quite likely that business firms will make investment in developing the new product even if there had been no prior change in national or per capita income.

This investment which is independent of national income or its rate of change is called autonomous investment.

Caution Thus investment which depends on national income or its rate of change is called induced investment. On the other hand, investment which depends on all other variables except national income is called autonomous or income independent investment.

Notes In his income and employment theory, JM Keynes considered only autonomous investment. He ignored induced investment because he was concerned with the economic problems of depreciation. During depression national income tends to fall steadily. Therefore induced investment is unlikely to occur.

However in 1917, J.M. Clark developed the famous acceleration principle on the basis of the concept of induced investment.

Self Assessment

Multiple Choice Questions:

1. Investment is a ..... variable.
   (a) Stock
   (b) Flow
   (c) Stable
   (d) Steady
2. ..... investment is the total addition to the capital stock.
   (a) Gross
   (b) Net

Notes

(c) Replacement

(d) Induced

3. Net investment is gross investment minus ..... investment.

(a) Ex-ante

(b) Ex-post

(c) Replacement

(d) Induced

4. ..... investment is independent of national income or its rate of change.

(a) Induced

(b) Ex-ante

(c) Ex-post

(d) Autonomous

5. Induced investment depends on .....

(a) National income

(b) Autonomous investment

(c) Aggregate demand

(d) Inflation rate

6.2 Factors affecting Investment Decisions

Business firms make investment in order to make profits. These decisions are usually influenced by the following factors:

- The rate of investment
- The marginal efficiency of capital (or the yield)
- The cost and productivity of capital goods
- Business expectations
- Profits
- Process innovations
- Product innovations
- The level of income

6.2.1 The Rate of Investment

The lower the rate of interest, the lower will be the cost of borrowing money to acquire an income-earning asset like a machine. So business firms, in general would be willing to make more investment.

A simple example may illustrate the investment. Suppose a firm is faced with four investment opportunities. The cost of each investment is ₹ 100 and each one involves receiving a single cash flow after one year.

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Example: Suppose the most profitable project pays ₹ 121, the next ₹ 116, next ₹ 111 and the least profitable one only ₹ 106. If the rate of interest is 22% at present, none of the investment will be profitable. At rates of interest between 16% and 21% only 1st project will be profitable, at 18% ₹ 100 could be borrowed at a cost of ₹ 18: after one year, the investment would yield ₹ 121, showing a profit of ₹ 3 after repaying the initial sum borrowed (₹ 100) and paying interest of ₹ 18. At rates between 11% and 16% the first two opportunities would be most profitable. A rate below 11% makes the third project profitable. Similarly, a rate below 6% makes even 4th one profitable. Thus, desired investment expenditure gradually rises from ₹ 100 to ₹ 200 to ₹ 300 and ultimately to ₹ 400 on account of these four investment opportunities.

Thus the volume of investment varies inversely with rate of interest. So, the investment function may be given as:

$$I = f(r) \text{ with } \frac{\Delta I}{\Delta r} < 0$$

Here I is (autonomous) investment and r is the market rate of interest.

Thus, lower is the rate of interest, the larger the number of profitable investment opportunities, and consequently the greater the investment expenditure that firms will like to make.

The exception is depression when there is widespread business pessimism. So investment opportunities are lacking. At such times changes in 'r' are unlikely to affect investment decision appreciably.

Table 6.1

Investment	Disposable Income	Change in Investment	Change in Income (₹)
1000	0	-	-
1000	1000	0	1000
1000	2000	0	1000
1000	3000	0	1000
1000	4000	0	1000
1000	5000	0	1000
1000	6000	0	1000
1000	7000	0	1000
1000	8000	0	1000
1000	9000	0	1000
1000	10000	0	1000
1000	11000	0	1000
1000	12000	0	1000
1000	13000	0	1000
1000	14000	0	1000
1000	15000	0	1000

Table 6.1 and Figure 6.2 show that the amount of investment does not change with changes in income. It is autonomous - determined outside of the model. That is why there is no change in investment as income changes. Because investment is not affected by changes in income, the investment curve will have a slope of zero.

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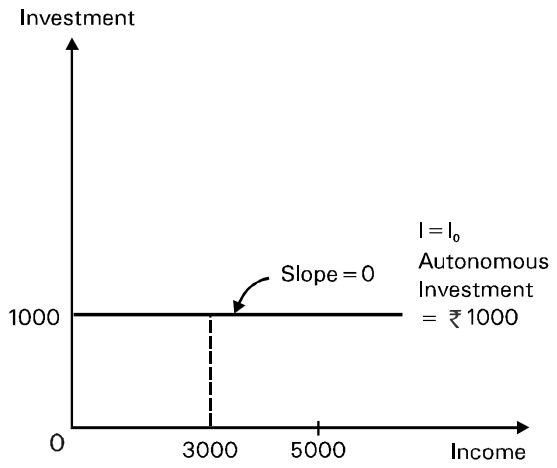
Figure 6.2



Task Ask your friends whether they have made any investments and if, they have, how much return are they getting from them? Is the return constant or flexible?

6.2.2 The Marginal Efficiency of Capital (or the Yield)

A profit-maximising firm is interested in knowing how much money can be earned by selling the output produced by one extra unit of capital.

Caution The marginal (physical) product of capital is the contribution made to the firm's output when the quantity of capital is increased by a single unit, other factors being held constant. The MRP is obtained by multiplying MPP by the market price of the output.

The marginal efficiency of capital, MEC, gives the monetary return on each extra rupee's worth of capital added. In short, MEC is the rate at which the value of stream of output of a marginal rupee's worth of capital has to be discounted to make it equal to ₹ 1. Since quantities of other factors are held constant the MEC tends to fall due to operation of the law of diminishing returns.

Prospective return explains only one aspect of profitability. The investment decision also involves the cost of acquiring the capital asset, or the supply price (the replacement cost) of the capital asset. Other things remaining same, the greater the supply price, the greater would be the disincentive to invest.

Calculation of prospective yield is based on uncertainty. Therefore, it is essential to estimate the present value of returns from capital, which is expected in the future lifetime of the capital (which may be 10 or 20 years). It is an asset expected to yield an income of ₹ 3000 a year for 3 years (i.e., ₹ 9000 during total lifetime), the present value (PV) of the capital asset can be found as:

$$PV = \frac{Q_1}{(I+i)} + \frac{Q_2}{(I+i)^2} + \ldots\ldots\ldots + \frac{Q_n}{(I+i)^n}$$

Notes

(PV is present value, Qn are prospective returns, I is current rate of interest)

$$\therefore\ PV = \frac{3000}{(1.05)} + \frac{3000}{(1.05)^2} + \ldots\ldots\ldots + \frac{3000}{(1.05)^n} = ₹\ 8175$$

Obviously, the PV is less than the obsolete sum to be received in future. In the calculation of PV, the technique of discounting has been applied. The higher the rate of discount (interest), smaller will be the present value (PV). If PV of the asset exceeds the supply price of that capital asset, it may be considered worthwhile to undertake this investment. On the contrary, if the PV of asset is lower than supply price of asset, then investment cannot be undertaken, as it will lead to loss.

According to Keynes, MEC is the rate of discount which will equalise the supply price of capital with the prospective return of capital asset. Thus,

$$S_P = \frac{Q_1}{(I+r)} + \frac{Q_2}{(I+r)^2} + \ldots\ldots\ldots + \frac{Q_n}{(I+r)^n}$$

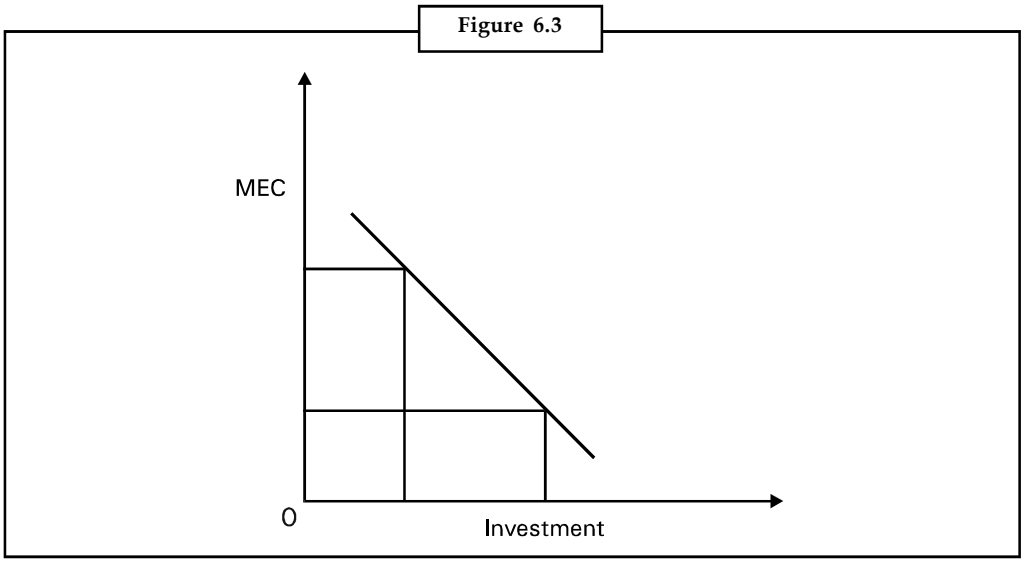
Where S_P is supply price of capital Q_n is annual returns, r = rate of discount which will bring the two sides into equality.

Thus r will be the MEC. It is not necessary that the returns are the same in every year. When yield is constant, then MEC = Y/P

Where, Y is annual yield and P is supply price of capital.

The MEC, in general, is the highest rate of return over the cost expected from an additional or marginal unit of that type of asset. Investment would be undertaken, other things remaining same, if the MEC is greater than rate of interest. As we know, MEC declines or shows diminishing returns with an increase in investment (Figure 6.3).

Figure 6.3



The major causes of decline in MEC are:

- Reduction in prospective yield
- Increase in supply price of capital.

The two most important determinants of investment are MEC and rate of interest. As long as MEC exceeds rate of interest, investment will be forthcoming till such a time when these two variables are equal. This will determine the equilibrium volume of investment (I_0 in Figure 6.4).

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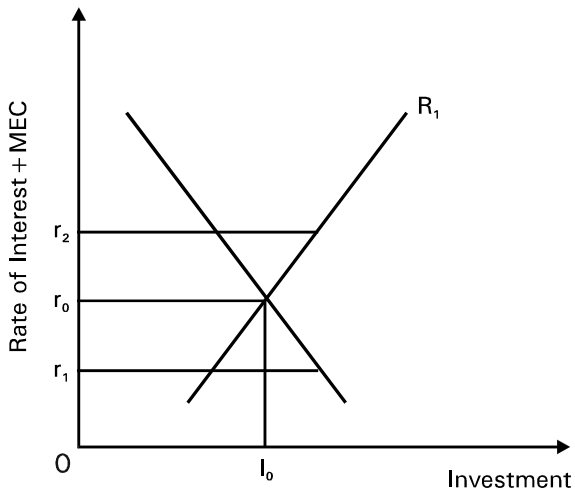
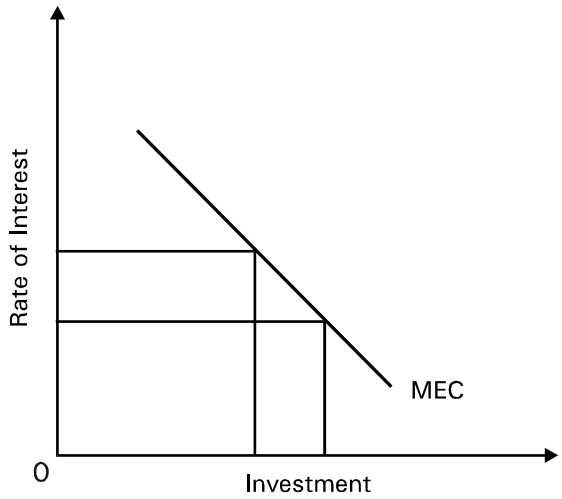
Figure 6.4



If rate of interest rises, then volume of investment goes down and if the rate of interest goes down, the volume of investment rises. When investment goes down, the MEC goes up and when investment goes up, MEC goes down. Thus both investment and MEC can be said to be inversely related (Figure 6.5).

Figure 6.5



The investment curve, according to modern economist, does not have the same elasticity throughout. At a very low rate of interest, investment curve may be vertical and beyond a crucial rate of interest, the curve may be elastic (Figure 6.6).

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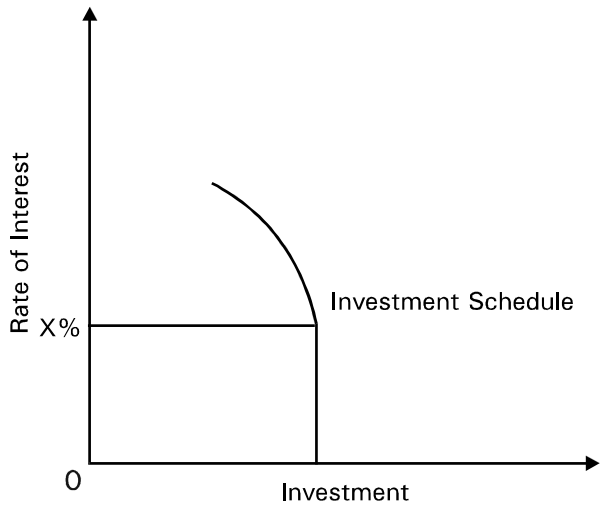
Figure 6.6



The more elastic the MEC schedule, the greater will be the increase in investment in response to a given fall in the rate of interest. Keynes found that fluctuation in investment is mainly due to fluctuation in MEC. In the short run, the rate of interest is given, thus the more important determinant of investment is MEC. However, MEC is essentially dependent on future expectation regarding the prospective yield and life span of the capital asset. Since MEC is, to some extent, a psychological phenomenon, it is influenced by expectation.

Notes In fact the MEC curve can be taken to show the firm's demand curve for capital. It shows the amount of capital that a firm would choose to employ at different costs of employing, i.e., different rates of interest. The equilibrium amount of capital of a profit making firm is that at which MEC is exactly equal to rate of interest. Similarly, by adding the MEC schedules of individual firms, we arrive at the MEC schedule of society or an economy. So like the downward sloping MEC schedule of a firm the MEC schedule for the economy as a whole is also downward sloping.

6.2.3 The Cost and Productivity of Capital Goods

Like the cost of funds needed for investment expenditure, the price and productivity of machines being purchased have an influence on the profitability of investment.

A new process that reduces the price of capital goods will make any given line of investment more profitable because the interest costs involved will be reduced.

Example: A duplicating machine of ₹ 120,000 will have an interest cost of ₹ 12,000 per year at a rate of 10%, but if the price falls to 80,000, its interest cost will be only ₹ 8,000.

Moreover, any new invention that makes capital equipment more productive will make investment more attractive, for example, if the replacement of typewriters by word-processors makes a given amount spent on office equipment more productive, this will lead to a burst of investment expenditure to obtain the new capital equipment.

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6.2.4 Business Expectations

Since investment decisions take time to accomplish, they are characterised by a high degree of uncertainty. Thus business expectations, i.e., what business people expect to happen in future is very important. If they are pessimistic about the future, even a low rate of interest will not encourage them to borrow and vice versa if they are pessimistic. A wide range of factors from a change in government to a change in weather may affect business expectation.

Investment decisions are largely influenced by expectations of future demand conditions (of output produced) and future cost conditions (of machines, operating cost of machines, etc.)

6.2.5 Profits

Most investments are financed by borrowed funds. But small and medium-sized firms have little access to the capital market. Thus, a great deal of investment is also financed by firm's internal resources. Most companies do not distribute their entire profit after tax among the shareholders in the form of dividends. A certain portion is retained for reinvestment. Such reinvestment or ploughing back of profit is necessary for expansion and diversification. Thus, current profit appears to be an important determinant of investment expenditure. In a year of good business, profits are large. So there is a large flow of funds that can be reinvested by the firms that made profits. If, on the other hand, there is no profit or even loss, as during recession, hardly any fund will be available within the firm to finance new investment expenditures.

Caselet

NRI Investment in India is on Rise

An increasing number of non-resident Indians are investing in well-established Small and Medium Enterprises (SMEs) in India, especially those involved in businesses like telecommunication services and properties, according to a Singapore-based wealth management advisor.

"We have seen cash-rich Indian SME-owners investing in global assets, especially mineral resources such as coal and gold mines," the Chief Executive Officer of Taurus Wealth Advisors Pte Ltd and Taurus Capital Management Pte Ltd, Mandeep Nalwa, said.

"These Indian investments are significant in size, some as much as $100 million per commitment, though they are often overshadowed by the multi-billion dollar international deals being done by Indian multi-national corporations," Nalwa said in an interview with PTI today.

Nalwa said his group has helped carry out due diligence on a large number of properties and assets in India and globally to support the investment plans of their clients, a large number of whom are Indians residing in India and abroad.

"These clients want holistic advise on their investments, which covers both traditional financial asset investing and non-traditional assets. Clients want to diversify their risk between the volatile financial markets, which are hostage to well-known geo-political and economic noise, and the relatively long-term investment calls on the economic development of emerging countries, especially India and China," he said.

"While Taurus focuses on providing investment advice to high net-worth individuals (HNIs) on their financial assets, discussions with clients often reveal their keenness to participate in unlisted investments," Nalwa said.

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He stressed on the importance of due diligence for investors committing their resources to non-listed assets.

"Overseas Indians have expressed strong interest in the growing businesses in India, citing the higher rate of returns on their investment and the country's double-digit economic growth," he said.

"The investment flow into India is picking up momentum, with more and more high net-worth individuals of India-origin taking up stakes in SMEs, which may offer a double-digit rate of return on investments," he added.

"Global investors can no longer ignore the investment opportunities in India and taking this cue, we see an increasing number of NRIs in that race for participating in Indian prosperity, as the main Western, American and Asian markets have matured," he said.

Source: http://www.oifc.in/Article/'NRI-investment-in-India-increasing'

6.2.6 Process Innovations

In this dynamic world, there is a growing competition and technological progress or industrial innovation. The use of such innovations requires investment.

6.2.7 Product Innovations

The production of an old product cheap as well as development of new products requires new investment in plant and equipment.

6.2.8 The Level of Income

High levels of income are often associated with high levels of investment. High income may be national income, high profit, etc.

Task You or Your parents must have invested in shares, bonds or mutual funds at some point of time. What were the factors that influenced your investment decision at that time?

Self Assessment

Fill in the Blanks

6. Investment and rate of interest are ..... related.
7. Lower the interest rate, more will be the investment by firms except in the case of .....
8. ..... gives the monetary return on each extra rupee's worth of capital added.
9. The two most important determinants of investment are MEC and ..... .
10. ..... or ploughing back of profit is necessary for expansion and diversification of firms.

Notes

6.3 Induced Investment and the Accelerator

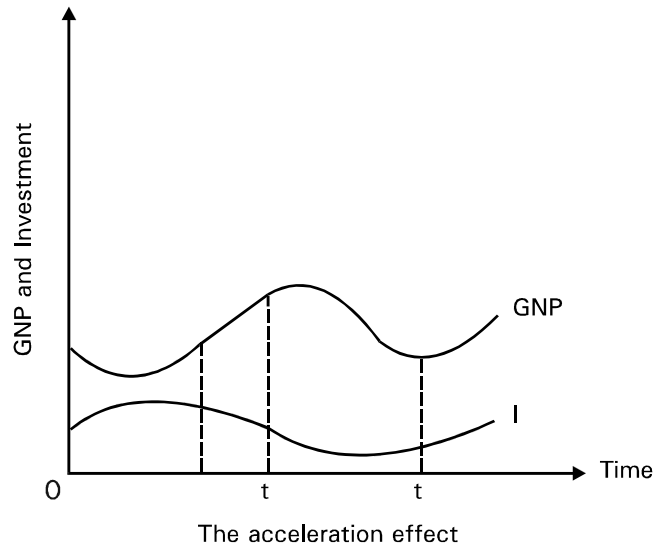
Clark pointed out income as a major determinant of investment and developed the accelerator theory of investment. According to this theory, the level of new investment is determined not only by level of output or GNP but by rate of change of national income. It is based on the fact that the capital stock of a nation is considerably greater than its GNP. The theory makes the following prediction.

"Small changes in the level of national income or output will lead to much greater (accelerated) changes in the demand for capital goods."

Figure 6.7 explains how GNP and level of investment depend on rate of change of GNP.

When GNP is rising rapidly then investment will be at a high level, as business people are eager to add to their capacity. However, as the rate of growth slows down, business people will no longer add as rapidly to capacity, and investment will fall to replacement level. That is, gross investment to the extent of depreciation will take place but net investment to the stock of capital will be 0.

Figure 6.7

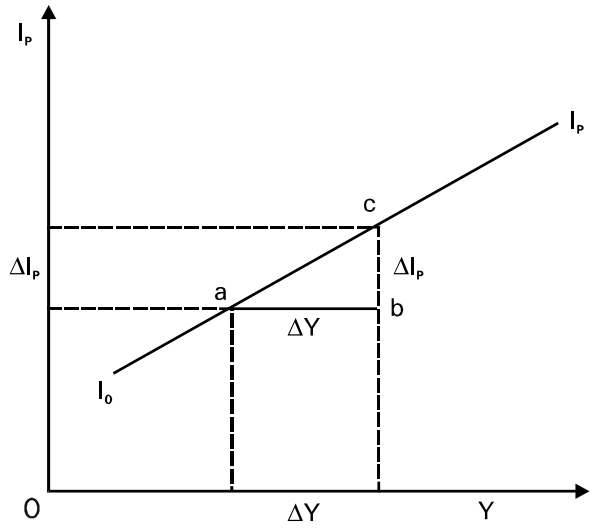


Investment is thus, in part, a function of changes in the level of income: I = f(ΔY). This type of investment is known as induced investment and is different from autonomous investment of the Keynesian type. A small change in output or sales may thus provide the necessary inducement for investment. From this idea we may develop a new concept, viz., the marginal propensity to invest (MPI). This is expressed as MPI = $\frac{\Delta I_P}{\Delta Y}$.

In Figure 6.8 the line IP is the line of induced investment. When national income increases by ΔY, investment increases by ΔI_p. The slope of the line of investment is MPI. Thus like consumption, investment is also a function of national income and changes with it. So total investment has two components – autonomous and induced. Or, symbolically: $I = I_s + I_p$. Where I is total investment, I_s is autonomous and I_p is induced private investment.

Notes

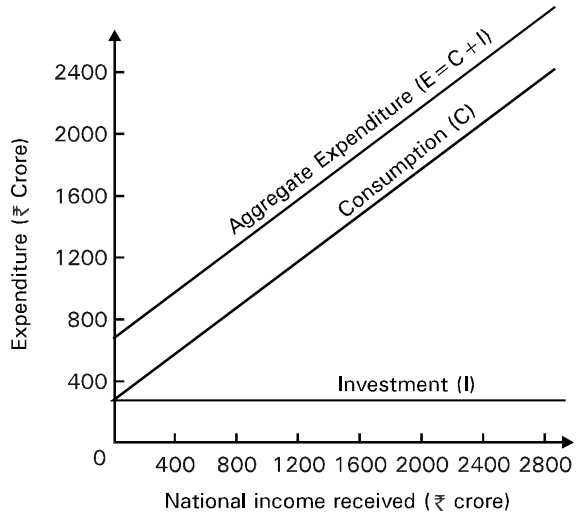
Figure 6.8



The aggregate expenditure function is actionally putting the pieces together. The only two kinds of output produced in our hypothetical economy are consumption goods and capital (investment) goods. Thus, total desired spending in this two-sector economy must be the sum total of desired consumption expenditure and desired investment expenditure. Thus, E = C + I, where E is total desired spending.

In fact, the aggregate expenditure (C + I) function is the vertical summation of the individual expenditure function - the consumption function (C) and the investment function (I) (Figure 6.9).

Figure 6.9



Shifts in the Aggregate Expenditure (C + I) Function

As we know, aggregate expenditure function is the sum of consumption and investment function. Therefore, anything that shifts either of the functions will shift the aggregate expenditure function. Shifts of C and I are discussed one by one.

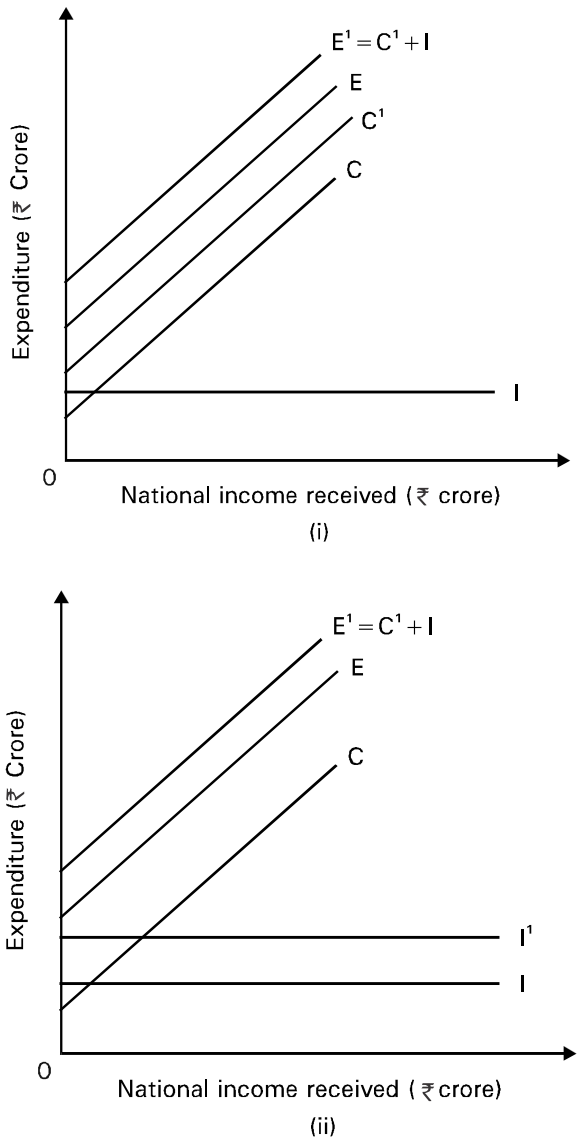
Notes

The consumption function may shift upward due to the following reasons:

- A reduction in the thriftiness of the people. Thriftiness refers to a decreased desire to save.
- A fall in the rate of interest which reduces the reward for saving.
- A fall in the rate of interest which induces people to buy now before prices rise.
- An increase in the stock of wealth so as to make people feel that it is less urgent and important to save in order to add to their stock of wealth.

In short, anything that increases (decreases) the desire to spend on consumption goods and hence reduces (increases) the desire to save will cause an upward (downward) shift of the consumption function and a corresponding upward (downward) shift of the aggregate expenditure function.

Figure 6.10



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In investment function, it may shift upward due to the following reasons:

- A fall in the rate of interest
- An increase in MEC
- Improved sales prospect
- Expectations of decreased costs in the future
- A rise in profits which can be used to finance investment.

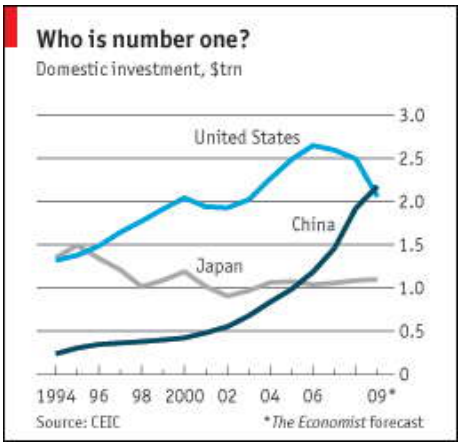
In Figure 6.10, there is an upward shift of the investment function from I to I_1. The consumption function remains unchanged. Consequently the aggregate expenditure functions shift by the same amount from E to E_1. In the converse case, the investment function would have shifted downward.

Case Study

Investment Spending in China: Reap What You Sow

Despite falling exports, China's economic growth has remained relatively strong this year thanks to a surge in investment sparked by the government's stimulus measures. Official data show that fixed-asset investment leapt by an astonishing 39% in the year to May, or by a record 49% in real terms. Sowing more today should yield a bigger harvest tomorrow, but how wisely is this capital being used?

Official figures almost certainly overstate the size of the spending boom: local bureaucrats may well be exaggerating investment in order to impress their masters in Beijing. More important, the government's figures misleadingly include land purchases and mergers and acquisitions. But even if measured on a national-accounts basis, like GDP, investment is probably growing at a still-impressive real annual rate of around 20%. This year China's domestic investment in dollar terms is likely to exceed that in America (see graph below).



There is widespread concern that this investment boom is adding to China's excess capacity. Investment amounted to 44% of GDP last year (compared with 18% in America), which many economists reckon was already too much. Worse still, as well as forcing state firms to invest, the government is directing state-owned banks to lend more, despite falling corporate profits. Many of those loans could turn sour. Like Japan in the 1980s, it is argued, an artificially low cost of capital causes chronic overinvestment and falling returns. If so,

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it will end in tears. To assess that risk you need to ask two questions. How much excess capacity was there already? And where is the new investment going?

There is certainly excess capacity in a few sectors (steel and some export industries, such as textiles). But the best measure of spare capacity for the economy as a whole-the difference between actual and potential GDP, or "output gap"-is probably only about 2% of GDP, compared with an average of almost 7% in the rich world.

The large role played by state-owned banks is bound to have resulted in some misallocation of capital, but a recent study by Helen Qiao and Yu Song at Goldman Sachs argues that concerns about overinvestment are exaggerated. A successful developing economy should have a high ratio of investment to GDP. And a rising rate does not mean that the efficiency of capital is falling; capital-output ratios are supposed to increase as economies develop. America's capital stock is much larger relative to its GDP than China's, with 20 times more capital per person than in China.

A better measure of capital efficiency is profitability. Profits have indeed slumped over the past year, but taking the past decade to adjust for the impact of the economic cycle, profit margins have not narrowed as one might expect if there were massive spare capacity. The argument that the average cost of capital is ludicrously low is also no longer true. China's real interest rate is now 7%, which is among the highest in the world.

Where is the new investment going? There has been little new spending in industries with overcapacity, such as steel and computers. But the surge in state-directed investment has fuelled fears about its quality. In its latest China Quarterly Update, the World Bank calculates that government-influenced investment so far this year was 39% higher (on a national-accounts basis) than a year earlier, while "market-based" investment rose by a more modest 13%. This implies that government-influenced investment accounts for about three-fifths of the growth in investment this year, up from one-fifth last year.

The usual assumption is that government investment is less efficient and will therefore harm long-term growth. But the fastest expansion in spending has been in railways (up by 111% this year). As a developing country, China still lacks decent infrastructure; railways, in particular, have long been an economic bottleneck. Investment in roads, the power grid and water should also yield high long-term returns by allowing China to sustain rapid growth.

And the government is focusing its infrastructure stimulus on less developed parts of the country where the benefits promise to be greatest. According to Paul Cavey at Macquarie Securities, fixed-asset investment in western provinces was 46% higher in the first four months of this year than in the same period of 2008, almost double the rise in richer eastern provinces.

Some of the money being spent in China will inevitably be wasted, but it is wrong to denounce all government-directed investment as inefficient. In the short term it creates jobs, and better infrastructure will support future growth. It is certainly not a substitute for the structural reforms needed to lift consumer demand in the longer term, but it could help. After all, without running water and electricity, people will not buy a washing machine.

Question:

Do you think that China's investment spending could soon be bigger than US? Justify.

Source: www.economist.com

Notes

Self Assessment

State whether the following statements are true or false:

11. According to Accelerator theory, the level of new investment is determined not only by level of output or GNP but by rate of change of national income.
12. When GNP is rising rapidly then investment will be at a low level.
13. Aggregate expenditure function is the sum of consumption and investment function.
14. An investment function may shift upwards due to a rise in interest rate.
15. An investment function may shift downwards due to a fall in MEC.

6.4 Summary

- Investment refers to that part of current output which makes a new addition to the existing stock of capital. It is a flow variable because it is not the total stock of capital but the net addition made thereto, with respect to time.
- Like consumption, investment depends on many variables. For simplifying our analysis we assume that investment is given independently of the level of income.
- Business firms make investment in order to make profits. These decisions are usually influenced by the following factors: the rate of investment, the marginal efficiency of capital (or the yield), the cost and productivity of capital goods, business expectations, profits, process innovations, product innovations and the level of income.
- According to the accelerator theory of investment, the level of new investment is determined not only by level of output or GNP but by rate of change of national income. It is based on the fact that the capital stock of a nation is considerably greater than its GNP.

6.5 Keywords

Autonomous Investment: It is the level of investment independent of National output.

Gross Investment: Total investment in an economy during a certain period.

Induced Investment: Business investment expenditures that depend on income or production (especially national income or gross national product).

Investment: It refers to that part of current output which makes a new addition to the existing stock of capital.

Marginal Efficiency of Capital: It is the annual percentage return on the last additional unit of capital.

Net Investment: A measure of a company's investment in capital, found by subtracting non-cash depreciation from capital expenditures.

Replacement Cost: The amount it would cost to replace an asset at current prices.

6.6 Review Questions

1. Define the term 'investment'. Describe different types of investments.
2. How does an investment function relate to consumption function?

Notes

3. Differentiate between autonomous and induced consumption.
4. Illustrate with the help of an example, how rate of investment affects investment decisions.
5. Explain the concept of marginal efficiency of capital, in brief. How does it affect investment decisions?
6. Discuss the major factors that affect investment decisions, in brief.
7. Explain Accelerator theory of Investment.
8. "Aggregate expenditure function is the sum of consumption and investment function". Validate
9. "Investment decisions are largely influenced by expectations of future demand conditions". Substantiate
10. Describe the concept of re-investment.

Answers: Self Assessment

1.	(b)	2.	(a)
3.	(c)	4.	(d)
5.	(a)	6.	inversely
7.	depression	8.	Marginal Efficiency of Capital
9.	Rate of interest	10.	Reinvestment
11.	True	12.	False
13.	True	14.	False
15.	True		

6.7 Further Readings

Books

Dr. Atmanand, *Managerial Economics,* Excel Books, Delhi.

H.L Ahuja, *Macro Economic Theory and Policy,* B. Chand Publications

Lipsey & Chrystal, *Economics-Indian Edition,* Oxford University Press, 2007

Misra and Puri, *Economic Environment of Business*, 5th Edition, Himalaya Publishing House

Online links

http://www.amosweb.com/cgi-bin/awb_nav.pl?s=wpd&c=dsp&k=induced+investment

http://www.jstor.org/pss/1810161

http://www.economicsconcepts.com/concept_of_investment.htm

http://www.indiastudychannel.com/resources/107657-What-are-differences-between-Autonomous.aspx

Notes

Unit 7: Concept of Multiplier

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Objectives

After studying this unit, you will be able to:

- Describe the concept of multipliers;
- Explain the working of an investment multiplier;
- Discuss the working of government spending, tax, balanced budget and foreign trade multipliers;
- State the limitations of multipliers;
- Contrast static and dynamic multipliers.

Introduction

R F Kahn developed the concept of multiplier in his article, "The Relation of Home Investment to Unemployment" in *the Economic Journal* of June 1931. Kahn's multiplier was the employment multiplier. Keynes borrowed the idea from Kahn and formulated investment multiplier.

Keynes considers his theory of multiplier as an important and integral part of his theory of employment. The multiplier, according to Keynes, establishes a precise relationship, given the propensity to consumer, between aggregate employment and income and the rate of investment. It tells us that when there is an increment of investment, income will increase by an amount which is K times the increment of investment. In the words of Hansen, Keynes' investment multiplier is the coefficient relating to an increment of investment to an increment of income. In this unit, you will learn about the various types of multipliers.

Notes

7.1 Concept of Multipliers

Multiplier coefficient refers to the multiple increases in the equilibrium level of income caused by a change in the level of aggregate spending. The investment part of the total spending is determined by the market mechanism ad is relatively more dynamic determinant of output, employment and income. The value of the multiplier is mainly determined by the value of marginal propensity to consume.

Spending creates income. It leads to rise in income of those producers on whose goods and services the spending is made. The spending may be on capital goods (called investment), on inputs, and on consumption. (It is assumed that there is no government expenditure and there are no net exports).

If the spending is done out of the increase income without any decrease in the existing income of the society, it has one impact on income creation. If the spending is done out of the increased income of one section of the society obtained by reducing the income of other section of the society, there is another impact.

Example: Suppose government collects income by way of tax and spends on people there may not be any net increase in income. This is because taxes reduce income of the people which may lead to reduced spending by the people.

Spending has multiple effects on national income depending upon MPC. If A makes purchase from B, B's income rises. Out of this increased income, B makes purchases from C. This raises C's income. In this way, there is multiple increase in income in relation to the initial spending. How many times is the increase depends upon MPC.

Self Assessment

State whether the following statements are true or false.

1. Spending leads to rise in income of those producers on whose goods and services the spending is made.
2. Spending has multiple effects on national income depending upon MPC.
3. If the spending is done out of the increased income of one section of the society obtained by reducing the income of other section of the society, there is no impact.
4. Spending can lead to creation of income.

7.2 Types and Limitations of Multipliers

There are several types of multipliers. We will discuss the major ones.

7.2.1 Investment Multiplier

Generally speaking, multiplier is defined as the ratio of change in the equilibrium national income to change in an autonomous variable. A variable is autonomous when it is assumed not to be influenced by change in income.

Investment multiplier is the ratio of change in income due to a given change in investment. The term 'multiplier' signifies that change in income is a multiple of change in investment. The process of income increase is initiated by the change in investment.

Notes

Multiplier Process

Suppose I rises. It means purchase of capital goods, etc. rises. This leads to rise in income of those from whom these goods are purchased. When income rises, people spend a proportion of this income (equal to MPC) on consumption. C rises. With rise in C, producers find their inventories falling. They produce more output, and purchase more inputs. Income of the input sellers rises. In this way with rise in income, cycle starts all over again.

Caution $I \uparrow Y \uparrow C \uparrow \text{inventories} \downarrow \text{output} \uparrow \text{income} \uparrow$

The cycle starting all over again does not mean that multiplier process goes on forever. It is because only a fraction of income is consumed in each round until equilibrium of national income is restored.

Size of the Multiplier

The size of multiplier depends upon MPC. A large MPC means a large increase in consumption spending, a large increase in income and, therefore, a large multiplier. The process of increase in income initiated by the change in investment reaches new equilibrium when change in investment becomes equal to change in saving. We can show that:

$$\text{Multiplier} = \frac{1}{MPS} = \frac{1}{1-MPC}$$

Given $$MPS = \frac{\Delta S}{\Delta Y}$$

At new equilibrium since $\Delta S = \Delta I$, therefore,

$$MPS = \frac{\Delta I}{\Delta Y}$$

Or $$\Delta Y = \frac{\Delta I}{MPS} = \Delta I \frac{1}{MPS}$$

It means that the change in income (ΔY) is ΔI times 1/MPS,

$\therefore$ $$\text{Multiplier} = \frac{1}{MPS} = \frac{1}{1-MPC}$$

Algebraic derivation

Given $C = a + bY$ ..... (i) Consumption function

$Y = C + I$ ..... (ii) Equilibrium

Substituting (i) in (ii), we get

$$Y = a + bY + I$$
$$Y - bY = a + I$$
$$Y(1-b) = a + I$$
$$Y = (a + I)\left(\frac{1}{1-b}\right)$$

Notes

Since Y equals (a+I) times $(\frac{1}{1-b})$ with 'a' held constant, Y will change only with change in Y (ΔY), and it will be equal to:

$$\Delta Y = \Delta I \text{ times} \frac{1}{1-b}$$

Or

$$\Delta Y = \Delta I \left(\frac{1}{1-b}\right)$$

Because b = MPC, the expression becomes

$$\Delta Y = \Delta I \frac{1}{1-MPC}$$

$$= \Delta I \frac{1}{MPS}$$

$$\text{Multiplier} = \frac{1}{MPS}$$

Working of Multiplier

Example: Suppose $\Delta I = 100$ and $MPC = 0.8$. Investment means spending on capital goods. This raises income of the sellers of capital goods by ₹ 100. This is *first round* increase in Y.

Since MPC=0.8, 80% of the first round increase in Y is spent on C, i.e. ₹ 80. This raises income of suppliers of consumers goods by ₹ 80. This is *second round increase* in Y. Similarly, the *third round increase* in Y is 80% of the second round, i.e. ₹ 64. The income goes on increasing round after round. The sum of all such increases is ₹ 500, i.e. 5 times the ΔI.

Note that given MPC = 0.8, MPS = 0.2, with increase in Y, saving (S) also increases by 20%. Saving means 'not spending'. When the sum total of increases in S becomes 100, increase in Y stops.

To sum up:

$$\Delta Y = \Delta I.K = \Delta I \frac{1}{1-MPC} = \Delta I \frac{1}{MPS} \quad \text{(where K = multiplier)}$$

$$= 100 \frac{1}{1-0.8} = \frac{1}{0.2} = ₹\,500$$

The working is summarized in the Table 7.1.

Notes

Table 7.1: Working of Multiplier

Round	ΔY	ΔC = ΔY .MPC	ΔS = ΔY—ΔC
I	100	80 (=100×0.8)	20
II	80	64 (=80×0.8)	16
III	64	51.2 (=64×0.8)	12.80
IV	51.20	40.96 (=51.2×0.8)	10.24
	.	.	.
	.	.	.
	.	.	.
all others	204.80	163.84	40.96
all rounds	500	400 (=500×0.8)	100

Leakages

1. Saving constitutes a leakage: the higher the saving, the lesser would be the multiplier.
2. If a part of the increased income is used for repayment of debt then the value of the multiplier would be reduced.
3. Holding of idle cash will reduce the value of the multiplier.
4. Purchase of old stocks and securities.
5. Import.
6. If the elasticity of supply is low, then an increase in income may lead to only a price increase.
7. Taxation reduces MPC. Therefore, the **value of K is reduced.**

Importance of the Multiplier

1. Multiplier summarises the working of the entire Keynesian model.
2. It analyses the process of income generation and propagation.
3. It points out that investment is the most important element in the theory of income and employment.
4. It is a guide to public investment policy.
5. It is helpful for framing a suitable full employment policy.
6. It is necessary for the study of trade cycle, its trend and control.
7. According to Prof. Samuelson, the multiplier theory explains why an easy money policy is ineffective and deficit spending is effective.
8. For increasing income and employment, investment should be started in a sector where the multiplier may be greater.
9. It is an explanation of inflationary process.
10. It is used for explaining expansion in different fields of activity. In this context, different concepts of multiplier, such as credit multiplier, consumption goods multiplier, balanced budget multiplier, employment multiplier, and so on, can be used.

Notes

Task See the national income accounts of India for last five years and calculate the value of investment multiplier.

7.2.2 Government Spending Multiplier

Suppose government increases G by the amount of ΔG. The multiple impact of ΔG on equilibrium income is identical with the impact of change in investment. Just like the investment multiplier is 1/MPS, similarly

$$\text{Government spending multiplier} = \frac{1}{MPS}$$

and change in total national income (ΔY)is: $\Delta Y = \Delta G \frac{1}{MPS}$

7.2.3 Tax Multiplier

Suppose government reduces T. This raises disposable income (Yd) of the households by an equal amount. Rise in Yd raises consumption spending (C) but not by the amount of Yd but by the amount of $\Delta Yd \times MPC$ or $\Delta T \times MPC$. Since MPC is less than one the rise in C is less than the fall in T.

Example: Let government reduce T by ₹ 1. This raises Yd by ₹ 1. Suppose MPC is 0.8. Therefore, C rises by ₹ 0.80. (and not by ₹ 1). It means that the impact is not the same as that of ₹ 1 of government spending. The impact is smaller.

T leads to change in Yd. The change in Yd (ΔYd) leads to change in C by $(\Delta Yd.MPC)$. Change in Y on account of multiplier effects of ΔC is :

$$\Delta Y = \Delta C = \frac{1}{MPS}$$

$$= (\Delta Yd.MPC) \frac{1}{MPS} \quad (\because \Delta C = \Delta Yd.MPC)$$

$$= (-\Delta T.MPC) \frac{1}{MPS} \quad (\because \Delta Yd = -\Delta T)$$

$$= -\Delta T \frac{MPC}{MPS}$$

$$= \Delta T \left(-\frac{MPC}{MPS}\right)$$

We find that ΔT leads to $\left(-\frac{MPC}{MPS}\right)$ times change in income. Therefore,

$$\text{Tax multiplier} = -\frac{MPC}{MPS}$$

Notes

7.2.4 Balanced Budget Multiplier

Given that government already has a balanced budget, i.e. G=T. Suppose government wants to increase G by imposing the same amount of T. It means $\Delta G = \Delta T$. ΔG raises aggregate spending (AE) by ΔG. ΔT reduces AE by the amount of $(\Delta T.\ MPC)$. Therefore, the net increase in AE (ΔAE) is

$$\Delta AE = \Delta G - (\Delta T.\ MPC)$$

The AE changes on account of ΔG and Δ T.According to the government spending multiplier ΔG leads to 1/MPS times change in income. And, according to the tax multiplier Δ T leads to (–MPC/MPS) times change in income. Thus both ΔG and Δ T together lead to change in income by

$$\frac{1}{MPS} + (-\frac{MPC}{MPS}) \text{ times.}$$

The balanced budget multiplier thus is:

$$= \frac{1}{MPS} + (-\frac{MPC}{MPS})$$

$$= \frac{1}{MPS} + (-\frac{MPC}{MPS})$$

$$= \frac{1 - MPC}{MPS}$$

$$= \frac{MPS}{MPS} \quad (\because 1 - MPC = MPS)$$

$$= 1$$

7.2.5 Foreign Trade Multiplier

In an open economy we can write the national income identity as

Y+M = C+I+X ...(1)

Total = Three ways in supply which total output can be used

Y = domestic supply

M = imports

C = consumption

I = investment

Y = exports

In a closed economy, we know that savings have to equal investments in equilibrium. In an open economy we have to take into account that there can be a net inflow or outflow of capital. In an open economy, thus the equilibrium condition is

S = I+X–M ...(2)

Or S+M = I+X ...(3)

If there is a change in any of the four variables, the change in the left side of (3) must equal the change in the right side as a condition for reaching a new equilibrium.

Thus, ΔS + ΔM = ΔI + ΔX ...(4)

Notes

Using the definitions of marginal propensity to save, and of marginal propensity to import, m, we can say $\Delta S = \& \Delta Y$

$$\Delta M = m \Delta Y$$

Equation (4) can now be

$$(\&+m) = \Delta J + \Delta X \quad ...(5)$$

Hence, we get

$$\Delta Y = \frac{1}{s+m} (\Delta J+\Delta X) \quad ...(6)$$

The changes in investment and exports can now be viewed as autonomous variables and the effects of change in, say, exports on the national income can be studied.

Equation (6) shows that the effect of change in exports on the national income equals the change in exports multiplied by the expression 1/s+m, which is the foreign trade multiplier or k_f.

k_f works like the simple inverse multiplier. An increase in exports gives rise to an increase in income for exporters and those employed in export industries. They, in turn, spend more of their increased incomes. How much more they spend on domestic goods depends on two leakages: how much they saved and how much they spend on imports. The savings do not create any new incomes. An increase in import spendings does not create new incomes in the country itself, only in those foreign countries with which the first country trades.

It is now easy to see that the larger the marginal propensities to save and import, the smaller will be the value of the multiplier.

Example: If the marginal propensity to save is 0.2 and if the marginal propensity to import is 0.3, the value of $k_f = 1/(0.2+0.3) = 2$; i.e., an autonomous increase in exports of 100 will lead to an increase in national income of 200.

Case Study

Much do about Multipliers

It is the biggest peacetime fiscal expansion in history. Across the globe countries have countered the recession by cutting taxes and by boosting government spending. The G20 group of economies, whose leaders meet this week in Pittsburgh, have introduced stimulus packages worth an average of 2% of GDP this year and 1.6% of GDP in 2010. Coordinated action on this scale might suggest a consensus about the effects of fiscal stimulus. But economists are in fact deeply divided about how well, or indeed whether, such stimulus works.

The debate hinges on the scale of the "fiscal multiplier". This measure, first formalised in 1931 by Richard Kahn, a student of John Maynard Keynes, captures how effectively tax cuts or increases in government spending stimulate output. A multiplier of one means that a $1 billion increase in government spending will increase a country's GDP by $1 billion.

The size of the multiplier is bound to vary according to economic conditions. For an economy operating at full capacity, the fiscal multiplier should be zero. Since there are no spare resources, any increase in government demand would just replace spending

Contd...

Notes

elsewhere. But in a recession, when workers and factories lie idle, a fiscal boost can increase overall demand. And if the initial stimulus triggers a cascade of expenditure among consumers and businesses, the multiplier can be well above one.

The multiplier is also likely to vary according to the type of fiscal action. Government spending on building a bridge may have a bigger multiplier than a tax cut if consumers save a portion of their tax windfall. A tax cut targeted at poorer people may have a bigger impact on spending than one for the affluent, since poorer folk tend to spend a higher share of their income.

Crucially, the overall size of the fiscal multiplier also depends on how people react to higher government borrowing. If the government's actions bolster confidence and revive animal spirits, the multiplier could rise as demand goes up and private investment is "crowded in". But if interest rates climb in response to government borrowing then some private investment that would otherwise have occurred could get "crowded out". And if consumers expect higher future taxes in order to finance new government borrowing, they could spend less today. All that would reduce the fiscal multiplier, potentially to below zero.

Different assumptions about the impact of higher government borrowing on interest rates and private spending explain wild variations in the estimates of multipliers from today's stimulus spending. Economists in the Obama administration, who assume that the federal funds rate stays constant for a four-year period, expect a multiplier of 1.6 for government purchases and 1.0 for tax cuts from America's fiscal stimulus. An alternative assessment by John Cogan, Tobias Cwik, John Taylor and Volker Wieland uses models in which interest rates and taxes rise more quickly in response to higher public borrowing. Their multipliers are much smaller. They think America's stimulus will boost GDP by only one-sixth as much as the Obama team expects.

When forward-looking models disagree so dramatically, careful analysis of previous fiscal stimuli ought to help settle the debate. Unfortunately, it is extremely tricky to isolate the impact of changes in fiscal policy. One approach is to use microeconomic case studies to examine consumer behaviour in response to specific tax rebates and cuts. These studies, largely based on tax changes in America, find that permanent cuts have a bigger impact on consumer spending than temporary ones and that consumers who find it hard to borrow, such as those close to their credit-card limit, tend to spend more of their tax windfall. But case studies do not measure the overall impact of tax cuts or spending increases on output.

An alternative approach is to try to tease out the statistical impact of changes in government spending or tax cuts on GDP. The difficulty here is to isolate the effects of fiscal-stimulus measures from the rises in social-security spending and falls in tax revenues that naturally accompany recessions. This empirical approach has narrowed the range of estimates in some areas. It has also yielded interesting cross-country comparisons. Multipliers are bigger in closed economies than open ones (because less of the stimulus leaks abroad via imports). They have traditionally been bigger in rich countries than emerging ones (where investors tend to take fright more quickly, pushing interest rates up). But overall economists find as big a range of multipliers from empirical estimates as they do from theoretical models.

These times are different

To add to the confusion, the post-war experiences from which statistical analyses are drawn differ in vital respects from the current situation. Most of the evidence on multipliers

Contd...

Notes

for government spending is based on military outlays, but today's stimulus packages are heavily focused on infrastructure. Interest rates in many rich countries are now close to zero, which may increase the potency of, as well as the need for, fiscal stimulus. Because of the financial crisis relatively more people face borrowing constraints, which would increase the effectiveness of a tax cut. At the same time, highly indebted consumers may now be keen to cut their borrowing, leading to a lower multiplier. And investors today have more reason to be worried about rich countries' fiscal positions than those of emerging markets.

Add all this together and the truth is that economists are flying blind. They can make relative judgments with some confidence. Temporary tax cuts pack less punch than permanent ones, for instance. Fiscal multipliers will probably be lower in heavily indebted economies than in prudent ones. But policymakers looking for precise estimates are deluding themselves.

Question:

Why do you think study of multipliers is important?

Source: *The Economist*

Limitation of Multipliers

The limitations of Multipliers are as follows:

1. If the investment does not come up in sufficient quantity, the multiplier will not work.
2. The greater the time lag, the lower would be the value of the multiplier.
3. Multiplier will not work properly if consumers' goods are not available in plenty.
4. There must be the motive of profit maximisation and autonomous investment. The investment must be net investment; otherwise, the value of the multiplier will be reduced.
5. The multiplier can work only if there is underemployment.

Keynesian multiplier is static and instantaneous. It is only a mutology and it explains nothing at all.

Task Prepare a brief report on 'Value of multiplier and various leakages of multiplier'.

Self Assessment

Fill in the blanks:

5. ..... is defined as the ratio of change in the equilibrium national income to change in an autonomous variable.
6. A variable is ..... when it is assumed not to be influenced by change in income.
7. Investment multiplier is the ratio of change in ..... due to a given change in investment.
8. The size of multiplier depends upon .....
9. The higher the saving, the ..... would be the multiplier.

Notes

10. According to the _____ multiplier ΔG leads to 1/MPS times change in income.

11. In a _____ economy, savings have to equal investments in equilibrium.

7.3 Static and Dynamic Multiplier

Depending on the purpose of analysis, sometimes a distinction is made between the static multiplier and the dynamic multiplier. The static multiplier is also called 'comparative static multiplier', 'simultaneous multiplier', 'logical multiplier,' 'timeless multiplier.' 'lagless multiplier* and 'instant multiplier'.

The concept of static multiplier implies that change in investment causes change in income instantaneously. It means that there is no time lags between the chances in invest merit and the change in income. It implies that the moment a rupee is spent on investment projects, society's income increases by a multiple of ₹ 1. The concept of multiplier explained in the preceding section is that of static multiplier. Let us explain the concept of the dynamic multiplier also known as 'period' and 'sequence' multiplier.

The concept of dynamic multiplier recognises the fact that the overall change in income as a result of the change in investment is not instantaneous. There is a gradual process by which income changes as a result of change in investment or other determinants of income. The process of change in income involves time lags. The multiplier process works through the process of income generation and consumption expenditure. The dynamic multiplier takes into account the dynamic process of the change in income and the change in consumption at different stages due to change in investment. The dynamic multiplier is essentially a stage-by-stage computation of the change in income resulting from the change in investment till the full effect of the multiplier is realized.

The process of dynamic multiplier is described below.

Example: Suppose MPC =0.80 and autonomous investment increases by ₹ 100 (i.e. $\Delta I = 100$), all other things remaining the same. When an autonomous investment expenditure of ₹ 100 is made on the purchase of capital equipment and labour, the income of the equipment and labour sellers increases by ₹ 100, in the first instance. Let us call it ΔY_1. Those who receive this income, spend ₹ 80 (=100*0.80). As a result, income of those who supply consumer goods increases by ₹ 80. Let it be called ΔY_2. They spend a part of it ₹ 80*0.80=₹64. This creates ΔY_3. This process continues until additional income and expenditure are reduced to zero. The whole process of the computation of the total increase in income (ΔY) as a result of ΔI = ₹ 100 can be summarized as follows:

$$\Delta Y = \Delta Y_1 + \Delta Y_2 + \Delta Y_3 + \ldots\ldots\ldots\ldots\ldots\ldots + \Delta Y_{n-1}$$

In numerical terms,

= 100+100(0.8)+100+100+……..+100

= 100+80+64+51.20+……..+0

= 499.999=500

After having calculated the total income effect (K), the multiplier can be calculated as:

$$\frac{\Delta Y}{\Delta I} = \frac{500}{100} = 5$$

Notes

Recall that $\Delta y_1 = \Delta I$. So the process of dynamic multiplier can be generalized as follows:

$$\Delta Y = \Delta I + \Delta I(b)^2 + \Delta I(b)^3 + ...\Delta I(b)^{n-1}$$

$$= \Delta I\left(1 + b + (b)^2 + (b)^3 + ...(b)^{n-1}\right)$$

$$= \Delta I \frac{1}{1-b}$$

The above equation gives the working of the dynamic multiplier.

Caselet

Fiscal Multipliers Varies over Business Cycles

Plainly, the size of the multiplier varies considerably over the business cycle. For example, in 1985 an increase in government spending would have barely increased output. In contrast, a dollar increase in government spending in 2009 could raise output by about $1.75. Typically, the multiplier is between 0 and 0.5 in expansions and between 1 and 1.5 in recessions.

Note the size of the multiplier tends to change relatively quickly as the economy starts to grow after reaching a trough. Thus, the timing of changes in discretionary government spending is critical for effectiveness of countercyclical fiscal policies.

Second, to measure the effects of a broader range of policies, we estimate multipliers for more disaggregate spending variables, which often behave quite differently in relation to aggregate fiscal policy shocks.

Specifically, we find that defence spending has the largest multiplier, with the maximum response of output being $3.56 for every dollar in defence spending in a recession.

Source: www.mostlyeconomics.wordpress.com

Self Assessment

State whether the following statements are true or false:

12. Static multiplier is also called logical multiplier.
13. Static multiplier implies that change in income causes change in investment after a period of time.
14. Dynamic multiplier is also known as sequence multiplier.
15. According to dynamic multiplier concept, process of change in income involves a time lag.

7.4 Summary

- Spending creates income. It leads to rise in income of those producers on whose goods and services the spending is made. The spending may be on capital goods (called investment), on inputs, and on consumption. (It is assumed that there is no government expenditure and there are no net exports).
- Multiplier is defined as the ratio of change in the equilibrium national income to change in an autonomous variable. A variable is autonomous when it is assumed not to be influenced by change in income.

Notes

- The term investment multiplier refers to the concept that any increase in public or private investment spending has a more than proportionate positive impact on aggregate income and the general economy. The multiplier attempts to quantify the additional effects of a policy beyond those that are immediately measurable.
- Apart from investment multiplier, the other types of multipliers are tax multiplier, government spending multiplier, balanced budget multiplier, foreign trade multiplier, etc.
- Multiplier will not work properly if consumers' goods are not available in plenty.
- There must be the motive of profit maximisation and autonomous investment. The investment must be net investment; otherwise, the value of the multiplier will be reduced.
- The concept of static multiplier implies that change in investment causes change in income instantaneously. It means that there is no time lags between the chance in invest merit and the change in income.
- The concept of dynamic multiplier recognises the fact that the overall change in income as a result of the change in investment is not instantaneous. There is a gradual process by which income changes as a result of change in investment or other determinants of income.

7.5 Keywords

Balanced Budget Multiplier: A measure of the change in aggregate production caused by equal changes in government purchases and taxes.

Dynamic Multiplier: It recognises the fact that the overall change in income as a result of the change in investment is not instantaneous.

Foreign Trade Multiplier: The ratio of the resulting increase in domestic product to an addition to exports.

Investment Multiplier: Refers to the concept that any increase in public or private investment spending has a more than proportionate positive impact on aggregate income and the general economy.

Multiplier: A numerical coefficient showing the effect of a change in one economic variable on another.

Static Multiplier: It implies that change in investment causes change in income instantaneously.

Tax Multiplier: The ratio of the change in aggregate output (or gross domestic product) to an autonomous change in a taxes.

7.6 Review Questions

1. What do you mean by Investment Multiplier? Explain its working.
2. Algebraically derive the value of Investment Multiplier.
3. Explain Government Spending Multiplier. Is it different from the Investment Multiplier?
4. Describe the concept of tax Multiplier.
5. Explain Balanced Budget Multiplier.
6. With the help of an example, show how investment multiplier is calculated.
7. Contrast static and dynamic multiplier.

Notes

8. Show the working of a dynamic multiplier.
9. Explain the concept of foreign trade multiplier.
10. You are given the following information about an economy:

    Consumption function, C = 1000 + 0.5 (Y – T)

    Investment, I = ₹ 2,000 crores.

    Government expenditure = ₹ 1,000 crores

    Taxes = ₹ 1,000 crores

    (i) Calculate the tax multiplier.

    (ii) Explain the working of the tax multiplier intuitively.

Answers: Self Assessment

1.	True	2.	True
3.	False	4.	True
5.	Multiplier	6.	Autonomous
7.	income	8.	MPC
9.	lesser	10.	Government spending
11.	closed	12.	True
13.	False	14.	True
15.	True		

7.7 Further Readings

Books

Dr. Atmanand, *Managerial Economics*, Excel Books, Delhi.

Edward Shapiro, H. B. Jovanovich, *Macro Economic Analysis*.

R. L. Varshney, K. L. Maheshwari, *Managerial Economics*, Sultan Chand & Sons, New Delhi

Thomas F. Dernburg, *Macro Economics*, Mc Graw-Hill Book Co.

Online links

http://tutor2u.net/economics/content/topics/macroeconomy/multiplier.htm

http://www.econlib.org/library/Enc/KeynesianEconomics.html

http://www.investorwords.com/2621/investment_multiplier.html

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Unit 8: Money

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Objectives

After studying this unit, you will be able to:

- State the functions of money;
- Describe the measures of money;
- Identify the factors affecting demand for money;
- Discuss the motives for holding money.

Introduction

You all use money in your day-to-day life, but do you know that money is a very important instrument in Macro Economic policy. Money is defined anything that is generally accepted as a medium of exchange. Most economic transactions are held through money. Main examples are buying, selling, borrowing, lending, etc. This is the characteristic of a monetary economy.

Various kinds of money are divided into two groups: commodity money and fiat money.

(a) ***Commodity Money:*** This refers to any commodity used as money. Historically gold, silver, animals, grains, etc. have been used as money. A commodity money also has an intrinsic value. It means that it can be used both as a commodity as well as money. For example, silver when used for ornaments, medicines, etc. is a commodity; and when used for exchange is a money.

(b) ***Fiat Money:*** Fiat means a decree, or a formal authoritative order. Fiat money is anything declared by the state to serve as a medium of exchange. It is also called "legal tender". Currency notes, coins are the main examples.

Unlike commodity money, flat money has virtually no intrinsic value.

Notes

Example: A currency note is a mere piece of paper, and its intrinsic value is zero. Still the public accepts paper money (currency) because government has taken steps to ensure that it is accepted.

8.1 Functions of Money

"Medium of exchange" is the primary function of money. For anything to be called money it must serve as a medium of exchange. Alongwith the necessary function, money also performs other functions: a store of value, a unit of account, a standard of deferred payment.

Medium of Exchange: The alternative to medium of exchange is *"barter"*, that is exchange of goods for goods. But there is a problem with barter. Barter system requires *double coincidence of wants* for trade to take place. This involves intolerable amount of effort.

Money eliminates the barter problem. This makes money vital to the working of a market economy. Money makes an economy a monetary economy.

Store of Value: The function means that money serves as an asset that can be used to *transport purchasing power from one time period to another.* One can keep one's earning in the form of money until the time one wants to spend it.

Caution Goods can also serve store of value. But money has two important advantages over goods; (i) money comes in convenient denominations and is easily portable, and (ii) it is easily exchanged for goods at all times. These two factors compose *liquidity property of money.*

As a store of value, money also has a disadvantage. Over a time period, value of money changes as price level changes. By value of money we mean the amount of goods and services we can buy from a unit of money. When price level rises, value of money falls.

Unit of Account: Money serves as a standard unit for quoting prices. It makes money a powerful medium of comparing prices. It also makes keeping of business accounts possible.

Standard of Deferred Payment: Money serves as a standard of payment contracted to be made at some future date. It facilitates borrowing and lending activities. It is responsible for the existence of banks and other financial institutions. Financial institutions are the lifeline of modern business.

Caselet

Deflation and Demand for Money

The argument that deflation resulting from an increase in the demand for money can lead to a harmful reduction in industrial productivity is based on the concept of sticky prices. If all prices do not immediately adjust to changes in the demand for money then a mismatch between the prices of output and inputs goods may cause a dramatic reduction in profitability. This fall in profitability may, in turn, lead to the bankruptcy of relevant industries, potentially spiraling into a general industrial fluctuation. Since price stickiness is assumed to be an existing factor, monetary equilibrium is necessary to avoid necessitating a readjustment of individual prices.

Source: www.cobdencentre.org

Notes

Self Assessment

State whether the following statements are true or false:

1. For anything to be called as 'money' it must serve as a medium of exchange.
2. Money makes an economy, a monetary economy.
3. You can keep your earning in the form of money for a specific period of time.
4. Goods cannot serve as store of value.
5. Money facilitates borrowing and lending activities.

8.2 Measures of Money

There is no general agreement as to which assets constitute money. The functions of money, stated above, apply to a broad range of assets. It is not at all clear where we should draw the line. Therefore, there is not one but many measures of money supply. Economists have given different names to different measures.

Two most common measures are called M_1 and M_2. The M_1 measure is called "transactions money" (also called narrow money) and M_2 measure is called "broad money".

M_1 (Transactions Money)

This measure includes money that can be directly used for transactions to buy things. In the United States, it consists of:

M_1 (U.S.) = Currency held outside banks
+ demand deposits
+ traveller checks
+ other chequable deposits.

In India, M_1 includes:

M_1 (India) = Currency held outside banks
+ chequable deposits.

M_1, both in U.S. and India, are broadly the same.

M_2 (Broad Money)

Cash and chequable deposits, are directly money. But there are also assets, like 'time deposits' (in the U.S. these are called saving deposits) which are as good as monies. Times deposits are mainly 'fixed deposit' accounts. Normally, you cannot make payment by cheque from a Fixed Deposit account. But, in actual practice, you can close the account anytime you like, deposit the amount into your 'demand deposit' (chequable) account, and then use it for making payment. A fixed deposit account is not directly money but as good as money. It is called *"near money"*.

Did u know? Assets that are close substitutes of money are near monies.

By adding 'near monies' to M_1 we get 'broad money' labelled M_2. In the U.S.,

M_2 (U.S.) = M_1
+ saving accounts (time deposits)
+ money market accounts
+ other near monies.

Notes

In India, the parallel broad money measure is labelled M_3. It equals:

M_3 (India) = M_1
+ Time deposits with banks.

Self Assessment

Fill in the blanks:

6. M_1 measure of money is also called the transaction or ..... money.
7. In India, M1 includes currency held outside banks and .....
8. Time deposits are primarily .....accounts.
9. Assets that are close substitutes of money are called .....
10. $M_3 = M_1 +$ _____

8.3 Demand for Money

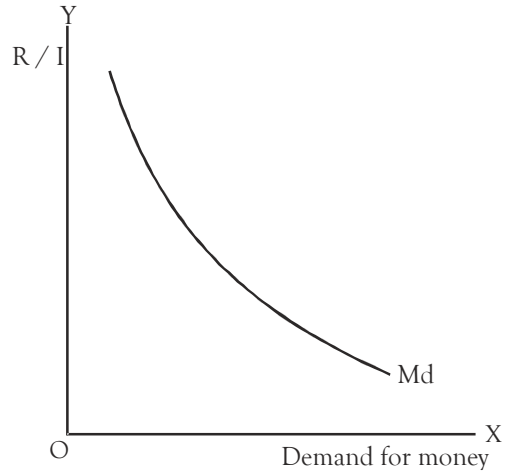
Demand means holding. People hold money to carry out transactions, like buying, selling, borrowing, lending, etc. The main factors that influence how much money people will hold (demand) are: rate of interest, GDP and price level. The money is held as cash and as deposits in chequable accounts.

8.3.1 Factors affecting Demand for Money

The factors that affect the demand for money are:

1. ***Rate of interest (ROI):*** The alternative to holding money is lending money and earning interest. Thus, by holding money a person loses interest income. Interest is the opportunity cost of holding money. Higher the ROI (R/I in figures) higher the opportunity cost. Higher the opportunity cost, less the amount of money people will want to hold, and more the amount of money people will like to lend. This establishes *inverse relation between ROI and demand for money.* Graphically, it means downward sloping 'money demand curve' (Md curve).

Figure 8.1



Notes

People hold money because money is useful for buying things; and because they want to take advantage of fluctuating prices of bonds. The two motives are called (i) *Transactions* and (ii) *Speculative* motives of holding money. The relation between ROI and these motives is explained latter.

2. ***GDP:*** People demand money to carry out transactions. The rupee value of transactions depends upon (i) total number of transactions and (ii) average rupee amount of each transaction. Out of these, number of transactions depends upon GDP mainly. Average rupee amount of each transaction depends upon price level.

   A rise in GDP means there is more economic activity. It further means more transactions and more requirement of money to carry out transactions. *Higher the GDP, more the demand for money.*

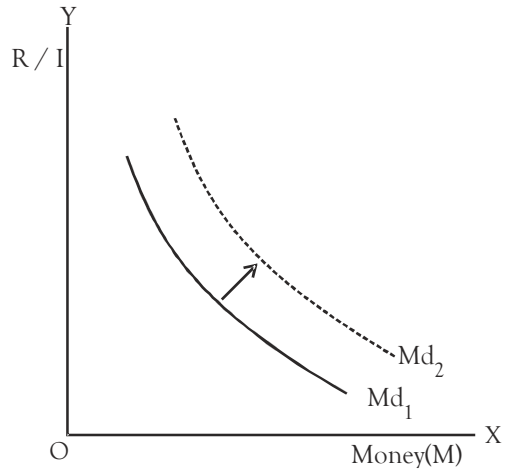
3. ***Price Level:*** Price level determines average rupee amount of each transaction. If price level rises, firms and households would need more money balances to carry out day to day transactions. *Higher the price level, higher the demand for money.*

Task Find out what is free banking and how is it relate to demand for money?

Shift of Md curve and movement along Md curve

Money demand (Md) curve shows relation between change in ROI and Md, assuming GDP and price level to be unchanged. A change in ROI thus leads to movement along the Md curve. i.e. "*change in quantity of Dm*". Changes in GDP and price level cause shift of Md curve, i.e. "*change in Md*". (Figure 8.2)

Figure 8.2



A rise in GDP or in price level leads to rightward shift of demand curve.

Notes

Case Study

Price Discoordination and Entrepreneurship

In an effort to illustrate the problems of an excess demand for money, some have likened the problem to an oversupply of fiduciary media. The problem of an oversupply of money in the loanable funds market is that it leads to a reduction in the rate of interest without a corresponding increase in real savings. This leads to changes in the prices between goods of different orders, which send profit signals to entrepreneurs. The structure of production becomes more capital intensive, but without the necessary increase in the quantity of capital goods. This is the quintessential Austrian example of discoordination.

In a sense, an excess demand for money is the opposite problem. There is *too little* money circulating in the economy, leading to a general glut. Austrian monetary disequilibrium theorists have tried to frame it within the same context of discoordination. An increase in the demand for money leads to a withdrawal of that amount of money from circulation, forcing a downward adjustment of prices.

But there is an important difference between the two. In the first case, the oversupply of fiduciary media is largely exogenous to the individual money holders. In other words, the increase in the supply of money is a result of central policy (either by part of the central bank or of government). Theoretically, an oversupply of fiduciary media could also be caused by a bank in a completely free industry but it would still be artificial in the sense that it does not reflect any particular preference of the consumer. Instead, it represents a miscalculation by part of the central banker, bureaucrat, or bank manager. In fact, this is the reason behind the intertemporal discoordination — the changing profit signals do not reflect an underlying change in the "real" economy.

This is not the issue when regarding an excess demand for money. Here, consumers are purposefully holding on to money, preferring to increase their cash balances instead of making immediate purchases. The decision to hold money represents a *preference*. Thus, the decision to reduce effective demand also represents a preference. The fall in prices which may result from an increase in the demand for money all represent changes in preferences. Entrepreneurs will have to foresee or respond to these changes just like they do to any other. That some businessmen may miscalculate changes in preference is one thing, but there can be no accusation of price-induced discoordination.

The comparison between an insufficient supply of money and an oversupply of fiduciary media would only be valid if the reduction in the money supply was the product of central policy, or a credit contraction by part of the banking system which did not reflect a change in consumer preferences. But, in monetary disequilibrium theory this is not the case.

None of this, however, says anything about the consequences of deflation on industrial productivity. Will a rise in demand for money lead falling profit margins, in turn causing bankruptcies and a general period of economic decline?

Whether or not an industry survives a change in demands depends on the accuracy of entrepreneurial foresight. If an entrepreneur expects a fall in demand for the relevant product, then investment into the production of that product will fall. A fall in investment for this product will lead to a fall in demand for the capital goods necessary to produce it, and of all the capital goods which make up the production processes of this particular industry. This will cause a decline in the prices of the relevant capital goods, meaning that

Contd...

Notes

a fall in the price of the consumer good usually follows a fall in the price of the precedent capital goods. Thus, entrepreneurs who correctly predict changes in preference will be able to avoid the worst part of a fall in demand.

Even if a rise in the demand for money does not lead to the catastrophic consequences envisioned by some monetary disequilibrium theorists, can an injection of fiduciary media make possible the complete avoidance of these price adjustments? This is, after all, the idea behind monetary growth in response to an increase in demand for money. Theoretically, maintaining monetary equilibrium will lead to a stabilization of the price level.

This view, however, is the result of an overly aggregated analysis of prices. It ignores the microeconomic price movements which will occur with or without further monetary injections. Money is a medium of exchange, and as a result it targets specific goods. An increase in the demand for money will withdraw currency from this bidding process of the present, reducing the prices of the goods which it would have otherwise been bid against. Newly injected fiduciary media, maintaining monetary equilibrium, is being granted to completely different individuals (through the loanable funds market). This means that the businesses originally affected by an increase in the demand for money will still suffer from falling prices, while other businesses may see a rise in the price of their goods. It is only in a superfluous sense that there is "price stability", because individual prices are still undergoing the changes they would have otherwise gone.

So, even if the price movements caused by changes in the demand for money were disruptive — and we have established that they are not — the fact remains that monetary injections in response to these changes in demand are insufficient for the maintenance of price stability.

Question:

How do businesses affect the demand for money?

Source: www.cobdencentre.org

8.3.2 Motives for Holding Money

The two main motives for holding money are: the transaction motive and the speculative motive.

The Transactions Motive

People hold money to buy things. This is transaction motive. How much money do people hold with this motive? It depends upon two factors: the rate of interest and the cost involved in buying and selling of bonds. The relevance of these factors is explained below and is subject to some assumptions.

The assumptions are: (a) Money has only two uses: to hold or to buy bounds. (b) There is non–synchronization of money and spending. It means that there is a mismatch between the timing of money inflow and the timing of money outflow. It is because income arrives once a month while the spending occurs at a uniform rate throughout the month. (c) The entire income received at the beginning of the month is spent during the month.

The Optimal Choice

A person receives income at the beginning of the month. He has two options: to keep the entire income as cash or to buy bonds. If he chooses the second option he earns interest. If he chooses

the first option he loses the interest he could earn. This loss of interest is the opportunity cost of holding money.

From this it seems that natural choice is buying bonds. But there is cost involved in buying and selling of bonds. The cost is in the form of brokerage and other incidental expenses. It is called *'cost of switching'* from money to bonds and back to money. There is a benefit of switching, the interest earned. Therefore, to decide how frequently to switchover during the month the individual compares benefit with cost. This is the principle on the basis of which the individual makes a choice.

Example: Suppose a person's monthly income is ₹ 12000 and he spends ₹ 400 each day. The person can follow many strategies to decide as how much of monthly income to hold as money and how much to hold as interest bearing bonds.

First strategy is to hold the entire income. He earns no interest by following this strategy. The second strategy can be buying bonds for ₹ 6000 and sell the same after 15 days, so that he continues to spend ₹ 400 each day. Now he earns some interest. The third strategy can be buying bonds for ₹ 8000, and sell ₹ 4000 worth after 10 days, and another ₹ 4000 worth after another 10 days. He now earns more interest. The extreme strategy can be to invest the entire monthly income in bonds, and sells bond whenever he requires to spend. Like these, there can be many other possible strategies.

In the first strategy, the starting balance of money is ₹ 12000 and the end of the month balance is zero. The average of the two is called *"average balance"*. The average balance in the first strategy is ₹ 6000 = [(12000+0)/2]. In the second strategy, it is ₹ 3000 = [(6000+0)/2]. In the third, it is ₹ 2000 and in the extreme strategy it is zero. The question is that *what is that optimal average balance.*

Optimal means the most profitable. Switching from cash to bonds and bonds to cash involves cost, e.g. brokerage, etc. At the same time switching also means more interest (more switching also means less average balance). The person compares "interest income" with the "cost" of switching. The optimum switching strategy is one *in which the difference between interest income and cost is maximum.*

Whatever the strategy, one thing is clear that when R/I is high people want to take advantage of high return on bonds, so they choose to hold less money. This established inverse relation between the R/I and Md.

Notes

Precautionary Demand for Money

Transaction demand arises due to unevenness between receipts and expenditures. Similarly, precautionary demand arises due to uncertainty of future receipts and expenditures. The precautionary demand enables persons to meet unanticipated increases in expenditures or unanticipated delays in receipts.

This type of demand for money may be expected to vary with the level of income. People need more money and are better able to set aside more money for this purpose at higher income levels. Precautionary demand may also be expected to vary inversely with interest rate.

In practice there is some rate of interest at which both transaction demand and precautionary demand become "interest inelastic". There is no longer a simple linear relation between the demand for money (both transaction and precautionary) and rate of interest.

Contd...

Notes

For example, at a high rate of interest, one may be tempted to assume the greater risk of a smaller precautionary balance in exchange for the high interest rate that can be earned by converting part of this balance into interest bearing assets.

Although precautionary demand may be formally distinguished from transactions demand, the total amount of money held to meet both demands is viewed primarily as a function of the level of income.

The Speculative Motive

Speculative demand for money is for taking advantage of fluctuating prices of bonds. The market price of a bond depends on (i) the bond ROI and (ii) current market ROI. Higher the current ROI, lower the market price of bond. There is *inverse relation between market ROI and market price of bond.*

Example: Suppose a person buys a new bond at an issue price of ₹ 1000, and carrying 8% ROI. Suppose after sometime the market ROI rises to 10%. Now, if that person wants to sell the bond, he will not get ₹ 1000, but he will get less. Why should one buy the old bond at ₹ 1000 and earn only 8%? He will buy a new bond for ₹ 1000 and earn 10%. However, if the old bond is available for ₹ 800, he will buy it, because investing ₹ 800 gives him an income of ₹ 8 which equals 10% ROI.

Given inverse relation between ROI and market price of bond, *how is speculative Md related to it?* The "speculation" is about whether ROI is going to fall, or going to rise in future. The expectation is that if the ROI is higher than normal, the chances are that ROI will fall in future. ROI higher than normal means lower price of bond. So, buy bonds when ROI is high. Buying bonds means less holding (demand) of money. Therefore, *higher the R/I lower the speculative Md.*

By the same reasoning, sell bonds when the ROI is low. Selling bonds means more holding (demand) of money. So, lower the ROI, higher the speculative Md.

Task Give examples to show that money has a transaction demand and speculative demand.

Self Assessment

Multiple Choice Questions:

11. ..... is the opportunity cost of holding money.

    (a) Income (b) Savings

    (c) Expenditure (d) Interest

12. There is ..... relation between ROI and demand for money.

    (a) Direct (b) Inverse

    (c) No (d) Indirect

13. Average rupee amount of each transaction depends upon .....

    (a) Income (b) Interest

    (c) Price level (d) GDP

Notes

14. The market price of a bond depends on:

    (a) Bond ROI (b) Current market ROI

    (c) Both bond ROI and current market ROI

    (d) Sometimes, bond ROI and Sometimes on current market ROI

15. You hold money to buy things that satisfy your needs and wants. It is your ..... motive for money.

    (a) Transaction (b) Precautionary

    (c) Speculative (d) Secular

8.4 Summary

- Money is defined anything that is generally accepted as a medium of exchange. Most economic transactions are held through money.
- "Medium of exchange" is the primary function of money. For anything to be called money it must serve as a medium of exchange.
- Money also serves as a store of value, unit of account and standard of deferred payment.
- Two most common measures are called M_1 and M_2. The M_1 measure is called "transactions money" (also called narrow money) and M_2 measure is called "broad money".
- The main factors that influence the demand for money: rate of interest, GDP and price level. The money is held as cash and as deposits in chequable accounts.
- The two main motives for holding money are: the transaction motive and the speculative motive.
- People hold money to buy things. This is transaction motive.
- Speculative demand for money is for taking advantage of fluctuating prices of bonds.

8.5 Keywords

Broad Money: It refers to the most inclusive definition of the money supply.

Commodity Money: It is money whose value comes from a commodity out of which it is made.

Fiat Money: Inconvertible paper money made legal tender by a government decree.

Money: Something generally accepted as a medium of exchange, a measure of value, or a means of payment.

Speculative Demand for Money: It is for taking advantage of fluctuating prices of bonds.

Transactions Motive of Money: It results from the need for liquidity for day-to-day transactions in the near future.

8.6 Review Questions

1. Define the term money. Explain functions of money.
2. Explain the concept of fiat and commodity money.
3. Explain determinants of demand for money.

Notes

4. What is 'demand for money' curve? When does it shift?
5. Explain how an individual decides how much money to hold to carry out transactions.
6. Explain speculative motive for holding money.
7. Establish the relation between market rate of interest and market price of bond with the help of an example.
8. Discuss the narrow and broader measures of money.
9. Discuss the factors that affect demand for money.
10. 'According to speculative demand for money, when interest rates are low, investors wish to hold bonds and therefore, the demand for money will be low.' Do you agree with the statement? Justify your answer.

Answers: Self Assessment

1.	True	2.	True
3.	False	4.	False
5.	True	6.	narrow
7.	chequable deposits	8.	Fixed deposits
9.	near monies	10.	Time deposits with banks
11.	(d)	12.	(b)
13.	(c)	14.	(c)
15.	(a)		

8.7 Further Readings

Books

Dr. Atmanand, *Managerial Economics*, Excel Books, Delhi.

R. L. Varshney, K. L. Maheshwari, *Managerial Economics*, Sultan Chand & Sons, New Delhi

S K Agarwala, *Principles of Economics*, 2nd Edition, Excel Books

Thomas F. Dernburg, *Macro Economics*, Mc Graw-Hill Book Co.

Online links

http://tutor2u.net/economics/content/topics/monetarypolicy/demand_for_money.htm

http://mises.org/daily/3733

http://internationalecon.com/Finance/Fch40/F40-4.php

Notes

Unit 9: General Equilibrium of an Economy: IS-LM Analysis

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9.4.2 Adjustment towards Equilibrium

9.4.3 IS-LM Analysis

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9.8 Further Readings

Objectives

After studying this unit, you will be able to:

- Describe the IS-curve;
- State the properties of IS-curve;
- Explain the LM-curve;
- State the IS-LM Analysis
- Discuss the general equilibrium

Introduction

In this unit, you are going to about the IS-LM model. In IS, I and S are short forms of investment and saving but represent more than these. You have learnt that in case of a closed economy without government, national output or real GDP is determined where investment equals saving. In both cases the equilibrium is where injections into the spending stream equals leakages from the spending stream. In the IS function thus the world I stands for injections and the word S for 'leakages'. IS stands for equality of injections and leakages.

Notes

IS → Injections = Leakages.

In the LM function, L symbolizes liquidity preference, i.e. demand for money. M symbolizes money supply. LM symbolizes equality of demand for money and supply of money.

LM → Demand for money = Supply of money

IS-LM then stands for simultaneous equality of injections and leakages, and of demand for money and supply of money. Equality of injections and leakages determines national output, i.e., product market equilibrium. Equality of demand for money and supply of money determines money market equilibrium. In this way **IS-LM signifies simultaneous equilibrium both in the product market and money market.**

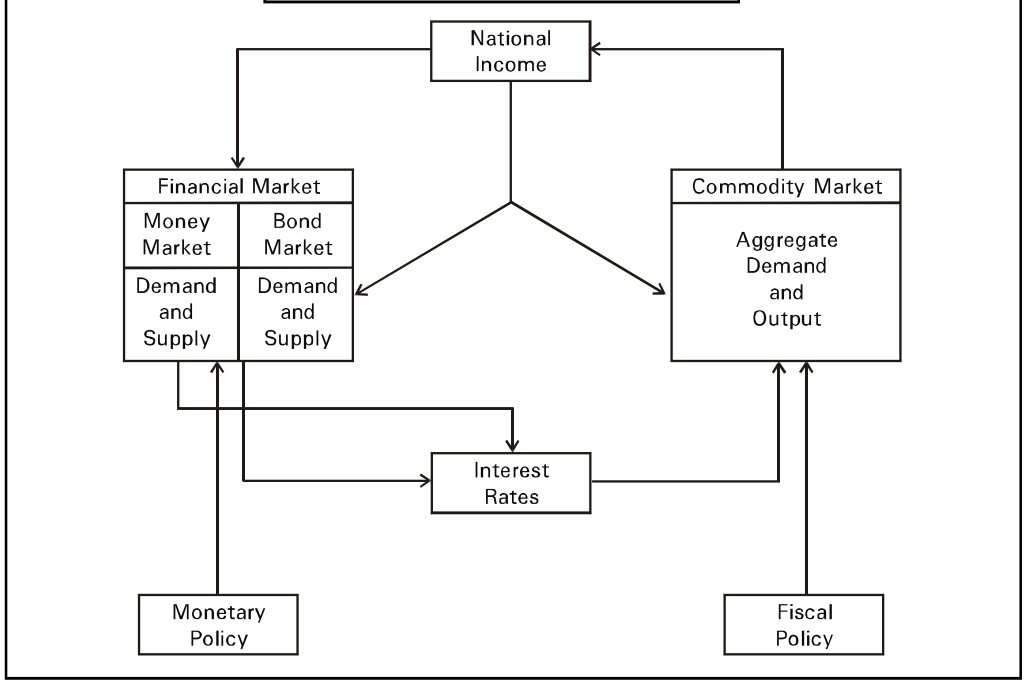
9.1 The Two Market Equilibrium

The IS-LM model emphasises the interaction between the goods and the financial markets.

The Keynesian model looks at income determination by arguing that income affects spending, which, in its turn, determines output (GNP) and income (GNI).

Hicks and Hansen add the effects of interest rates on spending, and thus income and the dependence of the financial markets on income. Higher income raises money demand and thus interest rates. Higher interest rates lower spending and thus income spending, interest rates and income are determined jointly by equilibrium in the goods and financial markets.

Figure 9.1: Basic IS–LM Model



Self Assessment

State whether the following statements are true or false:

1. The IS-LM model stresses the interaction between the goods and the financial markets.
2. Higher income raises money demand, which in turn leads to a decline in interest rates.

Notes

3. Equality of demand for money and supply of money determines money market equilibrium.

9.2 The Product Market Equilibrium – The IS-curve

To simplify the analysis, we shall consider a two sector model, i.e., we assume a closed economy without any government spending or taxes. In such an economy, the expenditures on goods and services can exist only in the form of business expenditure and investment goods. We continue to assume that consumption (hence saving) is a function of income. In addition, we now assume that investment is endogenous and is a function of the rate of interest. Thus from the C+I approach, we have three equations to cover the product market.

$$C = C(Y) \quad \text{(the consumption function)} \quad (1)$$

$$I = I(r) \quad \text{(the investment function)} \quad (2)$$

$$Y = C(Y) + I(r) \quad \text{(the equilibrium condition)} \quad (3)$$

From the saving-investment approach, the three equations covering the product market can be written as.

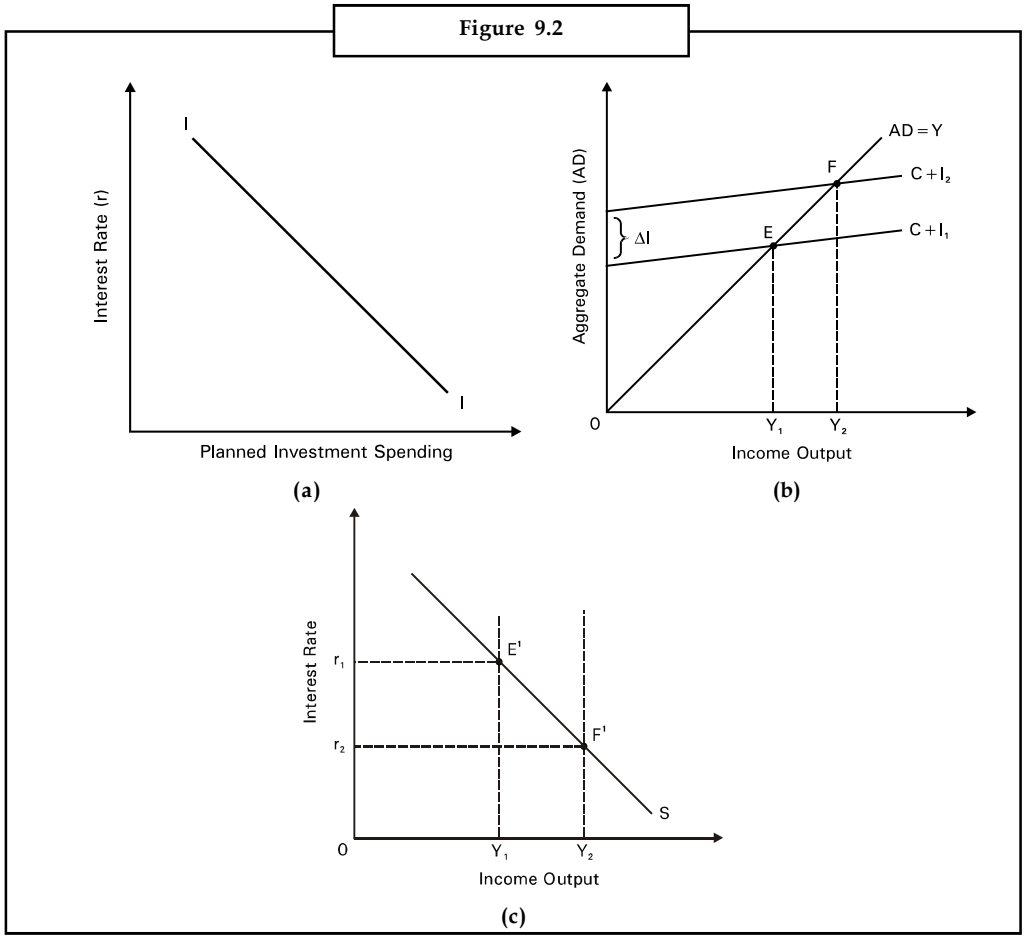
$$S = S(Y) \quad \text{(the saving function)} \quad (4)$$

$$I = I(r) \quad \text{(the invest function)} \quad (5)$$

$$S(Y) = I(r) \quad \text{(the e.g. condition)} \quad (6)$$

Equations (2) & (5) are same and indicate that investment is a function of the rate of interest. (Figure 9.2a).

Figure 9.2



Notes

9.2.1 Derivation of the IS-curve

Figure 9.2b shows how the IS-curve is derived. At an interest rate r_1, equilibrium in the goods market is at point E, with an income level of y_1.

In Figure 9.2c the same is denoted by point E_1. Now a fall in interest rate to r_2 raises aggregate demand, increasing the level of spending at each income level. The new equilibrium income is Y_2. F_1 shows the new equilibrium in the goods market corresponding to an interest rate r_2.

Caution The IS-curve is also a locus of points showing alternate combinations of interest rates and income (output) at which the commodity market clears. That is why the IS-curve is called the commodity market equilibrium schedule. The IS-curve is a graphic representation of the product market equilibrium condition that planned investment be equal to saving and it shows the level of income that will yield equality of planned investment and saving at different possible interest rates.

9.2.2 Properties of the IS-curve

- ***The Slope of the IS-curve:*** The IS-curve is negatively sloped because a higher level of interest rate reduces investment spending, thereby reducing aggregate demand and thus the equilibrium level of income. The steepness of the curve depends on the interest elasticity of investment (i.e., how sensitive investment spending is to changes in the interest rate) as also on the (investment) multiplier.
- ***Shifts in the IS-curve:*** The position of the IS-curve depends on the level of autonomous spending. If autonomous spending increases, the IS-curve will shift to the right (with or without a change in slope).

Example: Let us suppose that expectations or technology change so as to make investment spending appear more profitable. This will shift the investment schedule to the right indicating that at each rate of interest more investment spending takes place.

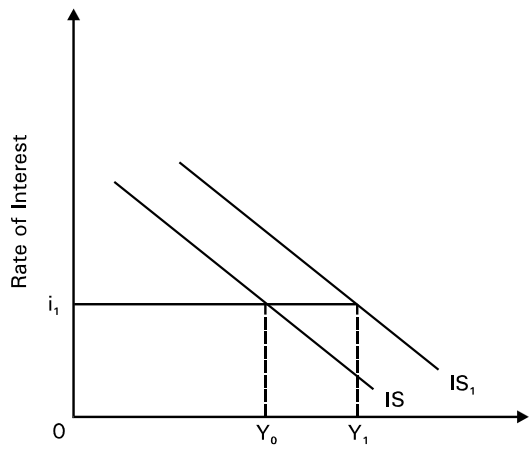
For equilibrium, the higher level of investment must be matched by a higher level of saving. Since saving increases only if income increases, to maintain equilibrium an increase in autonomous investment must be associated with an increase in income – an increase large enough to generate extra saving in an amount equal to the increase in investment. This shows that an increase in investment means higher income levels at each rate of interest. Thus the IS-curve shifts to the right. The shift is horizontal and equal to the amount of shift in the investment schedule times the multiplier or the reciprocal of the marginal propensity to save.

Shifts in the consumption function (or saving function) also cause a shift of IS-curve.

Example: Suppose that an autonomous shift upward takes place in the consumption function (which is the same as upward shift in saving function). As a result, the volume of saving of any level of income is reduced. To maintain sufficient saving to offset the investment that takes place at any selected interest rate the level of income would have to rise.

Notes

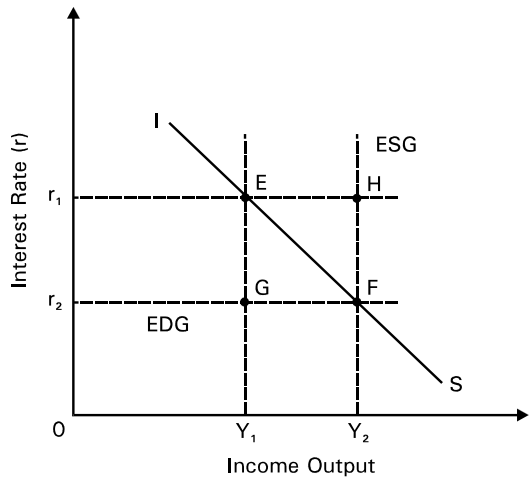
Figure 9.3



Since product market equilibrium at any selected interest rate could be maintained only with an increase in the level of income, this upward shift in the consumption function (or a downward shift in saving function) implies a rightward shift in the IS schedule. Conversely, a downward shift in consumption function (or an upward shift in saving function) will shift the IS-curve downward and to the left.

- ***The Positions of the IS-curve:*** The diagram given below (Figure 9.4) shows two additional disequilibrium points G and H. At G, the national income is the same as at E but the rate of interest is lower (r_2). Consequently, the demand for investment is higher than that at E as also the demand for commodities. This simply means that the demand for goods must exceed the level of output, and so there is Excess Demand for Goods (EDG). Likewise, at H, the rate of interest is higher than F, and there is Excess Supply of Goods (ESG).

Figure 9.4



Thus points above and to the right of the IS-curve like H, are points of excess supply of goods (ESG). By contrast, points below and to the left of IS-curve are points of excess demand for goods (EDG). At a point like G, for instance, the interest rate is too low and aggregate demand is too high relative to output.

Notes

Self Assessment

Multiple Choice Questions:

4. Which of these is not related to a closed economy?
   (a) Expenditures on goods and services can exist only in the form of business expenditure and investment goods.
   (b) Consumption is a function of income
   (c) Investment is exogenous
   (d) Investment is a function of the rate of interest
5. ..... is also called the commodity market equilibrium schedule.
   (a) Investment schedule (b) Income schedule
   (c) IS-curve (d) LM-curve
6. An IS-curve has a ..... slope.
   (a) Positive (b) Negative
   (c) Concave (d) Convex
7. If autonomous spending increases, the IS-curve will .....
   (a) Shift to the right (b) Shift to the left
   (c) Not shift at all (d) Indefinitely
8. The position of the IS-curve depends on .....
   (a) Income (b) Interest rate
   (c) Government expenditure (d) Autonomous expenditure

9.3 Money Market Equilibrium – LM-curve

The financial market refers to the market in which money, bonds, stocks and other forms of income earning assets are traded. Here we restrict ourselves to the money market. To study equilibrium in the money market, we have to refer to both sides of the market – the supply side and demand side. The supply (or nominal quantity) of money is determined by the Central Bank.

Caution "Equilibrium in the money market exists when the demand for money is equal to the supply of money."

In Keynesian theory, demand for money is split into two parts – the transactions demand (m_1) and the speculative demand (m_2). The transaction demand is assumed to be proportional to the level of income.

$$m_1 = kY$$

The speculative demand for money is assumed to be an inverse function of the rate of interest, i.e.,

$$m_2 = h(i)$$

Notes

The total demand for money m_d is then given by

$$m_d = m_1 + m_2$$

or

$$m_d = kY + h(i)$$

The supply of money m_s, is determined outside the model and is fixed by the monetary authorities – it is thus exogenous. Thus the supply of money can be written as

$$m_s = m_a$$

Where, m_a is simply the amount of money that exists, an amount determined by monetary authorities. Since in equilibrium, demand for money is equal to supply of money, we get the following three equations to cover the money market.

$$m_d = kY + h(i) \quad \text{(demand for money)}$$

$$m_s = m_a \quad \text{(supply of money)}$$

$$m_d = m_s \quad \text{(equilibrium condition)}$$

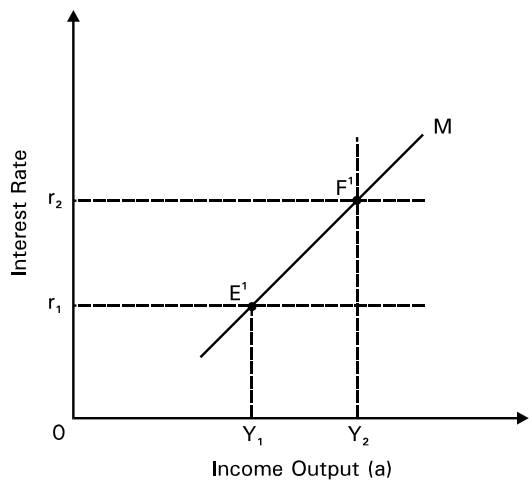
The equilibrium condition ms = m_d or m_s = kY + h(i) gives the LM-curve.

Task With the help of a diagram, show the money market equilibrium in a fictitious economy.

9.3.1 Derivation of LM-curve

The two figures 9.5(a) and 9.5(b) show how the LM-curve is derived. Figure 9.5(b) shows the money market. The supply of money is the vertical line, since it is fixed by the central bank. The two demand for money curves L_1 and L_2 correspond to two different income levels. When the income level is Y_1, the demand curve for money is L_1 and the equilibrium rate of interest is r_1. This gives point E^1 on the 2M schedule in Figure 9.5(a). At a higher level of income (Y_2), the equilibrium rate of interest is r_2, yielding point F^1 on the LM-curve.

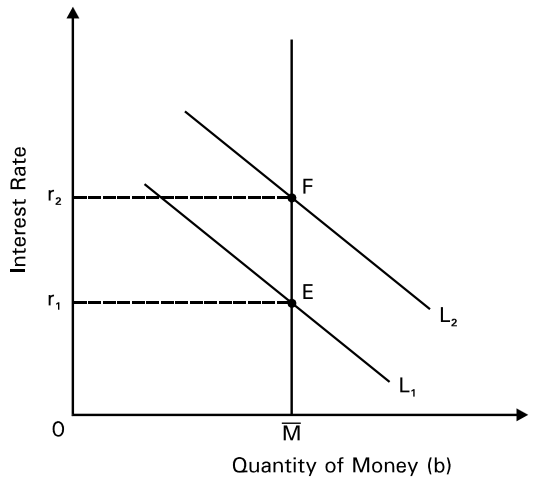
Figure 9.5



(a)

Contd...

Notes



(b)

The LM-curve is a line of points showing alternative combinations of the rate of interest and the level of income that bring about equilibrium in the money market.

Or

The LM schedule (curve) or the money market equilibrium schedule shows interest rates and levels of income such that the demand for money is equal to its supply.

Caselet

Interest Rate Too High

If the actual interest rate is higher than the equilibrium rate, for some unspecified reason, then the opposite adjustment will occur. In this case, real money supply will exceed real money demand, meaning that the amount of assets or wealth people and businesses are holding in a liquid, spendable form is greater than the amount they would like to hold. The behavioral response would be to convert assets from money into interest-bearing non-money deposits. A typical transaction would be if a person deposits some of the cash in his wallet into his savings account. This transaction would reduce money holdings since currency in circulation is reduced, but will increase the amount of funds available to loan out by the banks. The increase in loanable funds, in the face of constant demand for loans, will inspire banks to lower interest rates to stimulate the demand for loans. However, as interest rates fall, the demand for money will rise until it equalizes again with money supply. Through this mechanism average interest rates will fall whenever money supply exceeds money demand.

Source: www.flatworldknowledge.com

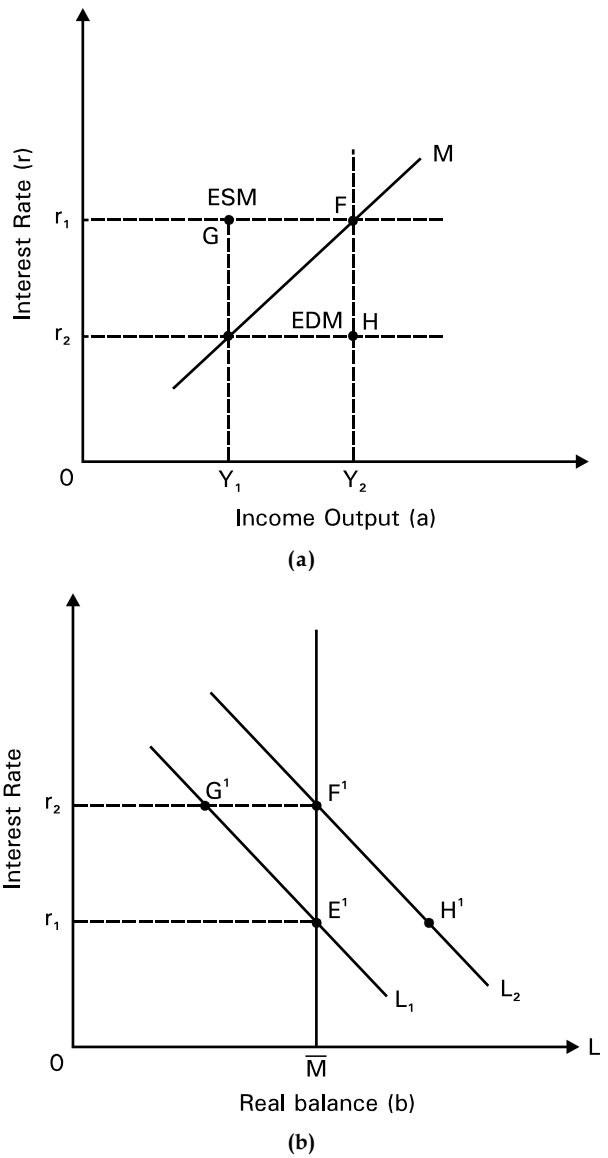
9.3.2 Properties of LM-curve

- ***The Slope of LM-curve:*** The LM-curve is positively sloped. This means that an increase in the interest rate reduces the demand for money. To maintain the demand for money equal to the fixed supply, the level of income has to rise. Accordingly, money market equilibrium implies that an increase in the interest rate is accompanied by an increase in the level of income.

Notes

- ***The Shift of the LM-curve:*** The money supply is held constant along the LM-curve. It follows that a change in the money supply shifts the LM-curve (Figures 9.6(a) & 9.6(b)). An increase in the quantity of money in circulation shifts the supply curve of money to the right (b) from L_1 to L_2. To restore money market equilibrium at the initial level of income Y_1, the equilibrium rate of interest in the money market has to fall to r_2. In (a) point F^1 on the new LM schedule, corresponds to the higher money stock. Thus an increase in the money stock shifts the LM-curve to the right. At each level of income the equilibrium interest rate has to be lower to induce people to hold larger quantity of money. Alternatively, at each level of interest rate the level of income has to be higher so as to raise the (transactions) demand for money and thereby absorb the extra money supplied.

Figure 9.6

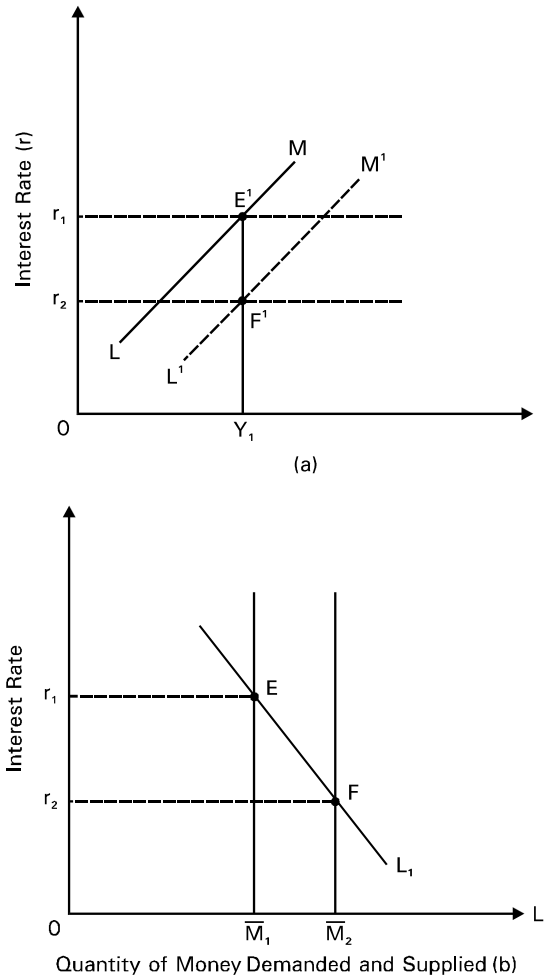


- ***Positions of the LM-curve:*** Points above and to the left correspond to an excess supply of money, points below and to the right to an excess demand for money. Starting from point E in (a), an increase in income takes us to H. At H^1 in (b) there is an excess demand for

Notes

money and thus at H in (a) there is an excess demand for money. By similar argument, we can start at F^1 and move to G^1, at which level of income is lower. This creates an excess supply of money.

Figure 9.7



Self Assessment

Fill in the blanks:

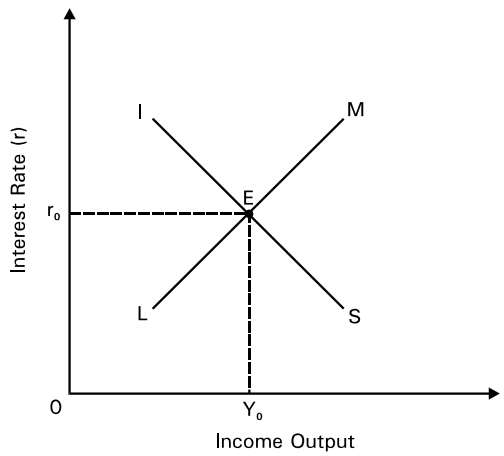
9. The supply of money in India is determined by the .....
10. The speculative demand for money is assumed to be an inverse function of the .....
11. LM-curve has a ..... slope.
12. An increase in the quantity of money in circulation shifts the supply curve of money to the .....
13. ..... in the money stock shifts the LM-curve to the right.

Notes

9.4 Macro Economic General Equilibrium

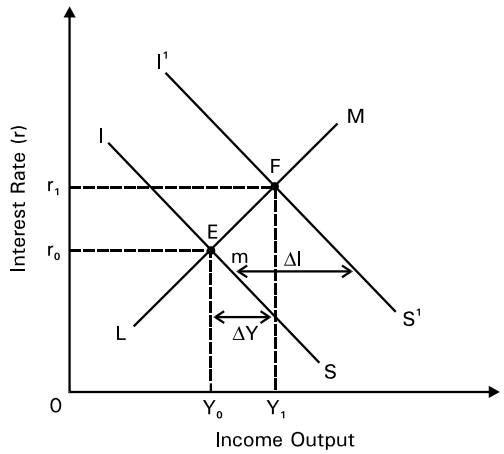
We will now discuss the joint equilibrium of both markets. For simultaneous equilibrium the interest rates and income levels have to be such that both the goods and money market are in equilibrium. The interest rate and level of output are determined by the interaction of money (LM) and commodity (IS) markets. Both markets clear at E. Interest rates and income levels are such that the public holds the existing quantity of money, and planned spending (or desired expenditure) equals output (GNP).

Figure 9.8



9.4.1 Changes in the Equilibrium Level of Income and Interest Rate

Figure 9.9



The equilibrium levels increase and interest rates change when either the IS or LM-curve shifts. Figure 9.9 shows effect of an increase in autonomous spending (such as autonomous investment) on the equilibrium level. An increase in autonomous spending shifts IS to the right. Thus, national income increases and equilibrium level of national income rises. But the increase in income (ΔY) is less than given by the Keynesian investment multiplier [$m(\Delta \bar{I})$] because interest rates increase and choke off investment demand. The reason is easy to find out. The increase in autonomous spending, no doubt, tends to increase the level of income. But an increase in income

Notes

increases the demand for money. With a fixed supply of money, the interest rate has to rise to ensure that the demand for money stays equal to the fixed supply. When the interest rate rises, investment spending is reduced because investment is negatively related to rate of interest. (dl/dr < 0)

Task Show with the help of a figure, the changes in general equilibrium when only the interest rate changes.

9.4.2 Adjustment towards Equilibrium

Suppose our hypothetical economy were initially at a point like E in Figure 9.9 and that one of the curves then shifted, so that the new equilibrium was at a point F. How would that new equilibrium be reached? The adjustment would involve changes in both the interest rate and level of income.

Caution Here we make two assumptions:

1. Since prices are assured to remain fixed, when demand increases, output increases and vice versa (from Keynesian theory of income determination).
2. The interest rate rises when there is an excess demand for money and falls when there is an excess supply of money (Keynesian liquidity preference theory).

Figure 9.10

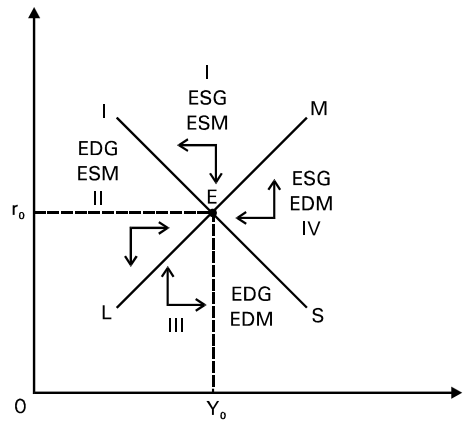


Figure 9.10 shows how they move over time, four regions are shown and they are characterised in Table 9.1.

Table 9.1

Region	Woods Market		Money Market	
	Disequilibrium	Adj: output	Disequilibrium	Adj: Interest rate
I	ESG	Falls	ESM	Falls
II	EDG	Rises	ESM	Falls
III	EDG	Rises	EDM	Rises
IV	ESG	Falls	EDM	Rises

Notes

There is an excess supply of money above the LM-curve, and hence we show ESM in regions I and II. Similarly, there is an excess demand of goods below IS-curve. Hence we show EDG for II and III.

The directions of adjustments are represented by arrows.

Example: In IV there is excess demand for money, which causes interest rates to rise as other assets (including stocks and bonds) are sold off for money and their prices decline. The rising interest rates are shown by upward pointing arrows. There is also an excess supply of goods in IV and hence, involuntary inventory accumulation, to which producing units (firms) respond by reducing output.

Declining output is indicated by leftward pointing arrow. The adjustments shown by arrows will ultimately lead, perhaps in a cyclical manner, to the point E, for example, starting from F, we show the economy moving to E, with income and interest rate increasing along the adjustment path indicated.

In short, income and interest rates adjust to the disequilibrium in both markets. Interest rates fall when there is an excess supply of money and rise when there is an excess demand. Income rises when aggregate demand for goods exceeds output, and falls when aggregate demand is less than output. The system ultimately moves to the equilibrium point at E.

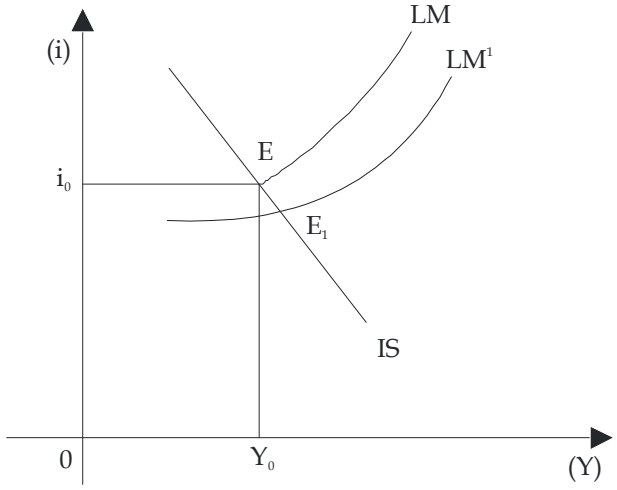
[Rate of interest tends to move vertically towards the LM-curve whereas level of income tends to move horizontally toward the IS-curve. Arrows show direction of motion].

9.4.3 IS-LM Analysis

Monetary Policy in IS-LM Framework

Monetary policy is the process by which the monetary authority of a country controls the supply of money, often targeting a rate of interest for the purpose of promoting economic growth and stability. (You will study aspects of Monetary Policy in detail in Unit 13)

Figure 9.11



Consider the expansionary case shown in Figure 9.11. Money supply is sought to be increased (say) through open market purchase of government securities. At a given price level an increase

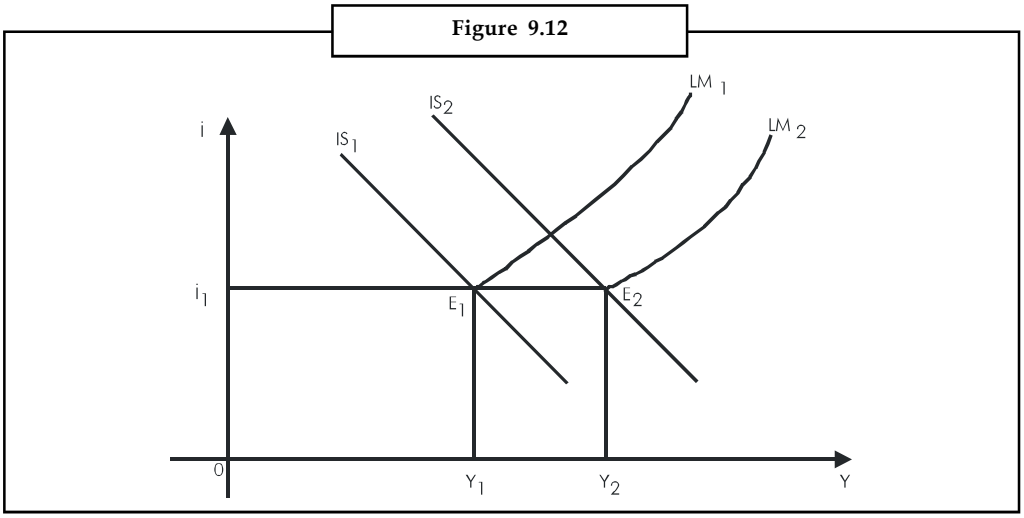
Notes

in nominal supply of money also mean increase in real quantity of money. The LM schedule will shift downward to the right as LM_1. The new equilibrium will be at point E_1 with lower interest rate and a higher level of income. The equilibrium income rises because the open market purchase reduces the interest rate and thereby increase spending, particularly investment.

What is the process of adjustment to the monetary expansion? At the initial equilibrium point E, the increase in money supply creates an excess supply of many to which the public responds, by trying to buy the other assets. In the process, asset prices increase and yields decline. Because money and asset markets adjust rapidly to change in money supply, in the Figure 9.11 equilibrium shifts from points E to E_1 where the money market clears and where the public is willing to hold the larger real quantity of money because the interest rate has declined significantly. At point E_1 however, there is an excess demand for goods. The decline in the interest rates gives the initial income Y_0, has raised aggregate demand and is causing inventories to run down. In response, output expands and we start moving up along the LM schedule. The interest rate rises during the adjustment process because the increase in output raises the demand for money, and the greater demand for money needs to be checked by higher interest rates. At the new equilibrium point E_1, the level of income is higher (Y_1) and the interest rate is lower (i_1).

Once the IS function is permitted to shift in response to changes in the money supply the Keynesian range of the LM function ceases to act as a trap preventing any increase in the money stock from increasing aggregate demand. Rather, an increase in the money stock will cause both LM and the IS functions to move to the right. The LM-curve shifts because the money supply is used directly in the derivation of this function, and the IS function shifts because of the real balance effect on the consumption function (Figure 9.12).

Figure 9.12



In the classical theoretical system, wants are unlimited, and there is therefore no limit to how far the IS-curve can be shifted to the right if there is a sufficient increase in the quantity of money. Unemployment cannot exist in equilibrium if the money supply is increased enough. Classical economists have a powerful theoretical rebuttal to Keynes demonstration of unemployment equilibrium.

However, the real balance effect is not very important empirically, because the relevant real balances are only a small part of wealth.

Fiscal Policy in IS-LM Framework

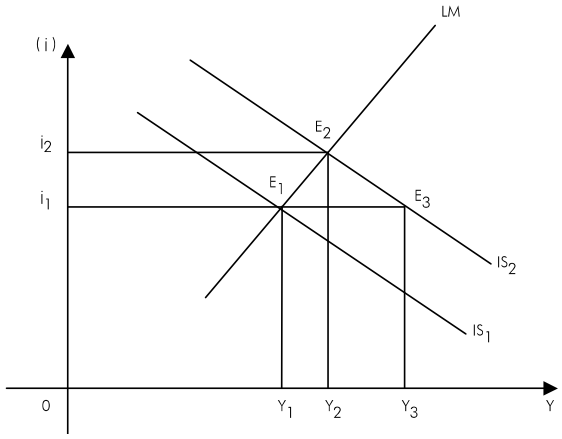
Fiscal policy is the use of government expenditure and revenue collection (taxation) to influence the economy. (You will study aspects of Fiscal Policy in detail in unit 14)

Notes

Expansionary fiscal policy implies use of fiscal instruments to bring about an increase in national income. Figure 9.13 shows the effects of expansionary fiscal policy. The increase in government expenditure shifts the IS-curve to the right. As a result, there is increase in income and interest rate.

If the economy is initially in equilibrium at point E_1, expansionary fiscal policy (say, increase in government expenditure) will result in movement to point E_3, if the interest rate remained constant. At E_3 the goods market is in equilibrium with planned spending equal to output. But the money market is no longer in equilibrium. Income has increased, and therefore the quantity of money demanded is higher. Because there is an excess demand for real balances, the interest rate rises. Firms planned investment spending decline at higher interest rate, and thus aggregate demand falls off.

Figure 9.13



The complete adjustment, taking into account the expansionary effect of higher government spending the dampening effect of the higher interest rate on private spending is given by E_2, a point at which both goods and money markets are simultaneously in equilibrium. Only at point E_2 is planned spending equal to the given real money stock. The reason that income rises only to Y_2 rather than to Y_3, is that the rise in interest rate from i_1 to i_2 reduces the level of investment spending. Thus, the increase in government spending crowds out investment spending. Crowding out occurs when expansionary policy causes interest rates to rise, thereby reducing private spending, particularly investment. The extent of crowding out depends on the slopes of IS and LM schedules and the extent of shift in the IS-curve. One can easily demonstrate the following propositions:

1. Income increases more and interest rates increase less, the flatter is LM schedule.
2. Income increase less interest rates increase less, the flatter the IS schedule.
3. Income and interest rate increase more the larger the horizontal shift of the IS schedule.

Notes

Case Study

End of Equilibrium in Zinc Market

Undisciplined production behaviour in the market caused a significant surplus in zinc, but the surge in prices has hitherto successfully managed to dodge the oversupply. This clearly points out to the conspicuous gap between the underlying fundamentals and the current price level.

Current prices of Zinc still render mining lucrative and have kept the production line not only active but also rising. The International Lead and study Group (ILZG) talks about a number of new projects that are expected to come online during 2011in its latest press release. Mining projects in countries including Australia, Canada, India, Saudi Arabia, Tajikistan and Uzbekistan.

Apart from the new projects, production is expected to rise in mines located in China, Kazakhstan, Mexico, Russian Federation and Mexico. The total rise in production is forecasted at 13.44 million tonnes, up 9.1 percent.

The ILZG has also mentioned the development in the demand side, which is significant, but impossible to absorb the surplus, at least this year. The demand for Zinc is forecasted to rise towards 13.4 million tonnes, up 6.3 percent. At the same time, oversupply is expected to rule at 200,000 tonnes for the year 2011.

Stocks of zinc at the London Metal Exchange and Shanghai futures exchange, on the other hand, are at more than comfortable levels. However, like aluminium, stocks are stuck in what is called 'inventory financing' deals, causing an artificial tightness in the market. These financing deals also might have complemented the price rise.

China continues to import the metal in spite of its inventories scaling above the reported 1.5 million tonnes in warehouses. However, the credibility of the rising imports is questionable, for it's unclear whether imports happen because of demand or due the arbitrage window that opens up from time to time.

The role of China undoubtedly plays a large role in zinc prices. ILSG has forecasted demand of china to rise 9.1 percent this year. But the rising inflationary pressure could cap the buying interest of the country.

Question:

What factors are expected to create this disequilibrium?

Source: www.commodityonline.com

Self Assessment

State whether the following statements are true or false.

14. The interest rate and level of output are determined by the interaction of money (LM) and commodity (IS) markets.
15. The increase in autonomous spending increases the level of income.
16. With a fixed supply of money, the interest rate has to fall to ensure that the demand for money stays equal to the fixed supply.

Notes

9.5 Summary

- IS-LM stands for simultaneous equality of injections and leakages, and of demand for money and supply of money. Equality of injections and leakages determines national output, i.e., product market equilibrium. Equality of demand for money and supply of money determines money market equilibrium.
- The IS-curve is also a locus of points showing alternate combinations of interest rates and income (output) at which the commodity market clears. That is why the IS-curve is called the commodity market equilibrium schedule.
- The IS-curve is negatively sloped because a higher level of interest rate reduces investment spending, thereby reducing aggregate demand and thus the equilibrium level of income.
- The LM-curve is a line of points showing alternative combinations of the rate of interest and the level of income that bring about equilibrium in the money market.
- The LM-curve is positively sloped. This means that an increase in the interest rate reduces the demand for money.
- For general equilibrium, the interest rates and income levels have to be such that both the goods and money market are in equilibrium.
- The interest rate and level of output are determined by the interaction of money (LM) and commodity (IS) markets.
- The equilibrium levels increase and interest rates change when either the IS or LM-curve shifts.

9.6 Keywords

Autonomous Spending: Spending that is considered necessary regardless of income level, such as government spending, basic living expenses and investing.

Investment Goods: Goods that are purchased with the expectation of earning a favorable return.

Investment Multiplier: The change in national income which would result from a unit change in investment.

IS-curve: is also a locus of points showing alternate combinations of interest rates and income (output) at which the commodity market clears.

LM-curve: It is a line of points showing alternative combinations of the rate of interest and the level of income that bring about equilibrium in the money market.

Speculative Demand for Money: is the desire to have money for transactions other than those necessary for living.

Transaction Demand for Money: It results from the need for liquidity for day-to-day transactions in the near future.

9.7 Review Questions

1. Describe an IS-curve. How is it derived?
2. Define the LM-curve and explain its derivation.
3. Explain the effect of an increase in investment on an IS-curve?

Notes

4. Explain how an equilibrium level of national income and an equilibrium rate of interest are determined simultaneously at the point of intersection of the IS and LM schedules.
5. An upward shift in the consumption function leads to a rightward shift in the IS schedule. Comment.
6. A consumption function is given by the equation

$$C = 10+0.75Y$$

and investment function by

$$I = 48-8i$$

Using the equilibrium conditions

$$S = I, \text{ trace out the IS-curve.}$$

7.

$$C = 100+0.8Y$$

$$I = 150-600i$$

$$MS = \text{Rs } 200 \text{ crore}$$

$$M_1 = 0.20Y$$

$$M_2 = 50-400i$$

From the above information, find the equilibrium level of income and the equilibrium rate of interest. What is the level of consumption and investment at the equilibrium level of income?

8. Describe the properties of IS-curve
9. Explain the properties of LM-curve.
10. The equilibrium levels increase and interest rates change when either the IS or LM-curve shifts. Validate

Answers: Self Assessment

1.	True	2.	False
3.	True	4.	(c)
5.	(c)	6.	(b)
7.	(a)	8.	(d)
9.	Reserve Bank of India	10.	rate of interest
11.	positive	12.	right
13.	An increase	14.	True
15.	True	16.	False

9.8 Further Readings

Notes

Books

Dr. Atmanand, *Managerial Economics*, Excel Books, Delhi.

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Online links

http://www.econmodel.com/classic/islm2.htm

http://pages.stern.nyu.edu/~nroubini/NOTES/CHAP9.HTM

http://business.baylor.edu/Tom_Kelly/The%20IS-LM%20Model.htm

http://www.econmacro.com/keynesian/islm_model.htm

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Unit 10: Theories of Inflation

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Objectives

After studying this unit, you will be able to:

- Define inflation;
- Identify the types of inflation;
- Explain Quantity Theory of Money;
- Discuss Keynesian Theory of Inflation;
- Contrast the concept of demand pull and cost push inflation.

Introduction

Inflation is defined as a sustained increase in the price level or a sustained fall in the value of money. Inflation in India is explained by various factors, viz., excessive aggregate demand, imbalance between the sectoral demand and supply, cost factors including rising import prices and rate of expansion of money. To understand the type of inflation, we analyse the price trends, the rate of expansion of money supply and the rate of increase in demand. To quantify the amount of inflation in the economy, indicators such as the Wholesale Price Index, the Consumer Price Index and the GDP Deflator are used. The Wholesale Price Index is defined as the measure of the cost of a given basket of goods. It includes raw materials and semi-finished goods. The Consumer Price Index measures the cost of buying a fixed basket of goods and services. The GDP deflator is a ratio of nominal GDP in a given year to the real GDP in that year.

The indicators of inflation will be influenced primarily by changes in money supply, financing of the money supply by the government and the influence of money wages. Inflation affects the private corporate sector through its impact on the interest rate, credit offtake and globalisation of savings. In this unit, you will be introduced to the basic concept of inflation and its theories.

Notes

10.1 Meaning of Inflation

Inflation is understood by most people as a substantial rapid general increase in the level of prices and consequent devaluation in the value of money over a period of time. Harry Johnson, for instance, defines inflation as "a sustained rise in price". Crowther similarly defines inflation as "a state in which the value of money is falling, i.e., the prices are rising". The common feature of inflation is price rise, the degree of which may be measured by price indices. Edward Shapiro, thus, puts that "recognising the ambiguities that our words contain, we will define inflation simply as a persistent and an appreciable rise in the general level of prices".

Thus, inflation is statistically measured in terms of the percentage increase in the price index as a rate per cent per unit of time – usually an year or a month.

Caution While inflation means a rise in the general price level, the rate of inflation is the rate of change of the general price level. It is measured by a simple formula as follows:

$$\text{Rate of inflation } t = \frac{P_t - P_{t-1}}{P_{t-1}} \times 100$$

Where, P_t is the price level in year t, P_t - 1 is the price level in year t-1, the base year. If there is a decline in the rate of inflation, such a situation is called DISINFLATION.

Did u know? The most recent period of disinflation in India occurred in India since the middle of 1991 when the high rate of nflation which had crossed double digit levels and was around 17 per cent, was brought down to around 7 per cent, thanks to a package of Macro Economic stabilisation policies introduced by the government.

Types of Inflation

Open Inflation: In a free market economy, prices go up freely due to supply-demand imbalances leading to open inflation.

Suppressed Inflation: Suppressed inflation occurs in a controlled economy where the upward pressure on prices is not allowed to influence the quoted or managed prices. But inflation reveals itself in other forms.

Example: Government may introduce rationing of goods leading to long queues in front of ration shops. There is very likely to be a black market for such goods whose prices are far above the quoted prices. In India, suppressed inflation manifests itself in the prices of essential goods sold through PDS. The ration prices are deliberately maintained at a certain level while the open market prices are above this level.

Creeping Inflation, Galloping Inflation and Hyper Inflation

These three categories of inflation are recognised on the basis of severity of inflation, as measured in terms of rate of rise in prices.

There is moderate rise in prices of 2-3 per cent per annum in creeping inflation. It is generally considered good for a growing economy. Mildly rising prices result in faster growth of output

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in that they raise the profit margins of firms and encourage them to produce more. Creeping inflation does not severely distort relative prices nor does it destabilise price expectations. A single digit inflation is also considered as moderate inflation which most countries have come to put up with.

In galloping inflation prices rise at double or treble digit rates per annum (20-100%). It tends to distort relative prices and results in disquieting changes in distribution of purchasing power of different groups of income earners. There is often a flight of capital from the country since people tend to send their investment funds abroad and domestic investment withers away.

Hyper inflation or run-away inflation is of a severe type in which prices rise a thousand or a million or even a billion per cent per year. It seriously cripples the economy. Prices and money supply rise alarmingly.

Did u know? Germany experienced hyper inflation during 1920-23. It is generally a result of war, political revolution or some other catastrophic event.

Task Record the inflation rates in India for a particular month. Notice the changes happening in the rates. Try to find out the reasons behind those changes.

Self Assessment

Multiple Choice Questions:

1. Inflation can be defined as a ..... in prices.
   (a) Continuous fall (b) Steep fall
   (c) Sustained rise (d) Unstable rise
2. A situation where there is a decline in the rate of inflation is called _____
   (a) Creeping inflation (b) Galloping inflation
   (c) No inflation (d) Disinflation
3. ..... inflation occurs when, prices go up freely due to supply-demand imbalances in a free market economy.
   (a) Open (b) Suppressed
   (c) Creeping (d) Galloping
4. ..... is usually considered good for a growing economy.
   (a) Open (b) Creeping
   (c) Galloping (d) Hyper
5. Inflation situation in Zimbabwe represents a .....
   (a) Disinflation (b) Creeping
   (c) Galloping (d) Hyperinflation

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10.2 The Quantity Theory of Money

The quantity theory of money is one of the oldest theories in economics. Its basic prediction is that there is a stable and proportional relationship between changes in the money supply and the price level.

The theory is based on the equation of exchange. One way of expressing the equation of exchange is

$$MV_t = PT$$

Where:

M is the money supply

V_t is the transactions velocity of money

P is the average price of each transaction

T is the total number of transactions made

The transaction velocity of money is the average number of times the money supply is used to make a transaction.

The other way of expressing the equation is

$$MV_y = PY$$

Where:

V_y is the income velocity of money,

Y is real income, i.e., the total value of final output produced.

The average number of times the money supply is used to purchase final output is the income velocity of money.

The income version is more useful than the transaction version since it avoids the problems of double counting which would occur if we included all transactions, as well as the problem of including transactions in goods produced in previous periods, which would occur if we included transactions in second-hand goods.

MV_y is the total expenditure on final output in the economy over a given period of time.

Example: If the money supply is ₹ 5000 crores and, on an average, each unit of currency is used four times in the purchase of final output, total expenditure on final output in this economy is ₹ 20,000 cr.

P_y, is the value of final output produced in the economy, i.e., nominal GNP. By definition, this must equal the value of total expenditure of final output. To say that $MV_y = P_y$ simply tells that total expenditure is equal to total receipts.

However, it is said that V_y is not related to changes in the money supply and varies only slowly over time. For simplicity, it is, therefore, sometimes treated as a constant. In addition, those economists who accept this theory, called monetarists, argue that in the long run real income does not vary with changes in the money supply. They argue that there is a natural rate of output, which is determined by such factors as capital stock, technological progress, size of the labour force and the skills it possesses, mobility of labour and so on. Again these factors are likely to change only slowly over time and so the natural rate of output is usually assumed to be constant in the long run.

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The implication is that in the long run the price level varies directly with changes in money supply and the quantity theory of money asserts that causation is one way: from money to prices. The prediction of the theory is, thus, that an increase in the money supply will, in the long run, lead to a proportional increase in the price level. In other words, if the money supply rises by ten per cent the price level will rise by 10 per cent. Furthermore, monetarists argue that an increase in money supply is the only cause of an increase in the price level. These two ideas can be summarised as: an increase in the money supply is both a necessary and a sufficient condition for an increase in the price level.

Self Assessment

State whether the following statements are true or false:

6. The quantity theory of money predicts that there is an unstable and proportional relationship between changes in the money supply and the price level.
7. Income velocity of money is the average number of times the money supply is used to purchase final output.
8. Monetarists argue that an increase in money supply is the only cause of an increase in the price level.

10.3 The Keynesian Theory of Inflation

Traditionally, the Keynesian theory of inflation identifies two types of inflation: demand pull and cost push inflation. However, the theory does not dispute the validity of the identity $MV_y = P_y$. It is usually presented in a different form as $M = kP_y$, where k, is the inverse of V_y (i.e., $k = 1/V_y$). The Keynesian view is, however, that this identity does not imply causation. They reject the notion that V_y is stable and the economy tends to some natural rate of unemployment. They stress that changes in P_y are possible independently of changes in M.

Basically, the root cause of inflation lies in the imbalance between aggregate demand and aggregate supply.

10.3.1 Demand Pull Inflation

Such an inflation occurs when aggregate demand rises more rapidly than the economy's productive potential, pulling prices up to equilibrate aggregate supply and demand. It is characterised by a situation in which there is "too much money chasing too few goods".

Keynes maintains that demand pull inflation could be caused by excessive fiscal deficit leading to increase in government expenditure. An increase in government expenditure, especially during a war, raises the demand for output well above the supply and ignites a rapid inflation.

This type of inflation was first explained by Keynes. He introduced the concept of 'inflationary gap' to substantiate his approach to demand pull inflation. He defines inflationary gap as an excess of planned (or anticipated) expenditure over the available output at pre-inflation or base prices. Lipsey adds that this gap is the amount by which aggregate expenditure would exceed aggregate output at the full employment level of income.

In the absence of government expenditure, the economy will be in equilibrium at income level Y_o, at which aggregate income equals aggregate demand E_o (Figure 10.1).

Aggregate expenditure is the sum of consumption expenditure of households and investment expenditure of the firms. Thus, at point A, the equilibrium point Y = C + I.

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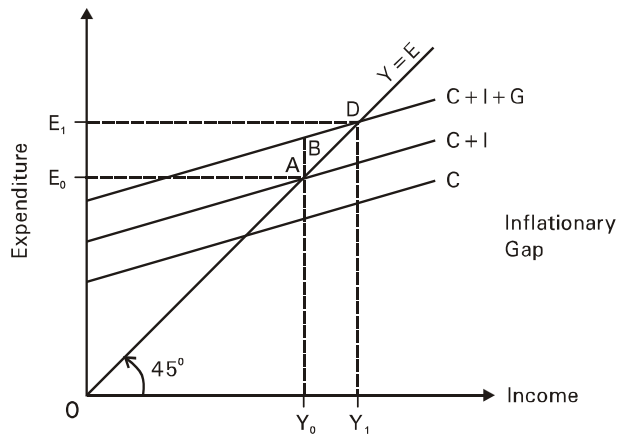
If government decides to incur an expenditure, G, the aggregate expenditure curve (C+1+G) shifts upwards and new equilibrium is D where the level of income is Y, and expenditure E.

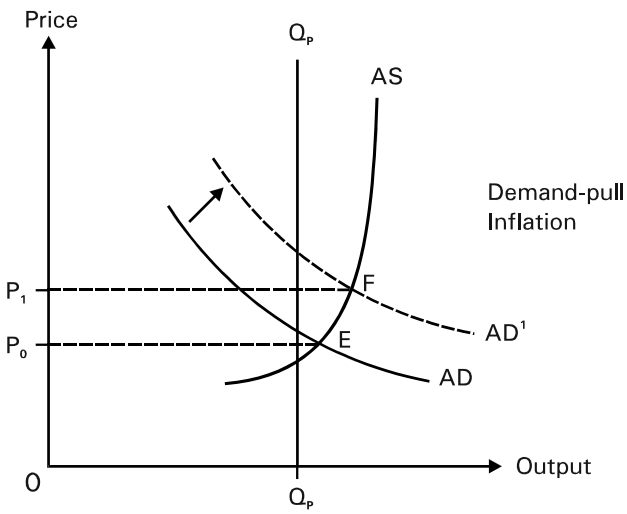
However, suppose Y_0 is full employment equilibrium and the real output cannot increase. Thus there is an excess demand equal to AB which will be purely inflationary and this represents the inflationary gap (Keynesians recommend that in such situations the government should follow deflationary policy to bring down aggregate demand to the equilibrium level).

Figure 10.1



According to Keynes, at full employment, the excess demand for goods and services cannot be met in real terms and, therefore, it is met by rise in the price of goods. Demand pull inflation occurs only when there is an inflationary gap in the economy. The aggregate demand line AD intersects the 45° line at point E, which is to the right of the full employment line. Thus, at full employment there is excess demand which pulls up prices (Figure 10.2).

Figure 10.2



Samuelson says that demand pull inflation simply means that increasing quantities of money are competing for the limited supply of commodities and bid up their prices. As the rate of employment falls and labour markets become light (i.e., markets become scarce) wages are bid up and the inflationary process accelerates.

Notes

Factors on Demand Side

On the demand side, the major inflationary factors are:

- ***Money Supply:*** The first major source of inflation is an increase in money supply in the economy. Increase in money supply results primarily from an increase in demand deposits and expansion of loans and investments by the commercial banks. Expansion of bank credit is at once a cause and an effect of inflationary pressures since it reflects an enlarged income stream resulting from the use of bank credit and parting a growing business and personal demand for funds due to higher prices and costs.
- ***Disposable Income:*** This refers to the income payments to factors after personal taxes have been paid. An increase in disposable income results in an increase in the absolute amount of consumption expenditure in the economy. Such an increase is inflationary in character.
- ***Increase in Business Outlays:*** Increase in business outlays or capital expansion takes on a speculative character during an inflationary boom. New equipment and plants and excessive inventories are often financed by speculative borrowing, not to mention an increase in replacement demand. Most of business expenditure finds its way into the income stream dividends, wages and other income payments. These are often inflationary in character.
- ***Increased Foreign Demand:*** Another factor responsible for increased demand is foreign expenditure for domestic goods and services. This factor is particularly significant if a country maintains an export surplus on its balance of trade. Foreign demand exerts considerable inflationary pressures on domestic areas of shortages which may be a focal point of spreading inflation.

It is the cumulative effect of all or most of these factors that the aggregate demand function in an economy shifts upwards, resulting in inflation in prices.

10.3.2 Cost Push Inflation

Modern information is far more complex than what can be explained by the simple demand pull theory. Prices and wages start rising before the economy reaches full employment. They rise even under conditions of a large idle capacity and a sizeable portion of the labour force being unemployed. This is known as "cost push" or "supply-shock" inflation.

The supply or cost analysis of inflation also known as the "new-inflation theory" maintains that inflation occurs due to an increase in the cost or supply price of goods caused by increases in the prices of inputs. Rapidly rising money wages, with no corresponding rise in labour productivity in certain key sectors of the economy, result in higher prices in these sectors, particularly when the demand rises. This leads to further erosion of real wages forcing organised labour, including trade unions not involved in the initial round of wage increases, to seek a further rise in money wages. This is what is commonly referred to as wage price spiral.

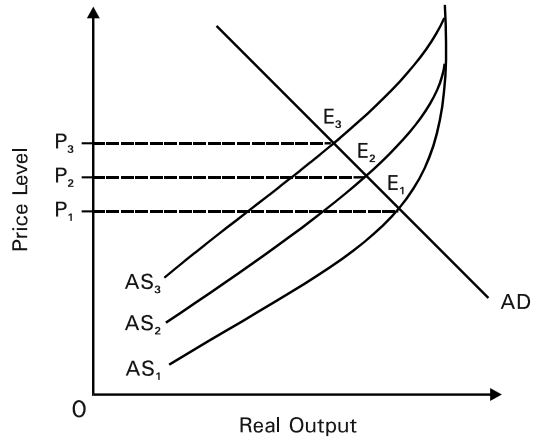
Caution The notion of cost push inflation is not new. As Bronfen-bparting Benner and Holzman have observed, "cost inflation" has been the layman's instinctive explanation of general price increases since the dawn of the monetary system. We know of no inflationary movement that has not been blamed by some people on "profiteers", "speculators", "hoarders", or workers and peasants, "living" beyond their station.

Notes

Thus, cost push inflation occurs due to non-wage factors also. For instance, monopolistic or oligopolistic firms often attempt to maintain their profit margins steady by raising the prices of their products in proportion to the rise in other cost elements. Such a cost push inflation is sometimes called "mark-up" inflation.

Cost push inflation is shown in the Figure 10.3.

Figure 10.3



Given the demand curve AD, supply curve shifts to the left from AS_1 to AS_2 to AS_3 as a result of rise in wages and other cost elements. Leftward shifts in the supply curve result in rise in the price level from P_1 to P_2 to P_3 and so on.

The causes of such inflation are the following.

1. ***Wage-push Pressures:*** Cost push inflation is often attributed to wage push or profit push pressures. Wage push pressures are created by labour unions and workers who are often able to increase their wages faster than their productivity. It is widely believed that powerful trade unions cause inflation by pushing up wages. This variant of cost push inflation, called wage-push inflation, occurs when wages rise faster than labour productivity; statistical studies indeed corroborate this view. Empirical evidence shows that there is indeed a correlation between earnings and the general price level. However, such correlation is not always perfect.

2. ***Profit-Push and Mark-up Pricing:*** Suppose all business firms have the practice of pricing the goods and services which they sell on the basis of standard mark-up over their direct cost of materials and labour. In such a situation when the firms follow cost plus pricing either an increase in costs or an increase in the mark-up as a percentage of the costs or both will lead to a rise in the price level. Such a mark-up inflation is because of dynamic price expectations of consumers and speculative activities of traders.

3. ***Import Prices:*** Since no country in the present day world is self-sufficient, imports play an important part in cost push inflation. Thus, inflation is often transmitted from country to country. The sharp increase in the world commodity prices, especially oil, in the 1970s undoubtedly contributed to inflation. Sine inflation is a global phenomenon, it cannot be avoided. It is not possible for a country to cut itself off completely from rising prices in the rest of the world.

Notes

Exchange Rates

Exchange rate movements also cause price level changes. This is, in fact, the essence of the purchasing power parity theory of exchange rate determination. As far as the Indian economy is concerned the depreciation of the external value of the rupee since the floating of rupee in 1975 has certainly been an inflationary factor.

Caselet

High Commodity Prices: The Main Reason behind Inflation?

On August, 23, 2011, the government of India said high commodity prices and demand pressure in manufactured items have led to inflationary pressure, but added that the rate of price rise is likely to moderate to 6-7 per cent by the end of this fiscal.

"The surge in headline inflation, despite an overall moderation is food inflation, was the combination of two factors - an unanticipated increase in oil and commodity prices... and demand pressures reflected in significant increase in inflation in non-food manufactured products," Minister of State for Finance Mr. Namo Narain Meena said in a written reply to the Rajya Sabha.

Headline inflation, measured by Wholesale Price Index (WPI), has been above 9 per cent since December 2010. Food inflation remained in double-digit for most of 2010, before falling below the 10 per cent mark in March this year.

Inflation of manufactured items, which have a share of over 65 per cent in the WPI basket, has been above 7 per cent since March this year. Mr Meena said the government and the RBI has taken a number of steps to control inflationary pressure.

The RBI has hiked interest rates 11 times since March 2010 and "related measures to moderate demand to levels consistent with the capacity of the economy to maintain its growth without provoking price rise."

Regarding steps by the government, he mentioned reduction of import duty to zero on rice, wheat, pulses, edible oils and onion, ban on export of edible oils and pulses, suspension of futures trading in rice, urad and tur and extension of stock limit orders in case of pulses and rice.

Mr Meena also said that the government has reduced import duty on skimmed milk powder, petrol and diesel and custom duty on crude oil. In reply to another question, he said that headline inflation is expected to fall to 6-7 per cent by March 2012. "Overall WPI headline inflation is expected to fall to ... 6 -7 per cent," the minister said.

"Growth is expected to decelerate... to around 8 per cent in 2011-12, which should contribute to some easing of demand- side inflationary pressure, particularly in the second half, as the full impact of monetary tightening is realised," Mr Meena added.

Source: www.thehindubusinessline.com

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10.3.3 Demand Pull vs. Cost Push Inflation

The issue whether inflation is a 'demand pull' or 'cost push' is being intensely debated since the late 1950s. If demand pull is the correct diagnosis of inflation, the "government" must bear the balance for excessive spending and too little taxing while the monetary authorities (the central bank) are to be blamed for pursuing a "cheap money policy". If, on the contrary, cost push is the real cause of inflation "trade unions" are to be blamed for excessive wage-claim, industry for acceding to them, and business firms for "marking-up" profits under conditions of monopoly or oligopoly.

Caution Some economists argue that there cannot be such a thing as a cost push inflation because any increase in costs without an increase in purchasing power and demand would lead to unemployment and depression, and not to inflation. It is impossible to think of a process of continuous price rise, it is argued, if there is no increase in demand or the quantity of money and bank credit. On the contrary, many economists subscribe to the view that demand pull is no cause of inflation, only a cost push can produce it. But it seems unrealistic to view the demand pull and cost push in exclusion of each other. Prices increase as a consequence of complex interactions among wages, costs and excess demand in goods markets, labour market and money market.

Empirical studies have also pointed to difficulties in the proper identification of demand and cost inflation. Prof. Harry G Johnson considers the entire controversy between demand pull and cost push as spurious for three reasons.

First, the advocates of the two theories fail to investigate the monetary assumption upon which the two theories are based. A sustained inflation cannot be generated either by cost push or by demand pull unless the behaviour of the monetary authority is taken into account under the varying circumstances. Johnson remarks, "The two theories are, therefore, not independent and self-contained theories of inflation, but rather theories concurring the mechanism of inflation in a monetary environment that permits it." Johnson has stressed that the real issue between the two is not what causes inflation but whether inflation can be checked through the mechanism of cost and price determination or by checking the aggregate demand through monetary and fiscal restraints.

Second, Johnson says there is difference between the two theories about the definition of full employment. If full employment is defined as a situation when the demand for goods is just sufficient so that the price level neither rises nor falls, then inflation must be associated with excess demand by reference to the level of unemployment at which the unfilled vacancies are just equal to the number of job seekers or by reference to some percentage of unemployment regarded as normal – inflation will do-exist with some unemployment. This type of inflation can be explained only by reference to the forces that push up prices in spite of the absence of excess demand. So the whole controversy boils down to the policy issue whether the present level of unemployment is to be regarded as too great or too small.

Third, Johnson points out that it is almost impossible to devise a test capable of determining whether a particular inflation is of cost push or demand pull variety. Most of the available tests are extremely superficial in nature.

The debate between the two theories goes on unresolved. The crux of the entire matter is that price movements are consequences of complex interactions of cost and demand adjustments which are extremely difficult to identify and disentangle.

Notes

Case Study

Dramatic Inflation Change Increases Bets on Interest Rates

Local banks in India are joining Goldman Sachs Group Inc. in predicting benchmark borrowing costs will climb 1 percentage point in 2011 before a report this week forecast to show inflation accelerated for the first time in three months in December.

Wholesale prices, the benchmark gauge, gained 8.40 percent from a year earlier, faster than the 7.48 percent rate in November, according to the median forecast of 30 economists in a Bloomberg survey before data due on Jan. 14. Axis Bank Ltd., the nation's fourth-biggest lender by market value, raised its forecast from 75 basis points yesterday. Mumbai-based Yes Bank Ltd. made the same adjustment last week.

One-year interest-rate swaps in India have climbed 29 basis points, or 0.29 percentage point, in the past month, the most among the so-called BRIC economies of the largest developing nations excluding Brazil, reflecting expectations that the Reserve Bank of India will raise rates as soon as this month. Prime Minister Manmohan Singh is under pressure to curb inflation as his Congress party faces elections in nine states over the next 18 months.

"The dramatic change in the inflation trajectory prompted us to revise our call to a more hawkish one," Shubhada Rao, a Mumbai-based economist at Yes Bank, said in an interview yesterday. "Inflation is like a ubiquitous tax, and the government will be under pressure to get inflation under control as early as possible."

Food Prices

Food prices surged 18.3 percent in the week ended Dec. 25, the most since July, according to a Commerce Ministry report issued on Jan. 6. The annual wholesale inflation rate, which climbed as high as 11 percent in April, fell in both October and November. Prime Minister Singh called a meeting of his senior ministers and officials today to discuss ways to gain control over rising food prices, according to government spokeswoman Neelam Kapur.

The central bank will review borrowing costs next on Jan. 25 after raising the benchmark repurchase rate six times last year.

Any increase in food costs "feeds into the rest of the sectors in the economy," Chakravarthy Rangarajan, the prime minister's top economic adviser, said in an interview on Jan. 7. If prices remain "sticky, probably some action will be required," said Rangarajan, who led the Reserve Bank between 1992 and 1997.

Tushar Poddar, a Mumbai-based economist at Goldman Sachs who correctly predicted that the central bank would raise the benchmark repurchase rate by 150 basis points in 2010, said in an interview yesterday that the biggest risk to inflation is higher food and commodity prices. Poddar told reporters in Mumbai on Dec. 8 that he expects the central bank to lift interest rates 100 basis points in 2011.

The yield on India's 10-year bonds has risen 29 basis points this year. The rate on the most-traded 7.8 percent security due in May 2020 fell two basis points to 8.20 percent today.

Contd...

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Swap Rates

"With inflationary pressures persisting, we expect yields to remain elevated for a prolonged period," Anubhuti Sahay, an economist at Standard Chartered Plc in Mumbai, said in an interview yesterday. She predicts the 10-year rate will rise to 8.50 percent by the end of the current financial year in March.

The difference between India's 10-year bonds and U.S. Treasuries widened to 494 basis points today from 463 at the end of last year.

India's one-year swap rate, the fixed cost needed to receive a floating interest rate, climbed to 7.27 percent from 6.96 percent on Dec. 10. Comparable rates in Brazil have gained 37 basis points to 12.28 percent, those in Russia have climbed 14 basis points to 5.29 percent and those in China have increased 11 basis points to 3.20 percent.

India's government bonds have lost 0.3 percent so far this month, Asia's worst performance after South Korea, the Philippines and Singapore, according to indexes compiled by HSBC Holdings Plc.

Rupee Drops

The rupee has slid 1.5 percent in January, the third-worst performance among Asia's 10 most-traded currencies excluding the yen, on concern costlier oil prices will push up the import bill in an economy that buys about 75 percent of its fuel overseas. Crude-oil prices in New York, which reached a two-year high of $91.55 a barrel on Jan. 3, traded at $88.72 yesterday.

"There's a risk of inflation becoming generalized due to the spill-over effect of higher oil and food prices," Jay Shankar, an economist at Mumbai-based Religare Capital Markets Ltd., said in an interview yesterday. "If crude-oil prices go beyond $120 a barrel, it isn't unlikely that the RBI may raise rates by as much as 175 basis points." He expects the repurchase rate to climb 100 basis points to 7.25 percent by the end of the year.

The rupee rose 0.17 percent to 45.37 per dollar today, according to data compiled by Bloomberg. The currency will trade at 46 by the end of March and weaken to 47 by the end of the year, said Poddar, who was an economist at the International Monetary Fund before joining Goldman.

'Politically Sensitive'

The cost of protecting the debt of government-owned State Bank of India, which some investors perceive as a proxy for the nation, has increased 11 basis points from the end of last year to 171 as pressure mounts on the government to curb gains in prices. Credit-default swaps pay the buyer face value in exchange for the underlying securities or the cash equivalent should a government or company fail to adhere to its debt agreements.

Indians voted out at least two federal governments and one state administration in the past 15 years after inflation reduced their purchasing power. The World Bank estimates 828 million Indians, or 66 percent of the population, live on less than $2 a day.

"Inflation is a politically sensitive issue," N. R. Bhanumurthy, an economist at the New Delhi-based National Institute of Public Finance and Policy, said in an interview yesterday. "It's imperative for the government to gain control over prices ahead of state elections."

Question:

Analyse the entire issue and possible effects of inflation.

Source: www.bloomberg.com

Notes

10.3.4 Sectoral Demand-Shift Inflation

In a dynamic economy, progress involves continual shifts in demand from one sector to another. Such shifts raise the wages and prices in those sectors towards which demand shifts but do not lead to wage and price reductions in the sectors from which demand shifts away. This is because in a modern industrial set-up, wages and prices are flexible upwards but rigid downwards and on balance, all prices tend to rise despite the absence of general excess demand. This notion of inflation is attributed to Charles L Schultze.

Schultze maintains that the changes in the pattern of demand will cause a rise in prices in the demand gaining industries, while prices remain rigid in the demand losing industries. The net effect is that the general price level will rise, even though the aggregate demand has remained almost unchanged. Attempts to increase production in the demand gaining sectors lead to increase in the price of materials and wages in these sectors. The rigidity of the prices of materials supplies and components, at the same time, will prevent a downward movement of prices in the demand losing industries. Consequently, there will be a general rise in the prices of materials and components.

The demand gaining sectors tend to raise wages in order to attract more workers. But the demand losing industries may also have to resort to raising wages since they cannot permit wage differentials to get widened lest there are large-scale desertions of workers from these industries and wage differentials result in inefficiencies and lowered labour productivity. Wage rise which originates in the demand gaining sectors, thus, spreads even to the demand losing sectors and accentuates rise in the prices of semi-finished materials and components.

Schultze's notion that a shift in the pattern of demand will cause a continuous upward movement of prices does not seem to be well-founded. A price rise is likely to be halted if the quantity of nominal money supply in the economy is not increased. The rising price level, though reducing the real quantity of money (real balances), may push up the rate of interest and cause the aggregate demand to fall, thereby bringing down the general price level.

Task Meet and interview an economist and find out how they predict the inflation rates in the nation.

Self Assessment

Fill in the blanks:

9. The root cause of inflation lies in the imbalance between ..... and .....
10. ..... is defined as an excess of planned (or anticipated) expenditure over the available output at pre-inflation or base prices.
11. ..... inflation occurs only when there is an inflationary gap in the economy.
12. ..... refers to the income payments to factors after personal taxes have been paid.
13. Cost push inflation is also known as ..... inflation.
14. ..... inflation occurs when wages rise faster than labour productivity.
15. The concept of inflationary gap was introduced by .....

Notes

10.4 Summary

- Inflation is defined as a sustained increase in the price level or a sustained fall in the value of money.
- Inflation in India is explained by various factors, viz., excessive aggregate demand, imbalance between the sectoral demand and supply, cost factors including rising import prices and rate of expansion of money.
- There are various types of inflation that can occur in an economy, namely, open, suppressed, creeping, galloping, hyper, demand pull and cost push.
- The quantity theory of money's basic prediction is that there is a stable and proportional relationship between changes in the money supply and the price level.
- Demand pull inflation occurs when aggregate demand rises more rapidly than the economy's productive potential, pulling prices up to equilibrate aggregate supply and demand.
- The supply or cost analysis of inflation also known as the "new-inflation theory" maintains that inflation occurs due to an increase in the cost or supply price of goods caused by increases in the prices of inputs.
- Some economists argue that there cannot be such a thing as a cost push inflation because any increase in costs without an increase in purchasing power and demand would lead to unemployment and depression, and not to inflation.

10.5 Keywords

Cost Push Inflation: A type of inflation caused by substantial increases in the cost of important goods or services where no suitable alternative is available.

Creeping Inflation: A moderate rise in prices i.e. 2-3 per cent per annum.

Demand Pull Inflation: Describes the scenario that occurs when price levels rise because of an imbalance in the aggregate supply and demand.

Galloping Inflation: Prices rise at double or treble digit rates per annum (20-100%).

Hyper Inflation or Run-away Inflation: Price rise to the tune of a thousand or a million or even a billion per cent per year.

Inflation: A rise in the general price level.

Suppressed Inflation: A type of inflation where the upward pressure on prices is not allowed to influence the quoted or managed prices.

Wage-push Inflation: When wages rise faster than labour productivity.

10.6 Review Questions

1. Define inflation. How is a general rate of inflation calculated in an economy?
2. Describe different types of inflation that can occur in an economy.
3. Is inflation always bad? Justify your answer giving suitable arguments.
4. Explain the Quantity Theory of Money.
5. Discuss the basic concept of demand pull inflation.

Notes

6. "Demand pull inflation occurs only when there is an inflationary gap in the economy." Explain.
7. State the demand side factors that lead to an inflationary gap.
8. Describe the concept of 'supply shock' inflation. Why is it called supply shock?
9. Compare and contrast demand pull and cost push inflation.
10. Some economists argue that there cannot be such a thing as a cost push inflation. Do you agree with them? Justify your answer.

Answers: Self Assessment

1.	(c)	2.	(d)
3.	(a)	4.	(b)
5.	(d)	6.	False
7.	True	8.	True
9.	aggregate demand, aggregate supply	10.	Inflationary gap
11.	Demand pull	12.	Disposable income
13.	Supply shock	14.	Wage push
15.	J M Keynes		

10.7 Further Readings

Books

Chris Mulhearn, Howard. R. Vane and James Eden, *Economics for Business*, Palgrave Foundation, 2008

Dr. Atmanand, *Managerial Economics*, Excel Books, Delhi.

Lipsey & Chrystal, *Economics*- Indian Edition, Oxford University Press., 2007

Online links

http://www.buzzle.com/articles/types-of-inflation.html

http://economics.about.com/cs/money/a/inflation_terms.htm

http://tutor2u.net/economics/content/topics/inflation/demand_pull_inflation.htm

http://www.investopedia.com/articles/05/012005.asp#axzz1Vl6PSh5C

Notes

Unit 11: Control of Inflation and Philips Curve

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Objectives

After studying this unit, you will be able to:

- State the consequences of inflation;
- Discuss the measures to control inflation;
- Explain the concept of Philips Curve;
- Know the arguments against the Philips Curve;
- Realise the effect of stagflation.

Introduction

In the previous unit, you were introduced to the basic theory of inflation and in this unit you will learn about the consequences of inflation and the measures to control it. Recent studies on inflation have largely focussed on empirical aspects of inflation and the dilemma relating to the choice of policy alternatives to control it. The choice of policies to control inflation is determined by the causes and magnitude of price rise. Demand pull inflation is usually controlled by monetary and fiscal policies. However, monetary and fiscal policies are often ineffective in controlling the cost push or supply inflation, since their immediate focus is on curbing aggregate demand. Obviously, the control of cost push inflation requires non-monetary and non-fiscal policies. Since the cost push inflation is chiefly caused by rising costs, it can be controlled by controlling wage increases which are not related to the increase in labour productivity.

This unit also introduces you to the concept of Phillips curve that represents the relationship between the rate of inflation and the unemployment rate.

Notes

11.1 Consequences of Inflation

Before learning the measure to control inflation, we must know that why we should control inflation and what consequences does it have that makes it imperative to keep a tab on it.

Inflation has its impact on the industry normally through the impact it exercises on such Macro Economic variables like interest rate prevailing in the economy, growth rate experienced, investment and credit off take, *et al.* besides of course the impact on availability and dearness of factors of production.

Becoming dearer is the compulsive fallout on the financial sector which is expected to open the limes of futures trading and other future oriented investment opportunities to meet the present glut of uncertainty. While the above factors do sound alarming, the same are performing decently when compared to the 1991 standards.

Inflation and its fallout on the industry can be studied by understanding its affect on the following.

Inflation and Profitability

Uncertainty about costs and rates of return induced by very rapidly rising prices may well lead to cutbacks in capital investment programmes and this is one of the reasons why we find inflation and recession together. There may also be squeezes on fixed investment in so far as stock building pre-empts whatever liquid resources are available.

Other reasons for the combination of inflation and recession are associated with the lags in reactions to government policies. We find that the prices continue to rise after monetary and fiscal action has been taken to cut down the level of demand. Hence, the short-term effect of attempts to contain inflation may well be reductions in output and employment whilst, for a time, prices are propelled forward by their existing momentum.

Inflation and Labour Productivity

One of the major consequences of inflation is that it is marked with labour unrest. Average number of days (in million) lost in industrial disputes in India have been as follows:

1991-92	34.57
1992-93	22.97
1993-94	20.44
1995-96	19.20

The private corporate sector, especially the capital intensive ones worry about the effect of strikes on their profit record and their ability to raise capital in the future.

Inflation, Taxation and the Private Corporate Sector

When the tax rates are at very low levels the fact that corporation taxes are levied on a profit concept which does not allow for replacement cost of fixed assets or inventories may not be very important; and similarly with personal income tax rates for incorporated businesses or taxation of nominal capital gains for any type of business. But when business firms have to face tax rates at high levels and inflation is proceeding apace, the situation is entirely different. The drastic effects of inflation plus taxation are compared below.

Notes

Year	Profit (₹ billion)	Inflation (% of GDP)
90-91	3.0	12.5
92-93	3.5	10.1
93-94	4.2	8.3325
94-95	5.8	10.883
95-96	6.0	7.75

The nature of recent inflationary developments is very different from that associated with the upturn of the traditional business cycle; and government intervention by fiscal or other means is likely to be such as to erode rather than enhance profitability. A higher than average rate of inflation in one country may have adverse repercussions on the private corporate sector. Unless exchange rates are allowed to adjust, sales to foreigners will become more difficult and purchases from foreigners will become more tempting. Foreign willingness to invest funds in such a country may also be tempered by fears of future depreciation, dividend controls and the like.

Caution To understand the effects of inflation on business financing and investment we see that:

1. Important components of additional costs due to inflation were the need for supplementing depreciation provisions and pension funding.
2. Despite increase in tariffs and productivity improvements, much additional borrowing was needed to provide the necessary funds.
3. The short-term cutbacks in investment were likely to plant imbalances in the future, in that only some types of capital expenditure could readily be restricted.

Inflation and Marketing

Inflation affects all aspects of corporate activity but marketing which operates as the interface between supplier and customer, is under the sharpest pressure of all. Due to inflation, the Indian corporate sector faces distortion of the existing relationship between buyers and sellers and thereby creates uncertainty over current and future trading practices. Inflation also affects wages and salary levels, transport costs, packaging, printing and communications charges. Thus inflation for the companies would result in:

1. An increased sensitivity on the part of the customers to price.
2. A heightened resistance to marketing blandishments.
3. A tendency to substitute for quality product those which, although of a lower quality, are regarded as adequate.
4. An increased resistance to non-essential features of products.
5. A reduced rate of growth in real demand for goods and services.
6. A shift in expenditure away from non-essential goods and services.
7. Inflation and the Investment Decision.

Progressive income taxes and other income effects and corporation taxes levied on nominal profits and stock gains affect the profitability of capital investment in both nominal and real terms. Also, companies cannot benefit in real terms from after-tax stock gains unless the rate of gain is somewhat greater than rate of inflation.

Notes

Task Find out the changes in marketing efforts made by some major companies during the high inflation situation in the 2008-2009.

Inflation and Interest Rate

Interest rates are, to a large extent, a function of the level of inflation. Higher inflation translates into a higher expected real rate of return, which in turn translates into a higher level of interest rates in the economy. The actual impact on interest rates is far from clear. On the one hand, increased government borrowings and shift in financing from foreign to domestic borrowings is likely to make interest rates dearer, while on the other hand, higher liquidity with banks, a phased reduction in CRR and lackluster industrial demand is likely to exert a downward pressure on interest rates. We are, therefore, likely to see a steeply upward sloping yield curve in the weeks to come.

1. At the current level of spreads, External Commercial Borrowings (ECBs) have almost become unviable, forcing companies to come back to domestic FI's to repay the ECBs they had raised in 1993-94.
2. The risk insurance premium levied by the export credit agencies, and in all cost of these borrowings is higher than that of domestic funds.

Higher interest rates also emanate from the inefficiencies of the banking system. The spreads in banking need to be large enough to accommodate the inefficiencies in banking operations and their high ratio of operating costs of income. The lack of sufficient downward flexibility in the real leading rate systems stems from the stickiness of the spreads in the banking sector. Inefficiencies in the banking system, in turn, affect the working of the Indian corporate sector.

Inflation, Interest Rates and Savings

High real interest expectations cause higher savings. Smaller savings imply higher investment in the productive sector and so higher the real interest rate, greater is the opportunity cost of investing. Inflation causes nominal interest rates to go up and thus there is a diversion of funds towards financial savings taking away a sizeable chunk from the productive sector.

Higher interest rates triggered by high and increasing inflation also lead to the erosion of market sentiments leading to flight of funds from the financial markets. This is further enunciated by the fact that the FIIs in the last year have withdrawn funds to the tune of $550 million from the capital markets. The variability of inflation in India has encouraged a diversion of resources to assets, which provide a hedge against inflation. Thus, savings are diverted in to real estate and less funds are available for investment in the business sector. Thus in India, the investment in non productive assets increased, the result of which was eminent in the great price surge of real estates in the mid-nineties.

Inflation, Exchange Rate and BOP

A high inflation leads to depreciation in the real effective exchange rate and the consequent rise in the forward premium that exerts a downward pressure on the domestic currency. Although a falling currency is a positive booster for exports and thus a positive BOP situation, yet the fact that the currencies in the neighbouring states have fallen at a greater rate has offset this advantage for India. On the contrary, the debt servicing at a greater rate has offset this advantage for India since its debt servicing ratio is on the higher side at 22% of the net outflow. Higher interest rates

Notes

as stated before do make the rupee an attractive destination for investments leading to an increase in demand for the rupee and the consequent appreciation. But this is subject to the condition that higher interest rate is not subject to higher risk premium. For, a cheap currency is conducive to foreign investments, a volatile currency is definitely not.

The days of trade balances determining the exchange rate are history since today the rates are more a function of capital flows. But the recent economic sanctions and the consequent downgrade by Moody's and S&P has resulted in a "wait and watch" policy adopted by most Flls and foreign investors. Additionally, with the private foreign funds for the Indian private industry drying up, there is likely to be a fall in the ECB's that will exert additional pressure on the rupee.

Self Assessment

State whether the following statements are true or false:

1. The short-term effect of attempts to contain inflation may well be reductions in output and employment.
2. A higher than average rate of inflation in one country may have adverse repercussions on the private corporate sector.
3. Inflation for the companies would result in an increased rate of growth in real demand for goods and services.
4. Higher interest rates can also come from the inefficiencies of the banking system.
5. High real interest expectations cause lower savings.

11.2 Control of Inflation

In view of the serious repercussions of inflation on the economy, various measures are taken to control inflation:

1. ***Monetary Policy:*** In almost all countries, central banks enjoy extensive powers to introduce various monetary measures to control inflationary price rise. These measures include the bank rate policy, open market operations, variable cash reserve ratio and selective credit control.
2. ***Fiscal Policy:*** Fiscal policy seeks to control inflation through controlling taxes, public expenditure and government borrowing. Since government spending has become an important component of aggregate spending in almost all countries, by changing its expectations in relation to its tax receipts, the government can exert a powerful effect on the flow of money, aggregate demand and economy activity.
3. ***Wage Control:*** Wage control is a measure to deal with cost push inflation which occurs when money wage rate rises faster than productivity of labour. However, wage controls are generally arbitrary and difficult to implement. It perpetuates the existing inequality in income distribution and will not be tolerated by income recipients for long period.
4. ***Price Control:*** The system of price control implies the fixation of maximum prices at which commodities are to be sold. However, this will lead to increase in quantity demanded and decrease in quantity supplied because the fixed price has to be below the market equilibrium price. Thus, this method is seldom resorted to.
5. ***Indexation:*** It is a method in which, such adjustments in monetary returns are made that are necessary to set off losses in real incomes due to inflation.

Notes

Example: Until recently, Brazil had successfully lived with inflation by adopting a system of inflation indexing or monetary correction in 1964. Inflation in Brazil, which had averaged over 20 per cent per annum during the fifties, had not deterred its economic growth which in real terms had been about 10 per cent per annum.

Inflation indexing has a popular appeal because for an individual the money value of his wages and assets grows at a predictable rate as inflation goes on while the government supports the scheme because it allows inflation to exist without much public protest. It must, however, be stressed that instead of solving the problem of inflation, indexing allows inefficiency and distortions in the economy to perpetuate.

Case Study

Controlling Inflation without Hurting Growth

The expected spread of food price inflation in India to more industrial categories has provoked a crescendo of calls for sharp monetary tightening. Such a response would be appropriate if excess demand were driving inflation.

But the current high Wholesale Price Index (WPI) inflation follows prolonged cost shocks and a period of very low inflation. This low base overstates inflation. Policy should rather reduce inflationary expectations without hurting the supply response.

Supply Response

The supply response is especially important since India is in a catch-up growth phase. Investment is occurring to relieve specific bottlenecks.

Data from India's Central Statistical Organisation (CSO) shows that fixed investment has remained above pre-crisis levels of 32 per cent of GDP. There is a sharp rise in the production of capital goods. Continuing high investment implies there cannot be a large excess of demand over capacity. Good growth and sales help spread manufacturing costs. If productivity rises, the price-line can be held. A good monsoon after a bad one should see a sharp jump in agricultural production and softening of food prices. Inflation in primary articles will fall from this month onwards because of the base effect and manufactured goods inflation from November.

But wages and commodity prices are pushing up costs. Sustained high food price inflation raises wages, since food is still above 50 per cent of the average consumer basket. That procurement prices have held steady this year, after excessive hikes in the past few years, will provide some relief.

But over the longer term, structural measures, such as better infrastructure and empowering more private initiatives, are required to improve agricultural supply response. That the National Rural Employment Guarantee Scheme (NREGA) has raised rural wages is a good thing, but the emphasis has been on employment and not productivity, although it has the potential to raise both.

A wage rise exceeding that in agricultural productivity raises food prices. Or else rupee appreciation is required to let wages rise without inflation. Prices normally are sticky downwards. So, with monetary accommodation, a relative price change raises the general price level. What goes up doesn't readily come down except for commodities. But in India administered prices impart an upward bias even for food and fuel.

Contd...

Notes

The petrol price decontrol was required — prices will now be free to fall as well as rise. But the timing of the price rise, when inflation is dangerously high, is unfortunate.

Past oil price hikes have not led to sustained inflation because they either followed or led to severe monetary tightening. The attempt to conserve the Macro Economic stimulus can be consistent with falling inflation only if it enables a supply response.

Post-reform India has had loose fiscal and tight monetary policy. Direct subsidies created hidden indirect costs and raised debt. But inflation harms electoral prospects, so instead of inflating debt away, a severe monetary tightening would be imposed. There would be a large sacrifice of output, but little reduction in chronic cost-driven inflation.

Fiscal Consolidation

The government now seems to be trying a better combination: Imposing fiscal consolidation so monetary policy can be more accommodative. Lower debt, deficits and interest rates are useful attributes for a more open economy to have. But rather than raise tax rates that push up prices and costs, a better approach to fiscal consolidation is to reduce wasteful government expenditure. Plugging leakages and cutting allocations in areas where budgets have not been spent would create better incentives to spend.

The government has a poor record in spending effectively. Tax revenues have started rising again with growth, but this boom should not be squandered like the last one. The contribution of economic growth was 55 per cent and of spending cuts was 35 per cent to Canada's successful deficit reduction in the 1990s.

Monetary Policy

A sharp rise in interest rates has severe consequences. We saw the collapse in industry following such a rise in the late 1990s and in July 2008. Policy should rather follow a path of gradual rise in interest rates conditional on inflation. The knowledge of future rise will reduce inflationary expectations, if combined with action to reduce costs.

A short-term nominal exchange rate appreciation reduces costs. This can be very useful to contain a temporary spike in oil or food prices and will become more effective as petrol prices are free and food prices reflect border prices. Today, the price of Washington apples determines that of Indian apples.

The current depreciation runs counter to the attempt to reduce inflation. Changing one exchange rate prevents thousands of nominal price changes that then become sticky and persist, requiring painful prolonged adjustment. Small steps give the freedom to respond to evolving circumstances. But to walk with baby steps one must start early and coordinate action over several fronts.

Questions:

1. How does food inflation hurt the common man of India?
2. What can the government do to minimize the impact of food inflation?

Source: www.eastasiaforum.org/ Ashima Goyal

Self Assessment

Multiple Choice Questions:

6. Which of these is not a monetary policy instrument to check inflation?
   (a) Bank rate policy (b) Open market operations
   (c) Controlling taxes (d) Selective credit control

Notes

7. In India, monetary policy measures to control inflation are taken by.....

   (a) SEBI (b) Reserve Bank of India

   (c) State Bank of India (d) Finance Ministry

8. Which of these is a measure to deal with cost-push inflation?

   (a) Selective credit control (b) Tax control

   (c) Controlling public expenditure (d) Wage rate control

9. Price control will lead to increase in quantity demanded and decrease in quantity supplied because the fixed price has to be ..... the market equilibrium price.

   (a) Above (b) Below

   (c) At par with (d) More or equal to

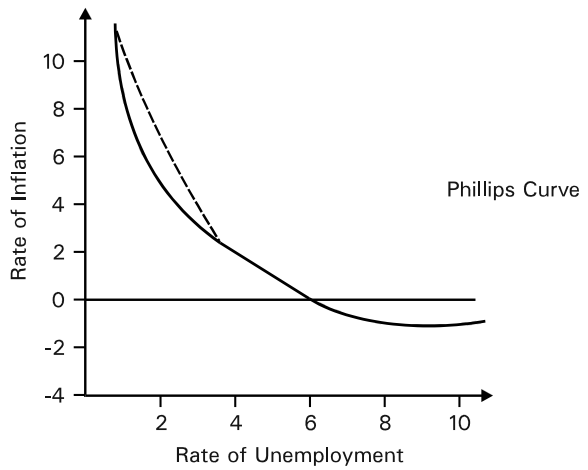
11.3 Philips Curve

Single wage costs form a prime component of the price structure. Economists attempting to study supply inflation have recently focussed attention on the relationship between the rate of wage rise (rate of inflation) and the rate of unemployment in the economy. This analysis runs in terms of the "Phillips curve" (named after AW Phillips, a British economist, who attempted an empirical explanation of inflation).

Did u know? Phillips found negative relation between the rate of wage increases and the rate of unemployment in England during the period 1862-1957.

The Phillips Curve (PC) depicting the relation between the percentage change in wage and percentage change in unemployment is shown in Figure 11.1 below. The curve is derived from the British economy's data on the rate of change of money wages and the rate of unemployment.

Figure 11.1



The negative slope of PC suggests that the rate of inflation and the rate of unemployment are inversely related. The curve also implies that a fairly high percentage of unemployment is necessary for maintaining non-inflationary price stability. So there is a trade-off between inflation rate and unemployment rate. The policy implication emerging from the PC is that wage push

Notes

inflation can be eliminated if the community is prepared to accept a high rate of unemployment or vice versa.

Example: Point A on the PC shows low unemployment rate but the society has to pay a price n terms of high inflation rate. Point B shows the contrary in that a low rate of inflation calls for a high rate of unemployment.

It can be seen that the PC gets steeper at low rates of unemployment. Since wages form a large fraction of the costs of goods and services, high wage increases tend to be associated with high inflation rates. So the PC is usually thought of as relating price inflation to unemployment.

Caution The convex shape of the PC (from the point of origin) has an interesting implication. Its flatness at high rates of unemployment and steepness at low rates suggests that reducing unemployment from, say 10% to 9%, would not cost much in extra wage inflation, but reducing unemployment from, say 2% to 1%, would cause substantial wage inflation.

The trade-off between inflation and unemployment suggested by the PC has drawn considerable attention in the Macro Economic policy analyses since the 1960s. It seemed quite consistent with the Keynesian inflationary gap analysis developed in the 1930s-1950s. The inverse relation between wages and unemployment is attributable to two factors.

First, the relative bargaining strength of trade unions and management is likely to vary with changes in the unemployment rates and general business activity. When unemployment rates are low and there arise labour shortages, the trade unions tend to press for substantial increases in money wages. During the periods of high unemployment, on the contrary, the wage claims are generally not pressed upon the managements.

The *second* factor explaining the inverse relation between money wage rate and unemployment rate is a state of generalised excess demand for labour. It is not necessary that wage increases are brought about by the organised union action. Even in developed countries, only a fraction of the total labour is unionised, yet money wages may rise both in the unionised and non-unionised segments of the labour market primarily due to an excess demand for labour. The Phillips type relationship between money wage rates and unemployment rates may also exist due to excess demand in particular labour markets. If there are difficulties in the occupational and geographical mobility of labour, the existence of labour shortages in particular sectors may push the wage rates even in a period of unemployment.

11.3.1 An Evaluation of Philips Curve

The PC has come in for considerable criticism. Recent empirical evidence as well as the remarked results on Phillip's data have questioned validity of the negative wage rate-unemployment rate relation.

Did u know? RG Lipsey who re-worked on Phillip's data covering the period 1862 -1957, has shown that over 4/5th of the variation of money wages could be associated with the rate of unemployment. But he also points out that the relation between wage rates and unemployment rates was much weaker during the period after 1913. Lipsey found that the wage changes were related significantly to the changes in the cost of living index during the inter-war and post-war periods.

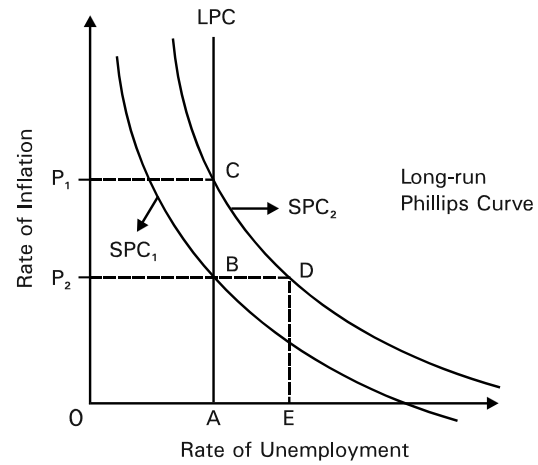
Notes

In some advanced capitalist countries including the USA, high rates of inflation have co-existed with high rates of unemployment.

Example: In the 60s, when the US economy came to experience a very high rate of inflation and Nixon administration clamped restrictive monetary and fiscal controls on the economy in an attempt to curb inflation, there was a sharp rise in unemployment but virtually no reduction in inflation. Such a situation where unabated inflation co exists with recession or stagnation in the economic activity, which has come to be called stagflation, poses a negation to the PC.

Some economists like Paul Samuelson, James Tobin, Milton Friedman and Robert Solow maintain that there is a natural rate of unemployment. Basically, it is the rate of unemployment associated with the output level at which the aggregate supply becomes vertical – that is the full employment level of output. At this rate of unemployment the long run PC tends to be a vertical line. There is no way by which the government can bring down the rate of unemployment below this natural rate without setting off an inflationary spiral. In Figure 11.2 below, the unemployment rate OA represents the long run natural rate of unemployment. The shape of the long run PC-LPC suggests that there is no trade-off between inflation and unemployment in the long run.

Figure 11.2



Thus, several economists opine that the negative relation between inflation rate and unemployment rate holds good at the most only in the short run. Further, the data on the US economy for the 60s and 70s showed that the PC, if applicable, tended to shift to the right over time. A shifting PC, creates problems to the policy makers in that they cannot be sure as to what rate of inflation is required in order to keep unemployment rate to a certain minimum. In the figure above, SPC_1 and SPC_2 are short-run PCs and LPC is the long run curve. Note that if the short run curve shifts from SPC_1 to SPC_2 the inflation rates rises from P_1 to P_2 at the same rate of unemployment, OA or, maintenance of P_1 rate of inflation calls for DE rate of OA. Thus, the rightward shifting of the PC implies that a given rate of unemployment is associated with a higher rate of inflation, or a given inflation rate means a higher rate of unemployment.

One of the explanations offered for the shifting PC is the changes in the composition of labour force. In recent decades youths and women have come to constitute a larger proportion of the labour force. In most industrial economies, the unemployment rates among youths and women workers are substantially above that for the labour force as a whole. With these high unemployment groups more dominant in the labour force, the level of aggregate demand

Notes

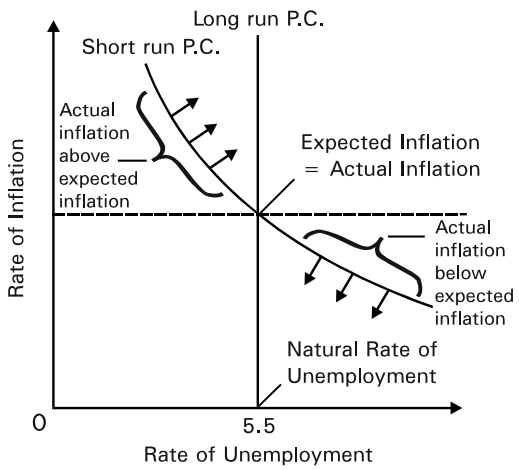
which would previously yield, say 4% inflation and 3½% unemployment, may now result in 4% inflation and 5½% unemployment. The PC may also shift to the right due to changes in the inflationary expectations. If workers and management expect considerable price escalation, in the future, these expectations will be included in the former's wage demands and the latter's price policies. If so, the PC may shift to a less desirable position.

The main inference of the recent studies which have attempted to test the PC is that the inflation-unemployment relationship cannot be as clearly defined as the original PC did. The reason for this is that the modern economic system is not as easy to manage or describe as it once was. The simple and straightforward formula of the PC no longer holds with accuracy. Nevertheless, PC does highlight the dilemma faced by policy makers in pursuing an anti-inflationary policy which can also result in a fall in output and employment. In times of cost push inflation, full employment at real income level becomes maintainable only at rising price levels. Thus, maintaining price stability is often at the cost of real output.

Caution PC has little relevance to the Indian economy. Here unemployment is chronic and is largely the result of high population growth. Little dent has been made on the level of unemployment despite moderate to high rates of inflation since the second five year plan period. As a result, we have both – a high rate of inflation and high rate of unemployment.

Thus, the long run Phillips curve is vertical at the natural rate of unemployment. Because expectations of inflation lag behind actual inflation, there exists a temporary trade-off between inflation and unemployment. But the trade-off is an illusion and as soon as expectations catch up with actual inflation, the economy will return to the natural rate of unemployment (Figure 11.3).

Figure 11.3



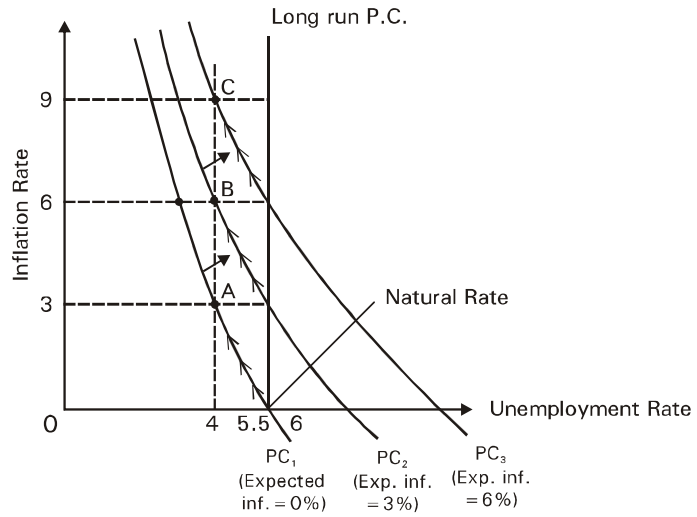
11.3.2 Stagflation

The combination of high and accelerating inflation and high employment is known as stagflation. When the government utilises expansionary monetary or fiscal policy in an attempt to lower unemployment below the natural rate, expectations of inflation exceed actual inflation and the short run Phillips curve shifts upward. Inflation continually increases until government gives up its attempt to do the impossible.

Notes

Figure 11.4 shows that the economy starts at an equilibrium of zero actual inflation, zero expected inflation, and 5.5 per cent unemployment which, let us suppose, happens to be the natural rate of unemployment. Now government comes along and expands the economy with expansionary monetary or fiscal policy to point A on the short run curve so that there will be 3 per cent inflation and 4 per cent unemployment. The 3 per cent actual inflation exceeds 0 per cent expected inflation, which causes a shift up in expectations of inflation. This increase in expectations causes the short run curve to shift up from PC_1 to PC_2.

Figure 11.4



Example: After expectations of inflation have shifted up fully, instead of being able to achieve 4 per cent unemployment at B, let us say the government is willing to accept 6 per cent inflation and uses expansionary monetary or fiscal policy to try to maintain unemployment at 4 per cent, which is 1.5 per cent below the natural rate. Expectations of inflation would shift upto 6 per cent and the short run curve would shift up to PC_3. Now, the government finds that to keep the economy at 4 per cent unemployment would require an even more expansionary policy and an inflation rate of 9 per cent (C). And even that 9 per cent is only temporary; as long as the unemployment rate is less than the natural rate, actual inflation will be above expected inflation, the short run curve will be shifting up, and inflation will be accelerating.

Caselet

India's Agricultural Sector Slipping into Stagflation

Indian governments hate inflation , but inflation seems attached to this government like an irritating limpet. For most of 2010, the government battled to bring down the rate at which prices went up and by November, 2010 its efforts seemed to be working: headline inflation slipped to 7.5%. But the following month, it's roared back up to 8.4%. Worse, the surge is being driven by something that hits people straight in the gut: food prices.

This worried everyone, including Prime Minister Manmohan Singh so much, that he spent two days last week meeting his senior Cabinet colleagues to find out exactly what's driving prices up and what to do about it.

Contd...

Notes

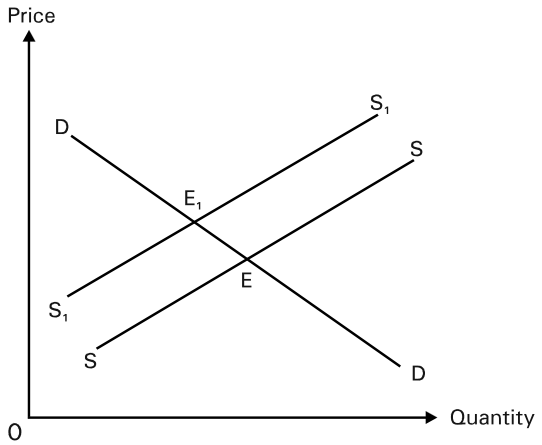
Most of the time, prices go up because there's too much money chasing too few things. That sort of inflation is relatively easy to bring to heel, by getting central banks to raise interest rates and suck out the excess cash from the system. That, alas, doesn't seem to be working anymore.

Source: www.articles.economictimes.indiatimes.com

Stagflation Needs 'Shock' Treatment

There is a nagging fear these days that India is facing the risk of stagflation, an economic affliction first noticed in the 1970s in the Western countries. Even now, the causes and nature of stagflation are matters of controversy. The nature of stagflation is explained best in terms of the supply demand equilibrium normally depicted as shown in Figure 11.5.

Figure 11.5



The point E at which the supply line SS intersects the demand line DD is the equilibrium point at which the goods supplied by producers exactly equal the goods demanded by consumers.

Suppose, for some reason or the other, the market suffers a shock that suddenly raises the cost of production. (According to the theory of Rational Expectations, only a shock, the more unexpected the better, will lead to permanent change.)

In sympathy with the increase in production costs, the supply curve will shift upward to S_1S_1 and, hence, the equilibrium point will move from E to E_1.

With this shift, the price levels rise and at the same time, the quantities bought and sold become less. The price increase indicates inflation: the decrease in quantity implies recession. So we get both inflation and recession simultaneously. That is exactly what stagflation is.

In other words, stagflation will result whenever a sudden shock increases costs of supply. The stagflation of the 1970s was caused by the sudden increase in oil prices enforced by the OPEC.

Task Find out more about the stagflation of the 1970s what factors lead to it, what was the role of OPEC, what did the government do, etc.

Notes

Example: In India, there have been, not one, but three shocks all occurring simultaneously; One, pay raises of government employees; two, reprisals against the Pokhran test; and three, the East-Asian meltdown. So, we are indeed under the threat of stagflation. How can we avoid that infection?

One remedy is that of Keynes. Unfortunately, his method works only when budget deficits are pumped into productive investment, and productive investment, only. In India, the moment politicians and bureaucrats see the sight of any money (however artificially), they squander it on useless consumption.

So, all these years, what we have got is a lot of inflation but little growth.

Example: Since planning began, the salaries of Class-D employees have gone up a hundred times but their real incomes have barely doubled. That is 98 per cent of all salary increases paid out of budget deficits have gone down the inflation train, and barely 2 per cent has been the real benefit. Let us admit it: our politics will not let deploy budget deficits wisely and productively. So, Keynes is not for us!

These days, fashion favours privatisation. That is attractive and persuasive in theory. However, there is a catch. Along with privatisation, there should be a corresponding reduction in government employment. Unfortunately, that is impossible in our country.

Liberalisation has eliminated much of the work that used to be done by DGTD and by the Department of Electronics. There has however, not been any reduction in numbers employed on that account. In practice, the situation is worse.

Instead of cutting down on surplus employees, the government economises on essential expenditure on back needs like infrastructure, education and health. That generates bottlenecks all around.

Example: Private enterprise may produce more cars but there will be no roads to ride on. Even the few roads that are there will be so full of potholes as to be worthless. So, however, rosy may be the dreams of supply side economics, they are not realised in practice.

Both these solutions – the Keynesian and the supply side ones – are essentially losing games as the genius of Indian politics is more for losing than for winning. We have not been able to deploy either technique without losing a lot and winning but little. However, there is a third solution – a win-win game. Just as stagflation results from a shock, its cure also needs a shock, a countershock!

Suppose some shock (or a set of shocks) is introduced which will drive the supply curve downwards, not upwards. That is, suppose the figure is viewed the opposite way; assuming the supply curve is shifted from S_1S_1 to SS. Then, equilibrium will shift from E_1 to E. In that case prices will decrease and simultaneously output will increase – we will win on both counts.

Is it indeed possible to drive the supply curve downward? It is. That is what technology does all the time. By definition, improved technology cuts down the cost of men, material and money. Thereby, it lowers the supply curve and generates growth without inflation. There is no dispute that we need better technology. It is also accepted that Indians are adapt at technology– particularly when they work abroad.

So, we have the intellectual base needed to generate technology. What we do not have is the managerial skill to make good use of the technological abilities we possess. Basically, more than technology, we need better management of technology.

Notes

If we learn to manage technology; profitable technology will follow automatically. To achieve this, what should government and private enterprise do?

1. Invest primarily in innovation, only incidentally in machines. Indian businessmen think that better technology means new machines. A machine, particularly an imported one, is like a banana peel. What any foreigner will sell us will be either obsolete or overpriced. When he sells, he will see to it that the machine will only give a return marginally above the cost of capital. Ideas yield several times more. Bill Gates buys ideas, not machines.

2. When it comes to technology, bankers should ask for a share of probable profits not for guaranteed interest. If you want to lend money on interest, go to a businessman. If a technologist is your client, get a share of the profits he is likely to make. Our bankers think technology is risky and trade is safe.

   Yet our banks are full of non-performing assets – all of them lend to traditional "safe" business. On the other hand, if a bank had lent money to Infosys on a profit sharing basis (and not on interest), it would have made a killing.

3. Respect talented engineers and reward them properly. In India, design engineers are placed at the bottom of the heap – they are treated as the lowest breed, even among engineers. Indian industry respects finance managers the most. The attitude must change. Productive engineers must be put on top.

4. To take an analogy, what finance managers do is similar to import substitution. What innovative engineers can do is like export promotion. For the former, the horizon is initially limited, for the latter, the entire universe is the playing field! If an engineer-oriented company, such as Wipro, has overtaken every traditional business in the country that is no accident.

5. Demand rural connectivity, not tax concessions: Silicon Valley is not inside any big city but in the rural hinterland. Instead of spreading themselves in rural areas, businessmen squeeze into more and more congested and hence, more and more expensive cities.

   Then, they go begging for tax concessions, which, like Keynesian pump priming, turn out to be 98 per cent inflation and only 2 per cent substance. A wise businessmen will demand from the government not tax concessions but enough connectivity in the rural areas to make them worth investing in.

6. Start no project without full financial and political closure: politicians love to inaugurate projects without proper preparation. Result; Projects get bogged down for want of finance and also due to political opposition. Once the project starts, there should be zero delay.

Does all this look like simple common sense? Try it. It will give you a healthy shock!

When, due to supply bottlenecks, the aggregate output in the economy stagnates or fails to grow at a rate equal to the rate of increase in the aggregate demand, the result is stagnation plus inflation, or stagflation, in short form. Stagflation is a paradoxical situation in which sustained and substantial price increases are accompanied by stagnating output and rising unemployment. The level of stagflation has often been measured by the so-called "discomfort index," which is simple arithmetic – summing up of the unemployment rate and rate of inflation.

Did u know? Stagflation is a fairly recent phenomenon. It emerged in the industrialised countries in the seventies and has been making frequent bouts since then in these countries. Stagflation in advanced economies has often affected the development of poor economies. The severe recession in Europe hit hard several poor economies of the Asian and African countries as these depended heavily on their uncertain exports of new materials.

Notes

The Indian economy experienced stagflation during the mid-60s and the mid-70s and again during 1990-93 when high rates of inflation have coexisted with very low rates of growth. The rate of growth of real national income between 1964-65 and 1974-75 was 1.35% per annum while the average rate of inflation during the same period was over 9% per annum. Stagflation reappeared towards the close of the 7th five year plan when a double digit inflation coupled with near stagnation of real national output threatened to throw the economy out of gear. Several industries under the grip of recession were forced to curtail their output substantially, leading to worsening of the industrial employment situation.

Self Assessment

Fill in the blanks:

10. The negative slope of Philips Curve suggests that the rate of inflation and the rate of unemployment are ..... related.
11. The Philips Curve gets ..... at low rates of unemployment.
12. When the unemployment rates are ....., trade unions tend to press for higher money wages.
13. The combination of high and accelerating inflation and high employment is known as .....
14. Philips Curve is usually thought of as relating price inflation to .....
15. Philips Curve has a ..... slope.

11.4 Summary

- Inflation has its impact on the industry normally through the impact it exercises on such Macro Economic variables like interest rate prevailing in the economy, growth rate experienced, investment and credit off take et al besides of course the impact on availability and dearness of factors of production.
- Demand pull inflation is usually controlled by monetary and fiscal policies. According to monetarist approach to inflation which is rooted in the quantity theory of money, demand pull inflation is basically caused by excessive monetary expansion.
- Monetary and fiscal policies are often ineffective in controlling the cost push or supply inflation, since their immediate focus is on curbing aggregate demand. Cost push inflation is not the result of aggregate demand rising in excess of full employment output in the economy.
- Inflation can be controlled by using monetary policy, fiscal policy, wage control, price control and indexation.
- Phillips found negative relation between the rate of wage increases and the rate of unemployment in England during the period 1862-1957.
- The negative slope of PC suggests that the rate of inflation and the rate of unemployment are inversely related. The curve also implies that a fairly high percentage of unemployment is necessary for maintaining non-inflationary price stability.
- The combination of high and accelerating inflation and high employment is known as stagflation. When the government utilises expansionary monetary or fiscal policy in an attempt to lower unemployment below the natural rate, expectations of inflation exceed actual inflation and the short run Phillips curve shifts upward. Inflation continually increases until government gives up its attempt to do the impossible.

Notes

11.5 Keywords

External Commercial Borrowings: It is an instrument used in India to facilitate the access to foreign money by Indian corporations and PSUs (Public Sector Undertakings).

Fiscal Policy: Government spending policies that influence Macro Economic conditions.

Full Employment: A situation in which all available labor resources are being used in the most economically efficient way.

Indexation: A system of economic control in which certain variables (as wages and interest) are tied to a cost-of-living index so that both rise or fall at the same rate and the detrimental effect of inflation is theoretically eliminated.

Monetary Policy: Actions of a central bank, currency board or other regulatory committee that determine the size and rate of growth of the money supply, which in turn affects interest rates.

Philips Curve: Graphic description of the inverse relationship between wages and unemployment levels (higher the rate of change of wages, lower the unemployment, and vice versa).

Stagflation: A situation in which the inflation rate is high and the economic growth rate is low.

Unemployment: A situation where someone of working age is not able to get a job but would like to be in full time employment.

11.6 Review Questions

1. Discuss the consequences of inflation.
2. Suggest various control measures for inflation.
3. Explain stagflation and suggest appropriate treatment for it.
4. What do you mean by money illusion? Why is the existence of money illusion important to the derivation of the short run Phillips Curve?
5. Examine a tradeoff between wage inflation and unemployment. Why will attempts to bring the unemployment rate below the natural rate result in accelerating rates of inflation. How relevant is the Phillips curve phenomenon in overpopulated developing economies like India?
6. What economic rationale can be advanced to explain the Phillips curve? Why do those who believe in a natural rate of unemployment contend that the Phillips curve is vertical in the long run?
7. Can cost push inflation be controlled using the same measures that are used to control demand pull inflation? Why? or Why not?
8. Give the arguments against the concept of Philips Curve? Are those arguments valid?
9. Explain graphically the effect of stagflation on an economy.
10. State any one incident that lead or can lead to a stagflation situation.

Answers: Self Assessment

1.	True	2.	True
3.	False	4.	True

Notes

5.	False	6.	(c)
7.	(b)	8.	(d)
9.	(b)	10.	inversely
11.	steeper	12.	low
13.	Stagflation	14.	unemployment
15.	negative		

11.7 Further Readings

Books

Chris Mulhearn, Howard. R. Vane and James Eden, *Economics for Business*, Palgrave Foundation, 2008

Dr. Atmanand, *Managerial Economics*, Excel Books, Delhi.

Lipsey & Chrystal, *Economics*- Indian Edition, Oxford University Press., 2007

Online links

http://www.indiainfoline.com/Markets/News/How-to-control-Inflation/4907123683

http://www.econlib.org/library/Enc/PhillipsCurve.html

http://tutor2u.net/economics/content/topics/inflation/philips_curve.htm

http://moneyterms.co.uk/stagflation/

Notes

Unit 12: Balance of Payments

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Objectives

After studying this unit, you will be able to:

- Describe the concept of Balance of Payments (BOP);
- Identify the factors that cause imbalance in BOP;
- Know the measures to correct BOP imbalances;
- Discuss India's BOP trends;
- Explain the automatic adjustment mechanism.

Introduction

The BOP is a statistical account of the transactions between residents of one country and residents of the rest of the world for a period of one year or fraction thereof.

It is a systematised procedure for measuring, summarising and stating the effects of all financial and economic transactions.

The BOP statistics reflect all the economic transactions of a country vis-à-vis rest of the world for which payment may or may not be involved. These transactions may include exchange of goods and services or there may be loan transactions, gifts and grants, or short-term, long-term and portfolio investments.

For all these transactions, except gifts and grants, payment is involved in foreign currency.

A transaction is recorded as being either a credit or a debit depending on the direction of the payment. If the transaction results in a cash outflow, it is recorded as a debit. Likewise, if the transaction results in a cash inflow it is recorded as a credit.

Notes

12.1 Introduction to BOP and Types of Accounts

The BOP is divided into three different accounts:

The Current Account

The current account records the net flow of goods, services and unilateral transfers, or in other words, gifts. This includes inflows and outflows of items such as tourism, transportation, military expenditures and investment income. The nature of this account is reflected by its name, i.e., the BOP resulting from activity during the period under consideration.

The Capital Account

The capital account records the net flow of FDI in plant, equipment and long-term, short-term portfolio (debt and equity) investment. FDI are those investments in which management control of the asset is retained. An investment by a firm into a subsidiary operation overseas, which the parent firm controls, would be considered a transaction in this category. Long-term investments are those having a maturity time of greater than one year. Likewise, short-term investments are those having a maturity of less than one year. Additionally, the borrowings and lendings of government are included in the capital account.

The Official Reserve Account (ORA)

The ORA measures changes in the holdings of foreign currency, SDRs and gold by the central bank of a nation. It takes into account the surplus or deficit resulting from the current account and capital account transactions.

Caution In the accounting format, balances on individual accounts can be worked out as follows:

(a) Trade balance (merchandise A/c) = Merchandise exports - merchandise imports (X - M).

(b) Current account (includes earnings and expenditure for services and "invisible" trade items).

= Balance on goods, services and income + Unrequired transfers (determined autonomously because of pricing, quality of similar factors).

(c) Basic balance = Current A/c + long-term capital flows including FDI (autonomous).

(d) Overall balance/Official settlement balance

= Basic balance + Short-term capital movements + Errors and omissions.

The transactions in the current account, capital account and statistical discrepancies are treated as autonomous in BOP accounting format whereas, entries in the official settlement account are treated as compensatory items.

Notes

The Total Balance of Payments

The BOP is just the sum of these three accounts and is calculated as follows:

BOP = Current Account Balance + Capital Account Balance + Change in Official Reserves Account

BOP = BCRA + CPA + ORA

The BOP must always equal 0, i.e., balance since it is an accounting identity in a fixed exchange rate system. If for some reason, the CRA and CPA do not sum to 0, then the government must take action by adjusting the ORA so that BOP equals 0. The government does this by buying or selling foreign currency and gold, depending on the situation, up to a total that equals the CRA and CPA.

On the other hand, in a floating rate system, the government is not obligated to act. Market forces would act to adjust the exchange rate as necessary to force the BOP back to 0.

Example:

BALANCE OF PAYMENTS ACCOUNT OF A COUNTRY FOR A PARTICULAR YEAR					
Credit Items (Receipts)			**Debit Items (Payments)**		
(1) Current Account (Rs. in crores)					
1.	Merchandise Exports	200	1.	Merchandise Imports	300
2.	Services Exported	100	2.	Services Imported	200
3.	Investment Income (accrued from investment in foreign countries)	100	3.	Investment Income (accrued by foreigners from their investment)	200
4.	Unilateral Receipts	200	4.	Unilateral Payments	100
	Sub Total	***600***		***Sub Total***	***800***
(2) Capital Account					
5.	Long-term Borrowings	200	5.	Long-term Lending's	80
6.	Short-term Borrowings	100	6.	Short-term Lending's	60
7.	Gold Shipment (Sale of Gold)	100	7.	Gold Shipment (Purchase of Gold)	50
	Sub Total	***400***		***Sub Total***	***190***
			8.	Errors & Omissions	10
	Total Receipts	**1000**		**Total Payments**	**1000**

Source: www.kalyan-city.blogspot.com

12.1.1 Equilibrium and Disequilibrium in Balance of Payments

When payments are larger than receipts in international transactions, it is called deficit balance of payments, but when receipts are larger than payments, it is called surplus balance of payments. There are four main ways of measuring surplus or deficit:

(a) ***Balance on Current Account:*** This includes the balance of visible and invisible items and unilateral transfers.

(b) ***Basic Balance:*** It includes only the current account balance and the long-term capital account balance.

Notes

(c) ***Net Liquidity Balance:*** It includes the basic balance plus the short-term private non-liquid capital balance.

(d) ***Official Settlement Balance:*** It is the total of the net liquidity balance plus the short-term private non-liquid capital balance.

An analytical approach is to consider the balance of payments as the difference between receipts from and payments to foreigners by the residents of a country. Thus,

$$B = R - P$$

Where, B= Balance of payments, R= Receipts and P = Payments

If B = O, BP is an equilibrium

If B = (+), BP is surplus (BP is balance of payments)

If B = (-), BP is in deficit

Task Try to find out the current account, capital account and Official Reserve Account balances of any one developed and one under developed country.

12.1.2 Types of Equilibrium

Equilibrium is that state of the balance of payments over the relevant period of time which makes it possible to sustain an open economy without severe unemployment on a continuing basis. There are two types of equilibrium:

Static Equilibrium: It is one in which the exports equal imports including exports and imports of services as well as goods, and other items on the balance of payments such as short-term capital, long-term capital and monetary gold are in balance zero.

Dynamic Equilibrium: The condition of equilibrium for short periods of time is that exports and imports differ by the amount of short-term capital movements of gold and there are no large destablishing short-term capital movements.

12.1.3 Types of Disequilibrium

There are three main types of disequilibrium:

1. ***Cyclical Disequilibrium:*** This is caused by countries having different cyclical patterns of income or the same income pattern with different income elasticities or identical income patterns and income elasticities with different price elasticities.

2. ***Secular Disequilibrium:*** This is a long-term phenomenon. It is caused by persistent deep rooted dynamic that slowly takes place in the economy over a long period of time. Secular disequilibrium is caused by dynamic forces such as population growth, territorial expansion and technological development.

   Technological changes are another major cause of disequilibrium in the balance of payments. Each technological change implies a new comparative advantage which other country adjusts but the adjustment process itself produces a balance of payment deficit.

3. ***Structural Disequilibrium:*** It occurs on account of structural changes in some sectors of the economy at home or abroad which may alter demand or supply relations of exports on imports or both. Structural disequilibrium at factor level results from factor prices that fail to reflect accurately factor adjustments.

Notes

Transitory and Fundamental Disequilibrium

Transitory or temporary disequilibrium is purely temporary and self-correcting. It does not involve the complex problem of adjustment.

Disequilibrium is fundamental if it progressively deteriorates and if it is a chronic long-term problem. It requires correction and adjustment. However, there is no one clear test for fundamental disequilibrium.

Self Assessment

Multiple Choice Questions:

1. Which of these is not included in the current account of BOP?

   (a) Expenditure on tourism (b) Expenditure on defence

   (c) Investment income (d) Government lendings

2. Maturity period for short-term investments is .....

   (a) Less than one year (b) Two years

   (c) Three years (d) Five years

3. BOP must always be equal to:

   (a) 0 (b) 1

   (c) GDP (d) Government spending

4. .....balance includes the basic balance plus the short-term private non-liquid capital balance.

   (a) Current account (b) Basic

   (c) Net liquidity (d) Official settlement

5. ..... disequilibrium is caused by persistent deep rooted dynamic that slowly takes place in the economy over a long period of time.

   (a) Cyclical (b) Secular

   (c) Structural (d) Fundamental

12.2 Factors Responsible for Imbalances in BOP

The following factors are responsible for imbalances in BOP:

1. Short-term disturbances like floods, crop failures, drought and so on may raise imports and reduce exports.
2. Increase in income may lead to more imports and less exports.
3. Initiation of development plans may necessitate more imports, while exports of raw materials may be curtailed.
4. While the prices of imports are rising for Least Developed Countries (LDCs), the prices of exports are almost sticky.
5. Exports of a country may reduce due to (a) contraction of the economy, (b) government policy, (c) reduction in exportable surplus, (d) higher home consumption, (e) circulation of better quality and new goods, (f) increase in income.

Notes

6. Structural changes may change the demand for exports and imports adversely.
7. High rate of growth of population may necessitate more imports and a reduction in exports.
8. Import restrictions and tariffs by developed countries is another reason for disequilibrium in the balance of payments of LDCs.

Correction of Disequilibrium (Adverse Balance of Payments)

The following are the principal methods for adjusting the adverse balance of payments:

1. ***Adjustment under Gold Standard:*** In the classical gold standard system, disequilibrium was corrected by price-specific flow mechanism. A deficit leads to outflow of gold and thereby to a reduction in money supply which reduces the price level and promotes exports and discourages imports. So, deficit is corrected.
2. ***Adjustment under Flexible Exchange Rate:*** Deficit is corrected automatically by a depreciation of its currency.
3. ***Income Adjustment Mechanism:*** If exports go up, national income goes up, purchasing power goes up and imports also go up.

Did u know? If MPS = 0, then increase in imports will be equal to increase in exports. MPS means marginal propensity to save.

4. ***Adjustment under Gold Exchange Standard (Fixed Exchange Rate):*** The gold exchange standard was set up after World War II and lasted until 1971. Under this, the exchange rate was fixed in terms of dollar or gold. The exchange rates were then allowed to vary 1 per cent up or down. The deficit could be settled in gold or in dollar. Automatic adjustment is possible under this system.

Example: If exports increase, income increases. Therefore, prices in the surplus country go up. This discourages exports and encourages imports.

The surplus nation's exchange rate may appreciate and it can get an inflow of reserves leading to greater money supply and lowering of rate of interest. All these may lead to increased imports, capital outflow and reduced exports.

If permitted to operate, the above automatic adjustment mechanisms are likely to bring about adjustment in BOP. But nations may not permit them to operate for fear of unemployment and inflation. Therefore, some policies are necessary to complete the adjustment.

5. ***Expenditure Changing Policy:*** Expenditure adjusting policies are monetary and fiscal tools. A restrictive monetary policy leads to a reduction in investment and income, thus reducing imports. Therefore, a restrictive monetary policy by reducing expenditure corrects an external deficit.

However, under the policy of Operation Twist, short-term rate of interest is raised to attract short-term capital from abroad which will cure the balance of payment deficit and at the same time does not disturb economic growth and capital formation (long-term rate is kept constant).

Fiscal policy may be very helpful for reducing expenditure. Taxes may be raised and public expenditure may be reduced. Both, restrictive monetary and fiscal policies, will be deflationary in character and will stimulate exports and discourage imports.

Notes

Caselet

UAE BOP Deficit Turned into Surplus

The balance of payments is the country's primary record of all trade and financial transactions conducted with the outside world. These transactions reflect the economic strength of the national economy and the degree of its adaptability to changes in the global economy since they gauge the size and structure of both exports and products, including factors that influence them such as the size of investments, employment levels and pricing. As an oil exporter, oil and natural gas exports have allowed the United Arab Emirates (UAE) to sustain a current account surplus for many years, but changes in the oil prices cause this surplus to fluctuate widely from one year to year.

The decline in oil prices during 2009, led to a noticeable deficit in UAE's balance of payments due to the decline in the hydrocarbon revenues and exports, as the average price of UAE's Murban crude oil, produced by Abu Dhabi National Company, reached USD 63.7. However, during 2010, Murban crude oil price increased to reach USD 79.85.

Consequently, UAE's current account surplus, the main component of the balance of payments, surged to AED 41.3 billion (2010), compared to AED 28.8 billion (2009). This surplus was attributed to the increased oil exports beside the high per-barrel prices in the global markets. Correspondingly, the current account balance reached 3.8% of GDP in 2010.

This was also accompanied by a large improvement in the capital and financial account resulting from an increase in direct investment inflow to AED 7.1 billion (2010) from AED 4.7 billion (2009) along with a decline in the outflow to AED 7.4 billion compared to AED 10 billion (2009). Besides, funds outflow by banks in 2010 also plunged to AED 4.7 billion from AED 36.28 billion (2009). As a result of this, the capital and financial account achieved a surplus of nearly AED 7.4 billion in 2010 compared to the AED 35.5 billion deficit in 2009.

Accordingly, UAE's balance of payments has turned from the AED 22.5 billion fiscal deficit in 2009 to AED 26.9 billion surplus in 2010. Furthermore, it is forecasted that the country's current account will post a robust surplus in 2011. This is expected to be driven by higher oil prices and a sustained recovery in tourism and exports as well as the country's increasing reputation as a safe haven in a volatile region.

Source: Middle East & Africa CEIC Database Team

Expenditure-Switching Policy

Expenditure switching policy primarily aims at changing relative prices and it includes variation in exchange rate, exchange control, devaluation, import control and export promotion.

Devaluation

It means an official reduction in the external value of a currency vis-à-vis gold or other currencies. Depreciation is also a fall in the external value of a country's currency, not officially, but to the influence of market forces – demand and supply. Devaluation lowers export prices and increases import prices. However, it has many limitations. If the economy is already at full employment, devaluation would be effective only if domestic expenditure or absorption were reduced automatically by cash balance effect, money illusion and income distribution or by expenditure-reducing policies.

Notes

Exchange Control

Exchange control refers to government regulation of exchange rate as well as restriction on the conversion of local currency into foreign currency. Under this system, all exporters are asked to surrender their foreign exchanges to the central bank. Then foreign exchanges are rationed out to licensed importers. The aim of exchange control is to bring about an equality between the demand for and the supply of foreign exchange through state intervention and control.

Direct Controls

Direct controls take the form of exchange control, capital control and commodity control. Imports and exports can be directly controlled by various measures.

Devaluation

The home currency may be deliberately deflated. In that case, prices will come down and exports would be promoted and imports restricted.

Import Restriction and Export Promotion

Imports may be restricted by tariff, quotas, duties, licenses and so on. Exports may be promoted by giving bounties, incentives, tax concessions, advertisement and publicity, cost reduction, quality improvement and the like.

However, every one of the above methods has its own limitations.

Example: Deflation is dangerous, depreciation is temporary and retaliatory, devaluation is inflationary and exchange control is difficult to administer. Therefore, sometimes it is said that it is easy to control output and employment, but harder to control balance of payments.

Self Assessment

Fill in the blanks:

6. If MPS = ..., then increase in imports will be equal to increase in exports.
7. ..... means an official reduction in the external value of a currency vis-à-vis gold or other currencies.
8. ..... refers to government regulation of exchange rate as well as restriction on the conversion of local currency into foreign currency.
9. Under ..... , the exchange rate was fixed in terms of dollar or gold.
10. ..... in income may lead to more imports and less exports.

12.3 India's Balance of Payments

Prior to 1956-57, for most years in the fifties, India had a current account surplus. But the position changed in 1956-57, when India faced BOP crisis. The trade deficit increased from 3.8 per cent of GDP at market prices to 4.5 per cent.

The BOP position deteriorated once again in 1966-67. In 1965, the United States suspended its aid in response to Indo-Pakistan war and later refused of renew the PL 480 agreement on a

long-term basis. There was a concerted effort by the United States, World Bank, and the IMF to use external assistance as an instrument to induce India (a) to adopt a new agricultural strategy and (b) to devalue the rupee. The rupee was devalued by 36.5 per cent in June 1966, and tariff and export subsidies were simultaneously rationalized, on the understanding that the inflow of aid would be substantially increased.

The BOP improved after 1966-67 but largely because of the decline in imports. Exports performed indifferently despite the devaluation.

Balance of Payment in the Seventies: A Decade of Comfort: India's balance of payments remained comfortable during the Seventies. The adjustment to the first oil shock of 1973-74 was rendered smooth by a happy combination of buoyant exports, spurt in private transfer receipts and increased inflow of aid. Exports, benefited by the expansion in global trade, rose at an annual rate of 6.8 per cent in volume terms and by 15.6 per cent in US dollar terns during the decade.

Balance of Payments up to 1981-82: The Period of Difficulties: During the eighties, issues relating to the balance of payments came to occupy the centre stage in terms of India's Macro Economic management.

Balance of Payments during 1982-83 to 1984-85: Easing of Pressure: A reprieve came during the period 1982-83 to 1984-85, with the easing of pressure on the balance of payments mainly due to a decline in the volume growth of imports from an average rate of 11.0 per cent during 1978-82 to a little over 2 per cent. Net oil imports (net of crude oil ports which commenced in 1981-82 after the discovery of crude oil in Bombay High), declined substantially as domestic production spurted to 29.0 million tonnes by 1984-85. This indeed was the main cause of the easing of the lance of payments. Non-POL imports rose at an average rate of 3.6 per cent in dollar terms. Exports however, grew nearly at an average rate of 3.2 per cent, in volume terms, due to a combination of adverse internal and external conditions.

Balance of Payments During 1985-90: The Build Up to the Crisis: The second half of the eighties witnessed the buIlding up of strains on the balance of payments. Current account deficits acquired a structural character, remaining at high levels throughout. Large trade deficits occurred year after year despite a robust growth in exports. Recovering the stagnation in 1985-86, the volume growth of exports in the succeeding four years ranged between 10 to 12 percent per annum on an average. The share of manufactured exports rose from 56 per cent in 1980-81 to 75 per cent in 1989-90.

Notes

The BOP Crisis

1990-92: In 1991, India found itself in its worst balance of payments crisis since 1947. That there is a crisis in the making during the second half of 1980s had been evident for a long time. The inflow of foreign borrowings had increased at a rapid rate during the late 1980s. This was due to the excess domestic expenditure over income. Fiscal deficit of the Centre and the States soared to over 11 per cent in 1991. During this period total public debt as a proportion of GNP doubled reaching the level of 60 per cent and foreign currency reserves were depleted rapidly.

The major reasons for such a high growth rate in exports were:

1. World GDP grew by an average rate of 4.1 per cent per annum during 1994-97 compared with 2.4 per cent during 1990-1993.
2. World trade (dollar terms) grew by an average rate of 9.8 per cent per annum during 1994-1997 compared with 6 percent during 1990-1993.

Notes

3. Imports of advanced countries (dollar terms) grew by an average rate of 11.5 per cent during 1994-1997 compared with 2.1 per cent during 1990-1993.

4. Increase in India's share in world exports of its three major commodity groups, viz. textiles, yam and fabrics, pearls, precious and semi-precious stones; and clothing and accessories during 1994-96.

5. Increase in the Index of Comparative Advantage (ICA) of the above.

6. Other export commodity groups in which India gained in terms of ICA during 1994-96 include fish and Iii preparations; rice; coffee and substitutes; organic chemicals; footwear; and gold and silver jewellery.

Poor Performance Since 1996: However, the boom was short-lived. Since 1996, India's export performance has been poor.

Caution There could be several explanations for this, Firstly, there has been a major downturn in world trade since 1996 which has affected India's trade as well. Export growth has been further hampered by an appreciation of the real effective exchange rate in 1996-97 and 1997-98. This trend has, however, been reversed since 1998-99. There has also been an adverse movement in terms of trade, which appears to have affected exports. Finally, there are the hosts of domestic factors-both public related and administrative-which continue to hamper imports. These include infrastructure constraints, high transaction costs, SSI reservations, labour inflexibility, quality problems and quantitative restrictions on export of agricultural commodities.

Balance of Payment during 1992-2002: The impact of the continuum of reforms initiated in the aftermath of the balance of payments crisis of 1991 on India's current account and capital account resulted in an accumulation of foreign exchange reserves of over US $ 70 billion as at end-February 2003. Capital account surplus increased from US $ 3.9 billion during the 1980s to US $ 8.6 billion during 1992-2002; with a steadily rising foreign investment. As a proportion of GDP, capital flows increased from 1.6 per cent during 1980s to 2.3 per cent during 1992-2002. The significant increase in capital flows during the 1990s raises the issue of their determinants as well as their impact on growth.

Table 12.1: Major Items in India's BOP (in US $ Millions)

	(2007-08) (PR)	(2008-09) (P)	April-December (2008-09) (PR)	April-December (2009-10) (P)
Exports	166163	175184	150520	124473
Imports	257789	294587	248967	213988
Trade Balance	-91626	-119403	-98446	-89515
Invisibles, net	74592	89587	70931	59185
Current Account Balance	-17034	-29817	-27516	-30330
Capital Account*	109198	9737	7136	41630
Change in Reserves# (+ indicates increase;- indicates decrease)	-92164	20080	20380	-11330

Including errors & omissions; # On BoP basis excluding valuation; P: Preliminary, PR: Partially revised. R: revised

Source: Reserve Bank of India Report

The key features of India's BOP that emerged in Q3 of fiscal 2009-10 were: (i) Exports recorded a growth of 13.2 per cent during Q3 of 2009-10 over the corresponding quarter of the previous

Notes

year, after consecutive declines in the last four quarters. (ii) Imports registered a growth of 2.6 per cent in Q3 of 2009-10 after recording consecutive declines in the last three quarters. (iii) Private transfer receipts remained robust during Q3 of 2009-10. (iv) Despite low trade deficit, the current account deficit was higher at US$ 12.0 billion during Q3 of 2009-10 mainly due to lower invisibles surplus. (v) The current account deficit during April-December 2009 was higher at US$ 30.3 billion as compared to US$ 27.5 billion during April-December 2008. (vi) Surplus in capital account increased sharply to US$ 43.2 billion during April-December 2009 (US$ 5.8 billion during April-December 2008) mainly on account of large inflows under FDI, Portfolio investment, NRI deposits and commercial loans. (vii) As the surplus in capital account exceeded the current account deficit, there was a net accretion to foreign exchange reserves of US$ 11.3 billion during April-December 2009 (as against a drawdown of US$ 20.4 billion during April-December 2008).

Major Highlights of BOP during October-December 2010 (Q3) of 2010-11

- On a BOP basis, exports recorded a growth of 39.8 per cent while imports registered a growth of 24.9 per cent, year-on-year, during Q3 of 2010-11.
- The trade deficit in absolute terms amounted to US$ 31.6 billion, broadly the same as in the corresponding quarter of last year.
- Net services recorded a growth of 49.3 per cent (as against a decline of 46.0 per cent a year ago) mainly due to strong growth in receipts led by travel, transportation, software, business and financial services.
- Private transfer receipts remained buoyant at US$ 14.1 billion during the quarter.
- Consequently, net invisibles balance under reference showed an increase of 17.0 per cent (as against a decline of 19.0 per cent a year ago).
- The Current Account Deficit (CAD) moderated to US$ 9.7 billion compared to the corresponding quarter of last year mainly due to recovery in the invisibles surplus.
- The capital account surplus increased marginally over the corresponding quarter of last year mainly due to higher net inflows under FII investments, external assistance, external commercial borrowings
- With capital account surplus being higher than the current account deficit, there was a net accretion to foreign exchange reserves of US$ 4.0 billion during the quarter.

Case Study

India's BOP Surplus Shrinks

India's balance of payments (BoP) recorded a small surplus of $1.8 billion (₹ 8,118 crore) in Q3FY10, smaller than the surplus of $9.4 billion recorded in the previous quarter. Quarter-on-quarter (Q-o-q), there was a slowdown on the capital account side. The current account was largely stable.

Current account deficit stood at around $12 billion during the quarter under review, not showing much movement either on q-o-q or year-on-year (y-o-y) basis. Trade deficit, which was on a widening trend since March 2009, shrunk marginally for the first time (from around $32 billion in Q2 to about $31 billion in Q3). Exports climbed around 13% y-o-y during Q3FY10 after consecutive declines in the previous four quarters. Imports also

Contd...

Notes

registered a growth of 2.6% y-o-y after registering declines in the previous three quarters. This largely reflects the ongoing recovery in the domestic economy and global trade.

The invisibles account (net) declined somewhat on sequential basis from $20 billion in Q2FY10 to $18.7 billion in Q3FY10. Among major heads of invisibles, gross software earnings improved. However, the positive effect of increased software earnings was negated by reduction in private remittances.

Capital account surplus in Q3FY10 at around $14 billion was significantly lower than $21 billion in the previous quarter. The lower capital account surplus had, in fact, been the direct cause of the deceleration in the overall BoP surplus in Q3FY10. Such slowdown in the capital account took place largely on the back of lower foreign direct investment (FDI) and portfolio inflows.

On the portfolio side, decline in both Foreign Institutional Investments (FIIs) and American depositary receipts/global depositary receipts contributed to the trend. However, increase in short-term trade credit compensated somewhat for the decline in foreign investment. The outgoing FDI remained stable, but inward FDI declined.

From an overall deficit of around $20 billion in April-December 2008, BoP turned into a surplus of around $11 billion during the corresponding period in 2009. The large swing was triggered mainly by the capital account. The capital account surplus expanded from a mere around $7 billion during the first nine months of FY09 to around $42 billion during the corresponding period in FY10. This trend can be largely explained by the liquidity injection by major central banks across the globe and the associated recovery in global risk appetite.

Trade deficit also improved over the stated period on account of faster fall in imports as compared with exports. The current account deficit, however, weakened further on account of lower earnings on the invisibles account.

Exports and imports continue to show improvement on sequential basis on the back of recovering global economy. We expect these trends to continue. The risk to that view may, however, arise from the possibility of any added trade protectionism adopted by some of the major economies, which cannot be ruled out.

Software earnings continue to provide support to the invisibles account. However, the rupee appreciation—not just against the dollar but also against the euro and pound—could hurt the invisibles as well as trade account in Q4FY10. Slowdown in FIIs and FDI flows has been observed in Q3FY10, although BoP was still in surplus. Going forward, the global risk appetite would be extremely crucial for FII flows. FDI trends are likely to be more resilient unless there is a fresh bout of global uncertainty.

Question:

Why do you think India's BOP surplus is shrinking?

Source: www.livemint.com

Major Highlights of BOP during April-December 2010

1. Despite improvement in net invisibles surplus, the current account deficit widened during April-December 2010 mainly due to higher trade deficit as compared to the corresponding period of last year. At this level, the CAD works out to 3.1 per cent of GDP during April-December 2010.

Notes

2. Net capital inflows increased significantly driven by higher net inflows under FII investments, external assistance, short-term trade credits, ECBs and banking capital.

3. Although net capital inflows increased significantly, accretion to reserves during April-December 2010 was marginally lower mainly due to widening of the current account deficit over April-December 2009.

Task Compare the BOP of India and China for 2009-2010.

Self Assessment

State whether the following statements are true or false:

11. India's BOP was worst during 1970s.

12. Despite improvement in net invisibles surplus, the current account deficit widened during April-December 2010.

13. Late 1980s and early 1990s was the best period for India's BOP.

12.4 Automatic Adjustment in BOP

BOP is in disequilibrium or deficit if imports (M) are greater than exports (X). The monetary and price effect approach is: when M > X, precious metals like gold and foreign exchange will disappear from the domestic economy. Thus, money supply will reduce. This will lead to a decline in the price level, more exports and less imports, thus correcting BOP deficit.

Monetary and price effects of BOP disequilibrium can also be expected to work under modern conditions. When a country's BOP is in deficit, surplus country will have to be paid in terms of foreign exchange which will be purchased by taking out domestic currency from banks. This will reduce bank deposits, thus decrease money supply, increase rate of interest which will reduce investment and then income, employment output and finally price level. The higher rate of interest will increase capital inflow which will reduce BOP deficit. Lower price now will boost exports and reduce imports, helping again to correct BOP deficit on disequilibrium.

However, the price effect of BOP is intermingled with income effect (Keynesian Income Effect). This can be understood from the analysis of foreign trade multiplier in the unit 7.

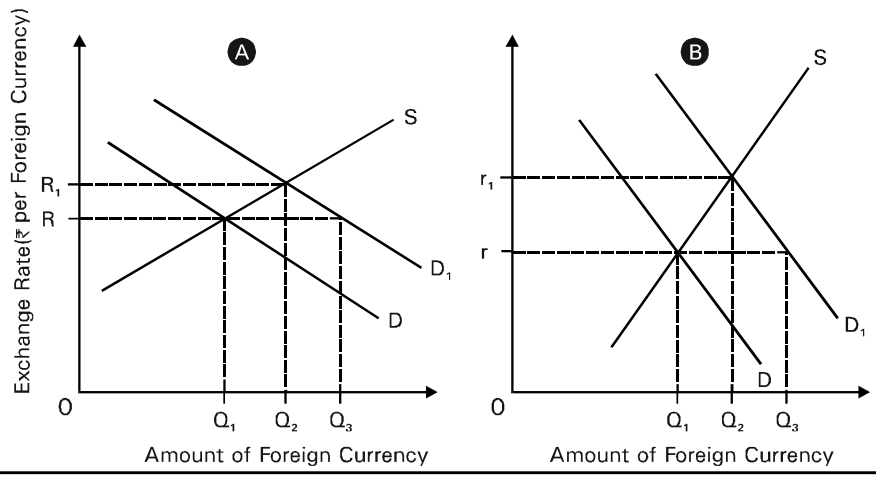
A flexible exchange rate has been adopted since 1971. In this system, the price of foreign currencies varies according to their market demand and supply position. The demand for foreign currencies is made by importers and investors and supply by exporters and immigrants. If people have to spend more local currency for getting foreign currency, its demand will increase and vice versa. Thus, the demand curve for foreign currency will have a negative slope and supply curve a positive slope.

The adjustment mechanism under this system will function through changes in relative prices of foreign exchange and finally in the relative prices of imports and exports. If demand is greater than supply (in BOP deficit), the exchange rate will rise. This will mean rising price of imports and fall in price of exports. These changes will ultimately bring about an equilibrium in demand and supply of foreign exchange and thus in BOP.

Equilibrium of BOP is attained at OR exchange rate (Figure 12.1). If the income of the country rises, import demand will rise and so also the demand for foreign exchange curve. Thus, the price of foreign exchange goes up to OR1 where equilibrium is brought about by exchange depreciation. So imports would be dearer and exports cheaper.

Notes

Figure 12.1: Amount of Foreign Currency



Where DD and SS curves are inelastic, exchange depreciation involves a greater amount as compared to the previous case. The elasticities of these curves would depend on many factors. The elasticity of demand for foreign exchange will depend e.g., on nature of importable goods (luxury or not), substitutability of importable goods and elasticity of supply of these goods in the foreign country. Similarly, the elasticity of supply of foreign exchange will depend upon the nature of exportable goods, elasticity of supply of exportable goods and time period.

Thus, in case of less elastic demand and supply of foreign exchange, BOP disequilibrium can be corrected by heavy exchange appreciation or depreciation, which might affect the national economy.

Advantages of Floating Exchange Rates

- ***Automatic BOP Adjustments:*** If, at the existing rate of exchange, country's BOP moves into deficit, then the quantity of that country's currency supplied to the foreign exchange market will exceed the demand for it. The currency will, therefore, depreciate against other currencies and, in consequence, demand for exports will increase (because they have become cheaper abroad) while demand for imports will fall (because they have become more expensive in the domestic economy). For a country whose BOP moves into surplus, the mechanism works in reverse.
- ***Freedom in Choice of Domestic Policies:*** Since BOP adjustment is automatic, the government is free to pursue policies in the domestic economy independently of BOP consideration.

Disadvantages of Floating Exchange Rates

- ***Reduced International Trade:*** This occurs because of uncertainty over what exchange rate will exist in the future when contracts fall due for settlement.
- ***Exchange Rate Instability:*** This is due to speculative pressures and will make it difficult for firms to plan future output and investment levels.
- ***Increased Inflational Pressure:*** Since equilibrium in the BOP is automatic, the element of discipline on nations to avoid inflationary pressure is reduced. Further, countries whose currencies depreciate will experience rising import prices and, where raw materials or semi-finished products are imported, this implies rising final prices. This is a cost push explanation of inflation.

Notes

Advantages of Fixed Exchange Rates

- ***Reduced Risk:*** By maintaining a fixed rate of exchange, international buyers and sellers of goods can agree on a price and not be subjected to the risk of later changes in exchange rates before contracts are settled.
- ***Discipline in Economic Management:*** Since the burden of adjustment to long-term disequilibrium in BOP is thrown out of the domestic economy, governments have an incentive to avoid a rate of inflation that is out of line with that of their major competitors.
- ***Elimination of Destabilising Speculation:*** Since exchange rates are fixed, it is sometimes suggested that there is no possibility of speculation causing an overvaluation or an undervaluation of exchange rate.

Disadvantages of Fixed Rates

- ***BOP Adjustment:*** They do not provide an automatic mechanism to restore BOP equilibrium and the burden of adjustment is thrown on to the domestic economy.
- ***Exchange Rate Instability:*** Fixed exchange rates are inherently unstable in the long run because different countries pursue policies which are mutually inconsistent under a system of fixed exchange rates. For example, if one country attaches greater importance to control of inflation than its trading partners, it is likely to experience a continuing BOP surplus. If this surplus persists, it will require persistent adjustment of exchange rates. The problem is that when fixed exchange rates are adjusted, there is an immediate and significant change in costs and prices which may adversely affect economies.
- ***International Transmission of Inflation:*** Fixed exchange rates lead to transmission of inflation from one country to that of its trading partners. This may happen when inflation in one country leads to an increase in the price of imports in other countries because price differences are not offset by changes in the exchange rate.

Self Assessment

Fill in the blanks:

14. BOP is in ..... or deficit if imports (M) are greater than exports (X).
15. In ..... exchange rate system, the price of foreign currencies varies according to their market demand and supply position.
16. ..... exchange rates lead to transmission of inflation from one country to that of its trading partners.

12.5 Summary

- The BOP is a statistical account of the transactions between residents of one country and residents of the rest of the world for a period of one year or fraction thereof.
- BOP is divided into 3 accounts: capital account, current account and Official Reserves Account. The current account records the net flow of goods, services and unilateral transfers; The capital account records the net flow of FDI in plant, equipment and long-term, short-term portfolio (debt and equity) investment; and The ORA measures changes in the holdings of foreign currency, SDRs and gold by the central bank of a nation.

Notes

- The BOP must always equal 0, i.e., balance since it is an accounting identity in a fixed exchange rate system.
- When payments are larger than receipts in international transactions, it is called deficit balance of payments, but when receipts are larger than payments, it is called surplus balance of payments.
- Short-term disturbances like floods, crop failures, drought and so on may raise imports and reduce exports, and Increase in income may lead to more imports and less exports lead to an imbalance in BOP.
- Prior to 1956-57, for most years in the fifties, India had a current account surplus. But the position changed in 1956-57, when India faced BOP crisis.
- A flexible exchange rate has been adopted since 1971. In this system, the price of foreign currencies varies according to their market demand and supply position.
- At the existing rate of exchange, country's BOP moves into deficit, then the quantity of that country's currency supplied to the foreign exchange market will exceed the demand for it. The currency will, therefore, depreciate against other currencies and, in consequence, demand for exports will increase (because they have become cheaper abroad) while demand for imports will fall (because they have become more expensive in the domestic economy).

12.6 Keywords

Balance of Payments: Record of all transactions made between one particular country and all other countries during a specified period of time.

Deficit Balance of Payments: When payments are larger than receipts in international transactions.

Devaluation: It means an official reduction in the external value of a currency vis-à-vis gold or other currencies.

Exchange Control: It refers to government regulation of exchange rate as well as restriction on the conversion of local currency into foreign currency.

Expenditure Switching Policies: It involves policies that cause domestic spending to switch away from imports to home produced goods

Floating Exchange Rate: A country's exchange rate regime where its currency is set by the foreign-exchange market through supply and demand for that particular currency relative to other currencies.

Official Reserve Account: It measures the foreign currency and securities held by the central bank, and is used to balance the payments from year to year.

Surplus balance of payments: When receipts are larger than payments in international transactions.

12.7 Review Questions

1. Explain the following: (a) The current account, (b) The capital account and, (c) The official reserve account.
2. Distinguish between balance of trade and balance of payments. What information would you get about the economic position of a country from its BOP?
3. Describe the term disequilibrium in balance of payments. State various conscious policy measures to correct this disequilibrium.

Notes

4. Discuss the advantages and disadvantages of both a fixed exchange rate and floating exchange rate system.
5. Support the statement: "It is best to offset a capital account surplus with a current account deficit".
6. Which is preferable: a fixed or a flexible exchange rate policy?
7. Compare India's BOP scenario in 2000's with that of the 1950s and 1960s.
8. 'India's BOP has always been far from desirable'. Comment.
9. Highlight the main points of India's BOP in 2009-2010.
10. 'Technological changes are a major cause of disequilibrium in the balance of payments.' Do you agree? Give suitable arguments to justify your answer.

Answers: Self Assessment

1.	(d)	2.	(a)
3.	(a)	4.	(c)
5.	(b)	6.	0
7.	Devaluation	8.	Exchange control
9.	Gold exchange standard	10.	Increase
11.	False	12.	True
13.	True	14.	disequilibrium
15.	flexible	16.	fixed

12.8 Further Readings

Books

Chris Mulhearn, Howard. R. Vane and James Eden, *Economics for Business*, Palgrave Foundation, 2008

Dr. Atmanand, *Managerial Economics*, Excel Books, Delhi.

Lipsey & Chrystal, *Economics*- Indian Edition, Oxford University Press, 2007

Online links

http://tutor2u.net/economics/revision-notes/a2-macro-balance-of-payments-deficits.html

http://www.economicshelp.org/Macro Economics/bop/probs-balance-payments-deficit.html

http://www.indiaonestop.com/economy/balanceofpayments/economy-macro-balance%20of%20payments.htm

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Unit 13: Macro Economic Policies: Monetary Policy

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Objectives

After studying this unit, you will be able to:

- State the objectives and relevance of monetary policy;
- Identify the instruments of monetary policy;
- Explain the transmission of monetary policy;
- Discuss the features of monetary policy in developing economies;
- Describe the conduct of monetary policy in open economies.

Introduction

Monetary policy is an important economic tool of Macro Economic policy of a country. It is formulated and implemented by the central bank of a country through wide network of financial institutions. It is designed with an objective to take care of economic conditions and to avoid any policy conflicts for achieving overall efficiency in the economy. Monetary policy includes all measures, which affect money supply, liquidity, cost and availability of credit.

In advanced countries, central authority or central bank only performs the function to control money market in order to bring reasonable degree of stability. On the contrary, in developing countries it plays a pioneer and dynamic role in accelerating economic growth with stability

and social justice. It not only controls the money market but also provides adequate resources for development.

In a narrow sense, monetary policy means monetary measures and decision of a country which aim at controlling the volume of money, influencing the level of interest rates, public spending, use of money and credit while, in a broader sense, it refer to the monetary system which deals with all those monetary and non-monetary measures and decisions having monetary effects. In this unit, you will be introduced to the various instruments of monetary policy, and its transmission and effectiveness.

13.1 Objectives and Relevance of Monetary Policy

Broadly speaking, the objectives of monetary policy include short run stabilization goal and long term economic growth and development goal. The following are the specific objectives of monetary policy:

1. High level of output (or national income)
2. High rate of economic growth
3. High employment
4. Price stability (or optimal rate of inflation – inflation rate is nominal anchor for monetary policy)
5. Low inequality in the distribution of income and wealth (equity objective)
6. External stability or healthy balance of payment position (stability of external value of domestic currency).

Monetary policy operates through changes in the stock of money. Money stock changes will influences the level of aggregate demand and so the level of output or income. Two characteristics of monetary policy are noteworthy. One is that it is an aggregative policy. Any allocational or sectoral problems are beyond its domain and these are the concerns of credit policy. Second is that it operates on the demand side and not on the supply side of the goods market (credit policy can affect even the supply side of goods market).

Caution The objectives stated above may come into conflict with each other. A high rate of economic growth objective may involve sacrificing to some extent the objective of high level of employment. The objective of low inflation rate may call for accepting relatively higher rate of unemployment (the trade-off implied by the Phillips curve). High growth rate objective may come into conflict with equity objective. This is so because higher degree of inequalities in income and wealth distribution are conducive to higher rate of saving and economic growth rate.

The trade-offs are economy-specific and change with the situation in which an economy finds itself.

Relevance of Monetary Policy

Changes in the money supply and also the source of that change in the money supply are extremely relevant. Policies that regulate changes in money supply are also extremely relevant to Macro Economic performance, e.g., banking policy, exchange rate systems, public finance, etc. These are all forms of monetary policy. Only because interest rates are an ineffective means of regulating monetary changes does not mean that monetary policy is irrelevant.

Notes

Did u know? Monetary policy is the most significant factor in explaining the slow rates of economic growth in our national economies. It can explain the downturn in South East Asia, including why China is not suffering from the fallout.

Money is the power that drives an economy. If the central bank regulates money appropriately, it can regulate the performance of the whole economy. However, if the central bank fails to do that, the whole economy will suffer for it. Economies like Europe, Australia, New Zealand, USA, Canada, Russia, and more recently, South East Asia have benefited a lot from it.

Caselet

How Does Monetary Policy Impact Individuals

In recent years, the policy had gained in importance due to announcements in the interest rates.

Earlier, depending on the rates announced by the RBI, the interest costs of banks would immediately either increase or decrease.

A reduction in interest rates would force banks to lower their lending rates and borrowing rates. So if you want to place a deposit with a bank or take a loan, it would offer it at a lower rate of interest.

On the other hand, if there were to be an increase in interest rates, banks would immediately increase their lending and borrowing rates. Since the rates of interest affect the borrowing costs of corporates and as a result, their bottomlines (profits), the monetary policy is very important to them also.

But over the past 2-3 years, RBI Governor Bimal Jalan has preferred not to wait for the Monetary Policy to announce a revision in interest rates and these revisions have been when the situation arises.

Since the financial sector reforms commenced, the RBI has moved towards a market-determined interest rate scenario. This means that banks are free to decide on interest rates on term deposits and loans.

Being the central bank, however, the RBI would have a say and determine direction on interest rates as it is an important tool to control inflation.

The bank rate is a tool used by RBI for this purpose as it refinances banks at this rate. In other words, the bank rate is the rate at which banks borrow from the RBI.

Source: http://www.rediff.com/money/2002/apr/25tut.htm

Self Assessment

State whether the following statements are true or false:

1. High employment and price stability are two of the main objectives of the monetary policy.
2. Monetary policy operates on the supply side and not on the demand side of the goods market.

Notes

3. The objectives of monetary policy are always in conflict with each other.
4. Monetary policy is the most significant factor in explaining the slow rates of economic growth in our national economies.

13.2 Instruments of Monetary Policy

To achieve the above objectives, modern central banks have several instruments of monetary policy. One is the open market operations. Expansionary monetary policy requires purchasing of government securities in the open market by the central banks. This will augment the supply of base or reserve money. This increase in reverse money enables banks to increase deposit money and hence money stock. Because the banks are required to maintain reserves of only a fraction of their demand and time deposit liabilities, the expansion of the money stock which can result from an increase in reserves is a multiple of the increase in the reserves.

A contractionary monetary policy involves selling government securities by central bank in the open market. The reserve money will decrease and the reduction in reserve money will eventually result in reduction in money stock.

Broadly instruments or techniques of monetary policy can be divided into two categories:

1. Quantitative or general techniques
2. Qualitative or selective techniques

13.2.1 Quantitative or General Techniques

1. ***Bank Rate or Discount Rate:*** Bank rate refers to that rate at which a central bank is ready to lend money to commercial banks or to discount bills of specified types. Thus by changing the bank rate, the credit and further money supply can be affected. In other words, rise in bank rate increases rate of interest and fall in bank rate lowers rate of interest. During the course of inflation, monetary authority raises the bank rate to curb inflation. Higher bank rate will check the expansion of credit of commercial banks. They will be left with fewer reserves, which would restrict the credit creating capacity of the bank. On the contrary, during depression, bank rate is lowered, business community will prefer to have more and more loans to pull the economy out of depression. Therefore, bank rate or discount rate can be used in both type of situation is inflation and depression.
2. ***Open Market Operations:*** by open market operations, we mean the sale or purchase of securities. It is known that the credit creating capacity of the commercial banks depend on the cash reserves of the bank. In this way, the monetary authority (Central Bank) controls the credit by affecting the base of the credit-creation by the commercial banks. If the credit is to be decreased in the country, the Central Bank begins to sell securities in the open market. This will result to reduce money supply with the public as they will withdraw their money with the commercial banks to purchase the securities. The cash reserves will tend to diminish. This happens in the period of inflation. During depression, when prices are falling, the central bank purchases securities resulting expansion of credit and aggregate demand also increases and prices also rise.
3. ***Variable Reserve Ratio:*** The commercial banks have to keep given percentage as cash-reserve with the central bank. In lieu of that cash ratio, it allows commercial bank to contract or expand its credit facility. If the central bank wants to contract credit (during inflation period) it raises the cash reserve ratio. As a result, commercial banks are left with fewer amounts of deposits. Their power to credit is curtailed. If there is depression in the economy, the reserve ratio is reduced to raise the credit creating capacity of commercial

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banks. Therefore, variable reserve ratio can be used to affect commercial banks to raise or reduce their credit creation capacity.

4. ***Change in Liquidity:*** According to this method, every bank is required to keep a certain proportion of its deposits as cash with it. When the central bank wants to contract credit, it raises its liquidity ratio and vice-versa.

Task Find out the cash-reserve ratio and the bank rate in India. Make a record of these rates for last 3 years.

13.2.3 Qualitative or Selective Techniques

1. ***Change in Margin Requirement:*** Under this method, the central bank change in the margin requirement to control and release funds. When the central bank feels that prices are rising on account of stock-piling of some commodities by the traders, then the central bank controls credit sanctioned by the method of raising margin requirement (Margin requirement is the difference between the market value of the assets and its maximum loan value).

Example: Let us suppose, a borrower pledged goods worth ₹ 1000 as security with a bank and get a loan of amounting to ₹ 800. This margin requirement is 200 or 20 per cent. If this margin is raised, the borrower will have to pledge of greater value to secure loan of a given amount. This would reduce money supply and inflation would be curtailed.

Similarly, in case of depression, central bank reduces margin requirement. This will in turn raise the credit creating capacity of the commercial banks. Therefore, margin requirement is significant tool in the hands of central authority during inflation and depression.

2. ***Direct Action:*** This method is adopted when some commercial banks do not cooperate with the central bank in controlling credit. Thus, central bank takes direct action against the defaulter. The central bank may take direct action in a number of ways as under:

   (i) It may refuse rediscount facilities to those banks that are not following its directions.

   (ii) It may follow similar policy with the bank seeking accommodation in excess of its capital and reserves.

   (iii) It may change penal rates over and above the bank rate.

   (iv) Any other strict restrictions on the defaulter institution.

3. ***Rationing of the Credit:*** Under this method, the central bank fixes a limit for the credit facilities to be given to the commercial banks. Being the lender or the last resort, central bank rations the available credit among the applicants. Generally, rationing of credit is done by the following four ways:

   (i) Central bank can refuse loan to any bank.

   (ii) Central bank can reduce the amount of loans given to the banks.

   (iii) Central bank can fix quota of the credit.

   (iv) Central bank can determine the limit of the credit granted to a particular industry or trade.

Notes

4. ***Moral Suasion or Advice:*** In the recent year, the central bank has used moral suasion as a tool of credit control. Moral persuasion is a general term describing a variety of informal method used by the central bank to persuade commercial banks to behave in a particular manner. Moral suasion takes the form of directive and publicity. In fact, moral persuasion is a sort of advice. There is no element of compulsion in it. The central bank focuses on the dangerous consequences of the credit expansion and seeks their cooperation. The effectiveness of this method depends on the prestige enjoyed by the central bank on the degree of cooperation extended by the commercial banks.

5. ***Publicity:*** Publicity is also another qualitative technique. It means to force them to follow only that credit policy which is in the interest of the economy. The publicity generally takes the form of periodicals and journals. The banks are not kept informed about the type of monetary policy, the central bank regards good for the economy. Therefore, the main aim of this method is to bring the banking community under the pressure of public opinion.

Self Assessment

Multiple Choice Questions:

5. Expansionary monetary policy requires purchasing of government securities in the open market by the .....

   (a) Firms (b) Finance Ministry

   (c) Central Bank (d) Individuals

6. A ..... monetary policy involves selling government securities by central bank in the open market.

   (a) Expansionary (b) Contractionary

   (c) Aggressive (d) Restrictive

7. ..... refers to that rate at which a central bank is ready to lend money to commercial banks.

   (a) Bank rate (b) Cash ratio

   (c) Repo rate (d) Inflation

8. Which of these is a qualitative instrument of monetary policy?

   (a) Discount rate (b) Open market operations

   (c) Cash Reserve Ratio (d) Moral suasion

13.3 Transmission of Monetary Policy

There is no unanimous view about the way monetary policy operates. This is perhaps because of the fact that there is no unanimous opinion about the role of money.

According to the traditional quantity theory of money, the monetary policy affects the price levels because of constancy in (a) the volume of transactions, and (b) the velocity of circulation of money. Fisher's equation of exchange postulates an identity between the demand for and of supply of money. The supply of money is determined by the product of stock of money, M, with its velocity of circulation, V. The demand for money, on the other hand, is the product of volume of transactions, T, to be undertaken and the general price level, P.

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Caution Thus, the equations of exchange in its simplest for appears as:

$$PT = MV$$

V and T are assumed as constants because at a point of time, given the size and composition of population, tastes, techniques, resources, purchase habits of the people, etc., the volume of trade transacted, T and the velocity of circulation of money, V, do not change.

Thus:

$P = \frac{V}{T} M$, where = some constant, c

$P = cM$

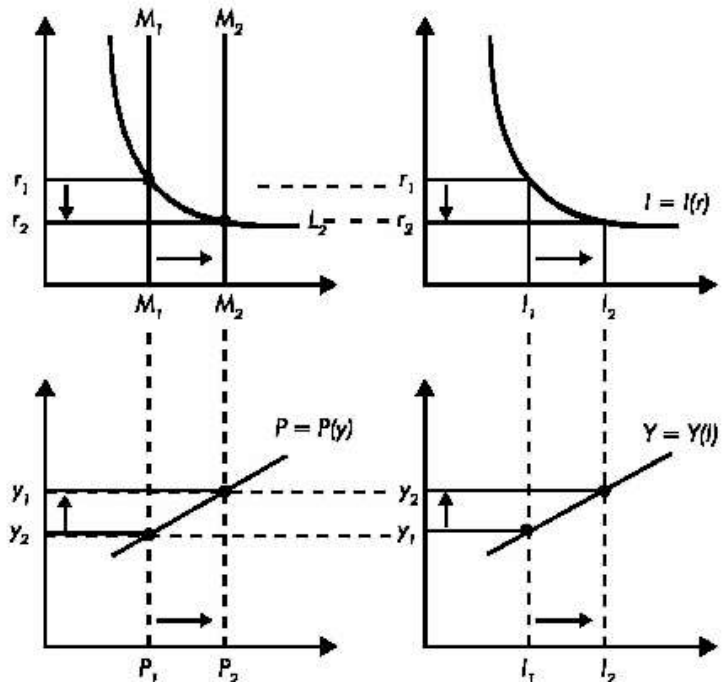
$dP/dM = c$

and $dP/dM \times M/P = 1$

This reads that the money elasticity of price level is unitary. That is, a given change in the quantity of money, M, through any instrument of monetary policy, will induce a same directional and same proportional change in the general level of prices. An increase in money supply will raise the price level and it will thus be inflationary whereas a dear money policy will be deflationary. Monetary policy operates thus because of constancy in V and T. If, for one reason or the other, the so called constancy assumption does not hold, the entire mechanism of money policy breaks down.

Caution According to the Keynesian school of thought, money policy does not affect the price level, rather it affects the level of real income and that too 'indirectly'.

Figure 13.1:Tary Policy Mechanism



Notes

If there is an exogenous increase in money supply from M_1 to M_2, then, given the demand for money (liquidity preference), the rate of interest is reduced. With a reduction in the rate of interest, from r_1 to r_2, the investment demand is stimulated. As investment increases, from I_1 to I_2, the level of real income increases from Y_1 to Y_2 through the multiplier effect.

Exactly in the same way, a decrease in money supply is followed by a rise in the rate of interest—a fall in investment expenditure and therefore, a fall in real income. In order that this mechanism works, we need to assume (a) the absence of 'liquidity trap', (b) the interest elasticity of investment and (c) the operation of 'multiplier effect'. If the economy is caught in the 'liquidity trap' (i.e., a perfectly elastic liquidity preference over a range), a given change in money supply cannot just induce any change in the rate of interest; the interest rate gets so rigidly pegged to an institutional minimum that it does not change. As if, a horse is taken to the water (money supply is changed), but he does not drink water (it has no influence on the rate of interest in the money market).

Interest rate may be insensitive to monetary policy also because of a simultaneous shift in the liquidity preference curve when there is a change in the quantity of money exogenously determined. Even if interest rate is responsive to money supply, there is no guarantee that the level of investment (demand for capital) will be interest elastic. If interest charges do not account for a major part of the total costs of investment or if investment activity is determined by factors other than costs (factors such as the size of market, location, government patronage, expected returns, etc.), then it is possible that investment becomes interest inelastic. In fact, empirical observation suggests such interest inelasticity of investment.

Finally, even if interest is money sensitive and investment is interest elastic, monetary policy may not generate income changes because the so-called investment multiplier may not operate.

Example: If the economy is characterised by full employment and absence of excess capacity or if the marginal propensity to consume is very high, multiplier mechanism may not work; in that case, a rise in investment may increase only prices but not real income. Excess investment may generate demand-pull inflation and to that extent the expansion in real income (following cheap money policy) may suffer.

13.3.1 Monetary Policy in Developing Economy

Developments in monetary policy closely mirror the changes in overall economic policy. The decade of 1990s has seen far reaching changes in India's economic policy. In developed countries, after decades of eclipse, monetary policy re-emerged as a potent instrument of economic policy, in the fight against inflation in the 1980s. The relative importance of growth and price stability as the objective of monetary policy as well as the appropriate intermediate target of monetary policy became the focus of attention.

A similar trend regarding monetary policy is discernible in developing economies as well. Much of the early literature on development economics focused on real factors such as savings, investment and technology as mainsprings of growth. Very little attention was paid to the financial system as a contributory factor to economic growth even though attention was paid to develop financial institutions which provide short term and long term credit. In fact, many writers felt that inflation was endemic in the process of economic growth and it was accordingly treated more as a consequence of structural imbalance than as a monetary phenomenon. However, with the accumulated evidence, it became clear that any process of economic growth in which monetary expansion was disregarded led to inflationary pressures with a consequent impact on economic growth. Accordingly, the importance of price stability and, therefore, the need to use monetary policy for that purpose also assumed importance in developing economies. Nonetheless, the debate on the extent to which price stability should be deemed to be the overriding objective of monetary policy in such economies continues.

Notes

In the wake of the economic crisis in 1991 triggered by a difficult balance of payments situation, the Government introduced far reaching changes in India's economic policy. Monetary policy was used effectively to overcome the balance of payments crisis and promptly restore stability. An extremely tight monetary policy was put in place to reap the full benefits of the devaluation of the rupee that was announced. However, it did not stop with that. Financial sector reforms became an integral part of the new reform programme. Reform of the banking sector and capital market was intended to help and accelerate the growth of the real sector. Banking sector reforms covered a wide gamut.

The most important of the reforms was the prescription of prudential norms including capital-adequacy ratio. In addition, certain key changes were made with respect to monetary policy environment which gave to commercial banks greater autonomy in relation to the management of their liabilities and assets.

- *First* and foremost, the administered structure of interest rates was dismantled step by step. Banks in India today enjoy the complete freedom to prescribe the deposit rates and interest rates on loans except in the case of very small loans and export credit.
- *Second*, the Government began borrowing at market rates of interest. The auction system was introduced both in relation to Treasury Bills and dated securities.
- *Third*, with the economic reforms emphasising a reduction in fiscal deficit, pre-emptions in the form of cash reserve ratio and statutory liquidity ratio were steadily brought down.
- *Fourth*, while the allocation of credit for the priority sector credit continued, the extent of cross subsidisation in terms of interest rates was considerably brought down because of the reform of the interest rate structure.

Monetary policy in the 1990s in India had to deal with several issues, some of which traditional but some totally new in the context of the increasingly open economy in which the country had to operate. In the first few years, monetary policy had to contend with the consequences of devaluation and the need to quickly restore price stability to obtain the full benefits of devaluation. While the fiscal deficit was being brought down, the question of monetisation of the deficit continued to remain an issue and a solution had to be found. This eventually led to a new agreement between Government and RBI on financing deficit.

The system of ad-hoc Treasury Bills under which Government of India could replenish its cash balances by issuing Treasury Bills in favour of the Reserve Bank and which had the effect of monetising deficit was phased out. It was replaced by a system of Ways and Means advances which had a fixed ceiling. The Reserve Bank of India continued to subscribe to the dated securities at its discretion.

Did u know? During 1993 and 1994, for the first time monetary policy had to deal with the monetary impact of capital inflows with the foreign exchange reserves increasing sharply from $9.2 billion in March 1992 to $25.1 billion in March 1995. In 1995–96, the change in perception with reference to exchange rate after a prolonged period of nominal exchange rate stability vis-à-vis the US dollar brought into play the use of monetary policy to stabilise the rupee — an entirely new experience for the central bank. Similar situations arose later on also at the time of the East Asian crisis.

Monetary policy had begun to operate within a changed institutional framework brought about by the financial sector reforms. It is this change in the institutional framework that gave a new dimension to monetary policy. New transmission channels opened up. Indirect monetary controls gradually assumed importance. With the progressive dismantling of the administered interest rate structure and the evolution of a regime of market determined interest rate on Government

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securities, open market operations including 'repo' and 'reverse repo' operations emerged for the first time as an instrument of monetary control. Bank Rate acquired a new role in the changed context. The Nineties paved the way for the emergence of monetary policy as an independent instrument of economic policy.

Monetary policy in the 1990s had also to be conducted in the context of the financial sector reforms. The need to reduce non-performing assets and to conform to the new prudential norms put the banking industry under great strain. While introducing banking sector reforms, care had to be taken to ensure that there was no compromise with the basic objectives of monetary policy.

Developments in Monetary Policy in India

In its annual monetary policy review for 2010-11, RBI increased its policy rates.

Repo rate and Reverse repo rate increased by 25 bps to 5.25% and 3.75% respectively, with immediate effect. **Impact:** Repo is the rate at which banks borrow from RBI and Reverse Repo is the rate at which banks deploy their surplus funds with RBI. Both these rates are used by financial system for overnight lending and borrowing purposes. An increase in these policy rates imply borrowing and lending costs for banks would increase and this should lead to overall increase in interest rates like credit, deposit, etc. The higher interest rates will in turn lead to lower demand and thereby lower inflation. The move was in line with market expectations

Cash reserve ratio (CRR) increased by 25 bps to 6.00%, to apply from fortnight beginning from 24 April 2010. **Impact:** When banks raise demand and time deposits, they are required to keep a certain percent with RBI. This percent is called CRR. An increase in CRR implies banks would be required to keep higher percentage of fresh deposits with RBI. This will lead to lower liquidity in the system. Higher liquidity leads to asset price inflation and also leads to build up of inflationary expectations. Before the policy, market participants were divided over CRR. Some felt CRR should not be raised as liquidity would be needed to manage the government borrowing program, 3-G auctions and credit growth. Others felt CRR should be increased to check excess liquidity into the system which was feeding into asset price inflation and general inflationary expectations. Some in the second group even advocated a 50 bps hike in CRR.

By increasing the rate by 25 bps, RBI has signalled that though it wants to tighten liquidity it also wants to keep ample liquidity to meet the outflows. Governor's statement added that in 2010-11, despite lower budgeted borrowings, fresh issuance will be around ₹ 342300 cr compared to ₹ 251000 cr last year.

Table 13.1: RBI's Domestic Outlook for 2010-11

	2009-10 targets (Jan 10 Policy)	2009-10 Actual Numbers	2010-11 targets (Apr 10 Policy)
GDP	7.5	Expected at 7.2 by CSO	8 with an upward bias
Inflation (based on WPI, for March end)	8.5	9.9	5.5
Money Supply (March end)	16.5	17.3	17
Credit (March end)	16	17	20
Deposit (March end)	17	17.1	18

Source: RBI

Notes

Growth: RBI revised its growth forecast upwards for 2010-11 at 8% with an upward bias compared to 2009-10 figure of 7.5%. It said "Indian economy is firmly on the recovery path." RBI's business outlook survey shows corporates are optimistic over the business environment. Growth in industrial sector and services has picked up in second half of 2009-10 and is expected to continue. The exports and import sector has also registered a strong growth. It is important to note that RBI has placed the growth under the assumption of a normal monsoon. India could have achieved a near 8% growth in 2009-10 itself, if monsoons were better. Table 13.2 looks at growth forecasts of Indian economy for 2010-11 by various agencies.

Table 13.2: Projections of GDP Growth by various agencies for 2010-11 (in %, YoY)

	2009-10	2010-11
RBI	7.5 with an upward bias	8 with an upward bias
PM's Economic Advisory Council	7.2	8.2
Ministry of Finance	7.2	8.5 (+/- 0.25)
IMF	6.7	8
Asian Development Bank	7.2	8.2
OECD	6.1	7.3
RBI's Survey of Professional Forecasters	7.2	8.5

Inflation: RBI's inflation projection for March 2011 is at 5.5% compared to FY March 2010 estimate of 8.5% with an upward bias (the final figure was at 9.9%). RBI said inflation is no longer driven by supply side factors alone. First WPI non-food manufactured products (weight: 52.2 per cent) inflation, increased sharply from (-) 0.4%in November 2009, to 4.7% in March 2010. Fuel price inflation also surged from (-) 0.7 per cent in November 2009 to 12.7% in March 2010. Further, contribution of non-food items to overall WPI inflation, which was negative at (-) 0.4% in November 2009 rose sharply to 53.3% by March 2010. So, overall demand pressures on inflation are also beginning to show signs. These movements were visible in March 2010 itself, pushing RBI to increase rates before the official policy in April 2010.

Monetary Aggregates: RBI has increased the projections of all three monetary aggregates for 2010-11. These projections have been made consistent with higher expected growth in 2010-11. Higher growth will lead to more demand for credit. Then management of government borrowing program will remain a challenge as well. High growth coupled with the borrowing program will need higher financial resources. Therefore, projections for money supply, credit and deposit are raised to 17%, 20% and 18% respectively. However, higher growth in money supply would also lead to build up of higher inflation and inflationary expectations.

There are various measures to calculate money supply. Each measure can be classified by placing it along a spectrum between narrow and broad monetary aggregates. Narrow money includes most acceptable and liquid forms of payment like currency and bank demand deposits. Broad money includes narrow money and other kinds of bank deposits like time deposits, post office savings account, etc.

Growth in M_3 is higher than M_1 between April and November 2009. From Dec-2009 onwards, the growth rate in M_1 is higher than M_3. The difference in M_1 and M_3 comes from the growth rate in time and demand deposits. Growth in Time deposits is higher than demand deposits between April-November 2009. From December 2009, onwards growth in demand deposits picks up. This in turn reflects in differences in growth rate of M_1 and M_3. The growth rate in currency is volatile. It declines 15% in August 2009 and then again increases to 17.9% in December 2009. It then declines to 15.6% in March 2010. Hence, the difference between M_1 and M_3 comes from surge in growth of demand deposits and decline in growth of time deposits.

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So, this just confirmed what Kohli said. She added this could be interpreted in two ways. First, spending on consumption and production is increasing as economy has recovered from recession. Second, it could be people are spending now as they expect higher inflation in future. Higher inflation in future could also lead to higher returns on assets and property in future, therefore, people are preferring to spend now.

It will be interesting to watch trends in M_1 and M_3 from now on as well.

RBI also outlined downside risks with its projections:

- *First*, there is still substantial uncertainty about the pace and shape of global recovery.
- *Second*, if the global recovery does gain momentum, commodity and energy prices, which have been on the rise during the last one year, may harden further. This could put upwards pressure on inflation
- *Third*, monsoon will continue to play a vital role both from domestic demand and inflation perspective.
- *Fourth*, policies in advanced economies are likely to remain highly expansionary. High liquidity in global markets coupled with higher growth in emerging economies foreign capital flows are expected to remain higher. This will put pressure on exchange rate policy. RBI usually does not comment on its exchange rate policy. As the economic situation is exceptional, RBI also commented on India's exchange rate policy.

Our exchange rate policy is not guided by a fixed or pre-announced target or band. Our policy has been to retain the flexibility to intervene in the market to manage excessive volatility and disruptions to the Macro Economic situation. Recent experience has underscored the issue of large and often volatile capital flows influencing exchange rate movements against the grain of economic fundamentals and current account balances. There is, therefore, a need to be vigilant against the build-up of sharp and volatile exchange rate movements and its potentially harmful impact on the real economy.

Policy Stance

The policy stance remains unchanged from January 2010 policy.

Table 13.3: Comparing RBI's Policy Stance

October 2009 Policy	January 2010 Policy	April 2010 Policy
Watch inflation trend and be prepared to respond swiftly and effectively	Anchor inflation expectations, while being prepared to respond appropriately, swiftly and effectively to further build-up of inflationary pressures.	Anchor inflation expectations, while being prepared to respond appropriately, swiftly and effectively to further build-up of inflationary pressures.
Monitor liquidity to meet credit demands of productive sectors while securing price and financial stability	Actively manage liquidity to ensure that the growth in demand for credit by both the private and public sectors is satisfied in a non-disruptive way.	Actively manage liquidity to ensure that the growth in demand for credit by both the private and public sectors is satisfied in a non-disruptive way.
Maintain monetary and interest rate regime consistent with price and financial stability, and supportive of the growth process	Maintain an interest rate regime consistent with price, output and financial stability.	Maintain an interest rate regime consistent with price, output and financial stability.

Source: RBI

Notes

Task Compare the contrast the monetary policies of India in the 1990s and 2000s.

Caselet

India's Inflated Monetary Policy Challenge

While central banks around the world are busy worrying whether to be hawks or doves, the Reserve Bank of India is unlikely to find solace in either choice.

The RBI has been grappling with uncomfortably high inflation for more than a year despite raising interest rates 11 times in 18 months. Growth indicators, meanwhile, have proved unreliable given the uncertainty of a global recovery and still fragile domestic business sentiment.

The latest data underscore the RBI's dilemma. The wholesale price index rose 9.8% in August, well above the RBI's much-revised target of 7%. Industrial production data, meanwhile, have been an unreliable indicator of growth. Industrial output grew 8.8% in June, but slowed to 3.3% in July. This, in part, is due to a higher base from the previous year but also reflects the wavering confidence of companies producing or buying capital goods.

The RBI is partly to be blamed for landing itself in this unenviable position. Though it has been one of the most aggressive central banks globally in the last year, it chose to increase rates in small doses, bending to New Delhi's—and the industrial lobby's— desire to keep growth robust. The bank has no control over the price rises caused by infrastructure bottlenecks and supply constraints. But its predictable quarter-point rate increases at every policy review failed to stop speculators from betting on further rises in inflation.

India's economic growth is vulnerable to a deteriorating global outlook. High interest rates at home are already taking a toll. A 10.1% fall in domestic car sales after a blistering run of growth is one indication. On top of everything, the unreliability of India's data leaves its central bank with the unenviable task of picking the right indicators to guide its policy.

With global commodity prices still high and a lack of fiscal restraint from New Delhi, another quarter-point increase, expected Friday, may not be enough to curb inflation. The RBI's predicament, behind the curve, serves as a warning for other emerging-market central banks.

Source: http://online.wsj.com/article/SB10001424053111904060604576572612381947514.html

13.3.2 Monetary Policy in an Open Economy

An open economy is free to trade with the other economies of different countries. This is in sharp contrast with the closed economy where people are not allowed to trade with other countries. An open economy is a field, which deals in Macro Economic phenomena like exchange rates, balance of trade, tariffs, subsidies, and import quotas. An open economy is advantageous because people can trade in goods and services; indulge in business with the international arena at large. This increases the scope of trade and business leading to profitable earnings.

The opening up of the economy has implications for the conduct of monetary policy as well as the monetary transmission mechanism. In particular, it has rendered economies vulnerable to

external demand and exchange rate shocks. This, in turn, has enhanced the possibility of significant changes in trade and other current account flows in a short span of time.

A more serious challenge to conduct of monetary policy emerges from the capital account. A distinctive feature of capital flows is the greater volatility vis-à-vis the trade flows. Capital flows in gross terms are much higher than those in net terms. Global capital flows impact the conduct of monetary policy on a daily basis, imparting volatility to monetary conditions.

Along with the explosion in financial innovations and the information technology revolution, this has led to the swift transmission of market impulses across countries and a structural change in the process of financial intermediation. All this has fundamentally altered not only the environment of monetary policy formulation but also its instrumentality and operating framework.

Typically, central banks attempt to overcome the policy dilemma by undertaking a variety of operations such as open market sales of government/own bonds to neutralise the expansionary monetary effect arising out of their market purchases. Such sterilisation operations, in turn, have their own limitations and involve costs, especially if external flows are persistent. Globalisation, thus, transforms the environment in which monetary policy operates, throwing up a number of challenges. The foremost challenge is the progressive loss of discretion in the conduct of monetary policy.

Self Assessment

Fill in the blanks:

9. The supply of money is determined by the product of stock of money and its .....
10. An increase in money supply will ..... the price level.
11. According to the Keynesian theory, monetary policy does not affect the price level but the level of .....
12. A perfectly elastic liquidity preference over a range is referred to as a .....
13. An economy that is not free to trade with the other economies is called ..... economy.

13.4 Effectiveness of Monetary Policy

Different methods of monetary policy seem to be quite simple but its implementation is a complex task. Let us evaluate the effectiveness of monetary policy as below:

- ***Changes in Velocity:*** Changes in velocity of money greatly influence the effectiveness of monetary policy. In case, regulatory authority reduces the supply of money with a view of reducing credit but at the same time, people make more use of money that is, increase in velocity, then supply of money instead of diminishing, may increase. Again, if speculative demand also declines due to a fall in the prices of bonds, this type of decrease in demand for money also results in increasing the velocity of circumstances. Under these circumstances, effectiveness of monetary policy does not prove to be much effective.
- ***Non-banking Financial Institutions:*** The policy adopted by non-banking financial institutions also affects the effectiveness of monetary policy to a greater extent. If the working of these institutions is not in accordance of monetary policy, then it can get much success. However, Professor Gurley and Shaw attached much more significance to these institutions, which sometimes limit the smooth working of monetary policy.

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- ***Lags of Monetary Policy:*** The changes in monetary policy do not have a direct link with the changes in aggregate spending. The links between these two are through the supply, cost and availability of money. It requires a long-time for monetary policy to have its effect on aggregate demand. It means monetary policy cannot bring quick changes to achieve economic stability. Some economists suggest that the central bank should not put in efforts for short-run economic stabilisation. Rather the central bank should change the money supply in accordance with the needs of the economy.
- ***Problem in Forecasting:*** The formulation of an appropriate monetary policy requires that the magnitude of the problem- recession or inflation is correctly assessed, as it helps in determining the dose of the medicine. What is more important is to forecast the effects of monetary actions. In spite of advances made in forecasting techniques, reliable forecasting of Macro Economic variables remains an enigma.

Case Study

Making Bits and Pieces of Monetary Policy Click

It was Immanuel Kant, the German philosopher, who said that the only thing wholly good in the world was goodwill. Measured by that yardstick, Savak Sohrab Tarapore, former deputy governor of the Reserve Bank of India (RBI), savant, eminence grise on a permanent public retainer and now an esteemed columnist for this newspaper, scores a perfect 10. He was, if you will, for close to a decade, the Gundappa Vishwanath of Indian central banking, leaving it to others to be a Gavaskar or a Tendulkar.

No further proof is needed than this book, a compilation of articles written for the Gujarati newspaper Divya Bhaskar. How many central bankers can you think of — and until 1996, when he retired from the RBI, he was a leading one — who would bother to write in a 'vernacular' paper?

These essays also show Dr Tarapore's doggedness in doing the right thing. At the best of times, monetary policy and its pretentious attendants are arcane, complex and jargon-ridden. But, for the reasonably well educated and intelligent reader at least, these essays should pose no great intellectual challenges.

Collateral Purpose

They also serve a collateral, if unintended, purpose by providing a running commentary that will prove be invaluable to future historians of the RBI. Only one or two others have done so, that also mostly in this newspaper.

Until recently, it was Mr S. Venkitaramanan, former RBI Governor who saw India through the crisis of 1991. The other is Dr Kanakasabapathy who served as the head of the Monetary Policy Division and later as Secretary to the two Tarapore Committees on capital account convertibility and then the joint Finance Ministry-RBI Committee on Financial Sector Assessment (CFSA).

Most of the essays in this book are topical, as they have to be when written for a newspaper. But the way to read these essays is not to dwell too much on the topics.

When the pieces click

Instead, the reader should focus on the subject, if only to gain an understanding of the moving bits and pieces of monetary policy. And, then, when you hear the 'click', you know these moving pieces have come together in the way they should.

Contd...

Notes

No one made them click more often than S. S. Tarapore. He can still do it. His essays in this book, on whether to use forex reserves to finance infrastructure or on how to cope with capital inflows, whether on capital account convertibility on which he chaired two committees or on how to use protect the RBI's virtue by not allowing its balance sheet to be violated are witness to this.

In the end, the Government and the RBI mostly do go along with his advice. But sometimes they don't and then Dr Tarapore simply sighs with disappointment in his essays and in the knowledge that they will soon realise the error of their ways.

One thing that Dr Tarapore feels very strongly about is the plight of the small saver who is usually left holding the short end of the stick because of flawed Government policies. His articles on this topic clearly bring out the anguish of a small saver who has to watch himself becoming poorer either because of inflation or Government folly.

Like all good men, he too has some bees in his bonnet. He thinks exchange rate policy should cater to the needs of exporters.

He overlooks, however, the fact a stronger rupee only lowers exporters' profits, sometimes from unconscionably high levels, to more reasonable ones. Also, in a country that doesn't produce as much as it needs, cheap imports are a must.

Another bee is relates to gold. But this is a good bee, as opposed to a bad one. Dr Tarapore has for long held the view that India must manage its gold reserves better, and add good quality gold to them. Happily, after long years of ambivalence, India has begun to adopt the Tarapore view more actively.

It recently bought 200 tonnes from the IMF! That must have been a very sweet vindication for a man who had seen India mortgage its gold during the crisis of 1991.

Question:

Do you agree with Dr. Taraporewala's views that India should have managed its gold reserves better? Why or why not?

Source: www.hindubusinessline.com

Monetary-lags depend on the time period taken between initial and final results, say changes in money supply to changes in aggregate demand. If a longer period is taken the longer are the lags in monetary policy and vice versa.

The lag in the effect of monetary policy can be divided into many parts:

1. ***Recognition Lag:*** It means some time period is required to recognise the changes in the economy so as to change the policy.
2. ***Action Lag:*** Once the necessity of change in policy is required, there is a need for some time to make suitable adjustments or changes in the policy. Some time is required for working out details and implementing them. The policy action may be controversial. In that case some delay is inevitable. The delay may be caused by political pressutes. There may be many other reasons for delay. The action lag period is taken quite close to zero.
3. ***Inside Lag:*** The total of recognition lag and action lag is known as inside lag.
4. ***Outside Lag:*** After change in the policy, there is need for some time for these changes to work and affect aggregate spending and income. It is very difficult to analyse the causes of outside lag because of the involvement of complete inter-relationship in the economic system. The outside lag can be estimated by statistical inference or direct estimate method as suggested by Thomas Mayer.

Notes

Thus, the total lag period includes inside and outside lag. Milton Friedman uses statistical inference or direct estimate method as suggested by Thomas Mayer to estimate total lag. The total time lag may vary from six months to two years. The time lags must be reduced to ensure economic growth with stability.

13.4.1 Effects of Monetary Policy on Inflation in India

The steps usually taken by the RBI to deal with inflation include a rise in repo rates (the rates at which banks borrow from the RBI), a rise in Cash Reserve Ratio and a reduction in rate of interest on cash deposited by banks with RBI. The signals are intended to encourage banks to raise lending rates and to reduce the amount of credit given out. The RBI's measures are expected to extract a substantial sum from the banks. In effect, while the economy is flourishing and the credit needs grow, the central bank is reducing the availability of credit.

The RBI also buys dollars from banks and exporters, partly to avert the dollars from flooding the market and depressing the dollar — indirectly raising the rupee. In other words, the central bank's interactions have a advantageous objective — to keep the rupee devalued — which will make India's exports more competitive, but they increase liquidity.

To combat this, the RBI does what it calls "sterilisation" — it extracts the rupees it pays out for dollars through sale of sterilisation bonds. It then sells these bonds to banks. Economists point out that there has not been much success in such sterilisation attempts in India. The central bank's attempt to offload Government bonds on banks has not been too successful inasmuch as the banks sell the bonds and get rupees instead.

Economists also contrast this with the successful experience of China, where the state-owned banks strictly follow the central bank's orders and absorb the sterilisation bonds. That discipline is lacking in India. The net effect is that the RBI has to resort to indirect methods of sterilisation, such as raising interest rates and raising CRR to contract liquidity. This makes India more attractive for foreign capital flows that seek better returns and a vicious cycle follows. RBI has to buy more foreign currency and sterilize. The cycle becomes worse.

13.4.2 What is RBI doing to Curb Inflation?

Recently, the Reserve Bank of India has raised key rates by a higher-than-expected 50 basis points, stressing that tackling inflation is its main priority even if it comes at the expense of overall growth in the short term. The central bank hiked the repo rate, its lending rate, by 50 bps to 7.25%, and the reverse repo, its borrowing rate, also by 50 bps to 6.25%. The market had expected a 25 bps hike by RBI.

According to the RBI, India's headline inflation has passed even the most pessimistic projections and it is expected to remain at higher level atleast during the first half of 2011-12. RBI's baseline projection for WPI (wholesale price index) inflation for March 2012 is 6% with an upward bias. India's inflation in March 2011 rose 8.98% from a year earlier. According to the RBI Governor Duvvuri Subbarao the monetary policy actions are expected to contain inflation by reining in demand side pressures, and sustain growth in the medium-term by containing inflation. He also added that high and persistent inflation undermines growth by creating uncertainty for investors, and driving up inflation expectations. An environment of price stability is a pre-condition for sustaining growth in the medium-term. Reining in inflation should therefore take precedence even if there are some short-term costs by way of lower growth.

RBI estimates India grew 8.6% in 2010-11, but going forward the growth rate is expected to moderate due to high oil and other commodity prices coupled with its anti-inflationary monetary stance. The central bank expects India's real GDP to grow around 8% in 2011-12.

The RBI said various business expectation surveys also see moderation over the previous quarter and year, indicating a slowdown in overall economic activity. Besides persistent inflation, which was the significant factor that affected business expectations, global uncertainty, higher input costs, higher interest rates and expectation of lower demand for finished goods also impacted the business sentiment of India Inc.

Self Assessment

State whether the following statements are true or false:

14. Changes in velocity of money greatly influence the effectiveness of monetary policy.
15. Monetary policy has an immediate effect on aggregate demand.
16. The time lags must be reduced to ensure economic growth with stability.

13.5 Summary

- Monetary policy is a very important economic tool of Macro Economic policy. It plays a pioneering and dynamic role in accelerating economic growth with stability and social justice.
- It is formulated and implemented by the central banks through a wide network of financial institutions for achieving various objectives such as full employment, stability of exchange rate, control of business cycles, price stability and equitable distribution of national income.
- Expansionary monetary policy requires purchasing of government securities in the open market by the central banks. A contractionary monetary policy involves selling government securities by central bank in the open market.
- The instruments of monetary policy can be categorised as: (i) quantitative methods- bank rate, open market operations, variable reserve ratio, change in liquidity, (ii) qualitative methods- change in margin requirement, direct action, rationing, moral suasion and publicity.
- The relative importance of growth and price stability as the objective of monetary policy as well as the appropriate intermediate target of monetary policy became the focus of attention.
- An understanding of the mechanism of monetary policy enables a manager to anticipate the direction of impact of changes in monetary variables and make proper adjustments in business accordingly.

13.6 Keywords

Bank Rate: Interest rate charged by a country's central bank on loans and advances so as to control money supply in the economy and the banking sector.

Capital Adequacy Ratio: A measure of the amount of a bank's core capital expressed as a percentage of its assets weighted credit exposures.

Liquidity Trap: A situation in which prevailing interest rates are low and savings rates are high, making monetary policy ineffective.

Monetary Policy: The regulation of the money supply and interest rates by a central bank.

Open Market Operations: The buying and selling of government securities by a central bank.

Notes

Moral Suasion: Combination of persuasion and pressure which a central bank is always in a position to use on banks in general and erring banks in particular.

Multiplier Effect: The expansion of a country's money supply that results from banks being able to lend.

Repo: A contract in which the seller of securities, such as, Treasury Bills, agrees to buy them back at a specified time and price.

Reserve Ratio: Amount of money and liquid assets that banks must hold in cash or on deposit with the central bank, usually a specified percentage of their demand deposits and time deposits.

Reverse Repo: A purchase of securities with an agreement to resell them at a higher price at a specific future date.

13.7 Review Questions

1. "The objectives of monetary policy in conflict with each other". Substantiate.
2. How does government/central bank use instruments of monetary policy to ensure stability in the economy?
3. Describe the qualitative and quantitative instruments of monetary used by the central bank.
4. Explain the concept of monetary targeting/transmission with the help of figures.
5. In context of money, what does the equation PT = MV signifies? Explain in brief.
6. "Developments in monetary policy closely mirror the changes in overall economic policy." Discuss
7. State the issues involved with the monetary policy in India in the 1990s.
8. Does opening up of an economy have some implications on the monetary policy of the economy? Discuss in brief.
9. Explain the role of monetary policy in an open economy.
10. Discuss the concept of monetary lags. Include a short discussion on the effectiveness of the monetary policy.

Answers: Self Assessment

1.	True	2.	False
3.	True	4.	True
5.	(c)	6.	(b)
7.	(a)	8.	(d)
9.	velocity of circulation	10.	raise
11.	real income	12.	liquidity trap
13.	an open	14.	True
15.	False	16.	True

13.8 Further Readings

Notes

Books

Dr. Atmanand, *Managerial Economics,* Excel Books, Delhi.

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Online links

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Unit 14: Macro Economic Policies: Fiscal Policy

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Objectives

After studying this unit, you will be able to:

- State the objectives of fiscal policy;
- Identify the instruments of fiscal policy;
- Discuss the transmission of fiscal policy;
- Describe the efficiency issues and role of fiscal policy in economic growth;
- Know the limitations of fiscal policy.

Introduction

The sphere of state action is very vast and all pervading. It includes "maintaining public services, influencing, attitudes, shaping economic institutions, influencing the use of resources, influencing the distribution of income, controlling the quantity the of money, controlling fluctuations, ensuring full employment, and influencing the level of investment. It is through fiscal policy that the government tries to correct inequalities of income and wealth that increases with

development in country. It expands internal market, reduces unessential imports, counteracts inflationary pressure, provides incentives for desirable development projects, and increase the total volume of savings and investment. For all this government adopts appropriate taxation, budgetary expenditure and public borrowings policies.

Fiscal policy is the projected balance sheet of the country, prepared by Chief Finance Officer of country that is finance minister of the state. Public finance is the study of generating resources for the development of country and about allocation of resources. Fiscal policy is implemented through Budget, which is statement of state's revenue and expenditure. In this unit, you will learn about various instruments of fiscal policy and its transmission.

14.1 Objectives of Fiscal Policy

Fiscal policy is budgetary policy. It is the policy of the government in respect of its annual taxation programme, public expenditure and public debt programmes. A budget is an annual financial statement of the government which includes estimated expenditure planned for the coming year and estimated revenues to be raised through taxes and other revenue sources such as surplus of public enterprises over the year. Fiscal policy thus, refers to a policy under which the government implements its expenditure, revenue and other programmes during a year to produce favourable distributional effect and avoid undesirable effects on national income and employment. The objectives of fiscal policy are summarily stated below:

- Mobilization of resources through deploying relevant fiscal instruments
- Ensuring high rate of capital formation
- Reallocation of resources to ensure the achievement of nation's socio-economic objectives
- Balanced regional growth
- Increased the employment opportunities
- Achievement of equity objective through appropriate use of fiscal instruments.

Fiscal policy refers to the overall effect of the budget outcome on economic activity. The three possible stances of fiscal policy are neutral, expansionary and contractionary:

- A neutral stance of fiscal policy implies a balanced budget where G = T (Government spending = Tax revenue). Government spending is fully funded by tax revenue and overall the budget outcome has a neutral effect on the level of economic activity.
- An expansionary stance of fiscal policy involves a net increase in government spending (G > T) through rises in government spending or a fall in taxation revenue or a combination of the two. This will lead to a larger budget deficit or a smaller budget surplus than the government previously had, or a deficit if the government previously had a balanced budget. Expansionary fiscal policy is usually associated with a budget deficit.
- A contractionary fiscal policy (G < T) occurs when net government spending is reduced either through higher taxation revenue or reduced government spending or a combination of the two. This would lead to a lower budget deficit or a larger surplus than the government previously had, or a surplus if the government previously had a balanced budget. Contractionary fiscal policy is usually associated with a surplus.

Self Assessment

State whether the statements are true or false:

1. Fiscal policy aims for a balanced regional growth.

Notes

2. Expansionary stance of fiscal policy involves a net increase in government spending.
3. Contractionary fiscal policy is usually associated with a budget deficit.

14.2 Instruments of Fiscal Policy

Fiscal policy instruments are operated by the government at various levels – Central, State and Local. The constituents of fiscal policy are discussed in following subsections.

14.2.1 Public Revenue

The government normally raises revenue through taxation: Direct and Indirect. Direct taxes are imposed on income, wealth and property of the individual or the corporate unit. By contrast, the indirect taxes are imposed on commodities.

Example: Excise, customs, octroi and sales tax are all examples of indirect tax.

Direct taxes like income tax and wealth tax are geared to ensure distributive justice. This is the reason we have 'progressive' income tax whereby the rate of tax increases, as income increases. In case of 'proportional' income tax, the tax and income move together in the same proportion and same direction; and thus it has no redistributive effect. In case of 'regressive' taxation, the tax rate comes down as the income increases. It is clear that regressive taxes may induce propensity to serve and invest, but the egalitarian principle of justice is violated.

Indirect taxes are normally used for revenue raising purpose. If a very thin burden of taxes is spread widely over a large number of commodities, a huge amount of revenue can be easily raised; this is the reason a Minimum Alternative Tax (MAT) was introduced in our country.

Administrating a tax system and structure is a managerial problem. If the cost of administering a tax is larger than the revenue it raises, then it is uneconomic. Similarly, the norms of 'simplicity' and 'convenience' must be satisfied along with 'economy' as 'Cannons' of a good tax system. Sometimes, it is argued that indirect taxes are inflationary in nature, because those taxes immediately raise the cost of supply and may discourage production. Of course, if such taxes are imposed on 'non-merit goods', then social benefits outweigh social costs; the production loss and supply rigidity in those cases do stand justified. In fact, indirect taxes are often used to ensure allocative efficiency in the process of utilisation of scarce resources, keeping public good in mind.

If taxes do not suffice to raise sufficient revenue for the government, then non-tax revenue may be raised through sources like profits of public enterprises, disinvestment of shares of public sector undertakings or even borrowing from the public internally or raising loans externally.

14.2.2 Public Expenditure

Revenues are raised towards financing public expenditure. This is called 'functional finance'. In present days, the government has to spend money on defence and development. Maintaining internal law and order and country's sovereignty involves huge expenditure. Some economists feel that these are unproductive consumption expenditure, but there is no escape. Sometimes war like situation may force the government to divert resources from development to non-development expenditure, from planned to non-planned expenditure. Development expenditures are supposed to be productive in the long run. In the short run, such investment oriented public expenditures may release inflationary forces, because income generated may not be by immediate supply of output.

Public investment expenditure usually have a long gestation period and it yields low and slow rate of return; but such expenditures are unavoidable because such expenditures are necessary for growth and development of the economy.

Non-plan expenditure of central government in a country like ours has the following components: defence, interest payments on loans, administrative expenditure and subsidies (on items like food, fertiliser, export and education). Government's administrative expenditures on wages, salaries, pensions and other consumption items like stationeries, maintenance, etc., are sometimes beyond control.

Public expenditure shows a tendency to grow over time. It is very difficult to cut any expenditure, which has once been committed by the government.

14.2.3 Public Debt

If public expenditure exceeds public revenue flow, then we have 'deficits' in the budget. 'Budgetary deficits' have two components - Revenue Deficits (= Current Revenue - Current Expenditure) and Capital Deficits (Income - Expenditure on capital account transactions). Such deficits may be partly met by:

- Borrowing, internally or externally or both.
- Money creation (e.g., printing of notes) which is known as 'deficit financing'. The extent of deficit financing indicates the size of 'monetised deficits'. Similarly, the budgetary deficits when adjusted to borrowing (loans on interest), we get the idea of 'fiscal deficits'.

There are various instruments of raising public loans.

Example: The government may issue securities or bonds. The government securities or bonds can raise huge funds, provided people have faith in government. In India, development bonds, defence bonds, bearer bonds etc., have been successful. These days, even companies have their own co-deposits systems to raise funds. The public enterprises like the Railways, ONGC, NTPC, have floated bonds to raise resources to finance their modernisation schemes or developmental expenditures, particularly at a time when the government refuses to provide any budgeting support to the public enterprises.

In the same way, the government may issue securities, which have a captive market because the government may statutorily require the public enterprises to have a certain portion of their portfolio investment in the form of government securities. Sometimes, the government freely drew its resources from the contribution of the public towards PF, NSCs and NSSs, etc. These are regarded as instruments of internal borrowing. Finally, the government may float loans from abroad. The IMF, World Bank, Asian Development Bank, etc., are sources of development finance in a number of developing counties. Additionally, the government or a governmental company may take loans from the market say, euro-dollar market.

The basic problem in floating loans is growing indebtedness of the country, which borrows. Sometimes, the country may get in debt trap or currency crisis, as has been experienced by nations in recent time.

Self Assessment

Fill in the blanks:

4. Sales tax is a type of ..... tax.
5. ..... taxes like income tax and wealth tax are geared to ensure distributive justice.

Notes

6. In a ..... taxation system, the tax rate comes down as income increases.
7. Expenditure on defence and subsidies are classified as ..... expenditures.
8. When public expenditure is more than the revenue collected, we have a ..... .

14.3 Transmission of Fiscal Policy

Fiscal policy is a potent tool in the hands of Govt. to regulate the economic growth. As deficit financing is the very effective tool in the hands of the govt. for increasing effective demand in recession. To fill the deficit as Govt. borrows from RBI, Market and even create additional currency and then spends it which increases the disposable income of people thus results in favourable environment for investment. Market mechanism of an underdeveloped economy is not likely to be able to generate enough of savings and investment needed for a rapid economic growth. Fiscal policy plays a leading role in effecting savings in the economy. Budgets play a direct role in capital accumulation and economic growth in an underdeveloped country. Saving potential in an underdeveloped economy is very limited partly because of shortage of several specific resources, partly due to lack of adequate demand, partly because of high cost of production. This vicious circle can be broken by the govt. with the help of saving oriented budgets.

Through the fiscal policy govt. can also encourage the growth of particular industries and in particular areas. For this industries are provided with specific tax concessions and subsidies such as tax holidays, higher depreciation allowances etc. can be designed and incorporated in the budgetary policy. Further the role of Fiscal policy in economic growth can be understood through the impact of Public Debt, Deficit Financing, and Taxes.

14.3.1 Role of Taxes in Economic Growth

Taxation is an effective tool of budget to influence the level of savings and investment in country. Abolition and reduction of various taxes pushes up profits and reduces cost of production and prices. Lower prices are expected to increase demand production and employment, which in turn add to effective demand, and so on. Similar steps can be taken in case of custom duties. Raising import duties diverts the domestic demand for imports to home produced goods, and reducing or abolishing exports duties or giving export subsidies increase the demand for export and contributes towards recovery from depression. It will be more helpful to lower tax rates on those goods which have a higher elastic demand.

Caution Demand will be very high if persons with a higher marginal propensity to consume are given a relief in direct taxation. In the same manner investment may be encouraged by specific tax concession like tax holidays, greater depreciation allowance and the like.

Taxes are also considered to be effective tool in controlling the inflation. It can do it in two ways. First as built - in stabilizers and the second relates to the common belief that taxes can be used to curb prices and demand.

14.3.2 Taxes as In-Built Stabilizers

Given the level of govt. expenditure the tax system itself tend to create a budgetary surplus during a boom and a deficit during a depression. A budgetary surplus would curb expenditure and demand while budgetary deficit would have the opposite effect and thus an anti-cyclical pressure is generated. This happens because revenue from indirect and direct taxes is dependent upon the level of economic activities.

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Moreover direct taxes are usually progressive. With increasing money incomes the direct taxes bill rises more than proportionately, and during a depression there is more than proportionate reduction in it. Therefore, yield from these taxes also moves in line with the level of economic activities. The result is that during the depression the tax revenue falls and with given govt. expenditure, there is a budgetary deficit, which in turn has an expansionary effect. On the other hand, during boom larger revenue causes a budgetary surplus, which has a contractionary effect.

Automatic stabilizers are features of the tax and transfer systems that tend by their design to offset fluctuations in economic activity without direct intervention by policymakers. When incomes are high, tax liabilities rise and eligibility for government benefits falls, without any change in the tax code or other legislation. Conversely, when incomes slip, tax liabilities drop and more families become eligible for government transfer programs, such as food stamps and unemployment insurance that help support their income.

Automatic stabilizers are quantitatively important at the central level. A 2000 study estimated that reduced income and payroll tax collection offsets about 8 percent of any decline in GDP. Additional stabilization from unemployment insurance, although smaller in total magnitude than that from the tax system, is estimated to be eight times as effective per dollar of lost revenue because more of the money is spent rather than saved.

Automatic stabilizers also arise in the tax and transfer systems of state and local governments. However, state constitutions generally require balanced budgets, which can force countervailing changes in outlays and tax rules. These requirements do not force complete balance on an annual basis: they generally focus on budget projections rather than realizations, so deficits can still occur when economic conditions are unexpectedly weak. In addition, many governments have "rainy day" funds that they can draw down during periods of budget stringency. Even so, most state and local governments respond to an economic slowdown by legislating lower spending or higher taxes. These actions are contractionary, working at cross-purposes with the automatic stabilizers.

Task Record the current rate of income tax and provisions prevailing in:

(a) Top five countries with highest income tax rate

(b) Top five countries with lowest income tax rate

14.3.3 Budget Deficit and Debt

A Budget Deficit is a common economic phenomenon, generally taking place on governmental levels. Budget Deficit occurs when the spending of a government exceeds that of its financial savings. In fact, budget deficit normally happens when the government does not plan its expenses, after taking into account its entire savings.

Budget Deficit = Total Expenditure - Total Receipts

Total expenditure includes revenue expenditure and capital expenditure and total receipts includes revenue receipts and capital receipts. This excess of total expenditure over total revenue is called budget deficit. It is also defined as the fiscal deficit minus government borrowing and other liabilities (public debt receipts). This is somewhat close to the concept of monetised deficit, which meant the printing of the new money by the Reserve Bank of India to part finance the deficit.

Public debt in Indian context refers to the borrowings of the Central and state government. Gross public debt is the gross financial liability of the government. Net public debt is the gross

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debt minus the value of capital assets of the government and loans and advances given by the government to other sectors. Debt obligation can be of many types as:

Short term debts are the debt of which the maturity is less than one year at the time of issue and consist of items like the treasury bills.

Some obligations may not have specific maturity but may be repayable subject to various terms and conditions they are called Floating Debt.

Example: Provident funds, small savings, reserve funds and deposits.

Permanent of funded debt are loans having a maturity of more than one year at the time of issue. Usually there maturity is between three and thirty years. Some of them may even be non-terminable so that the govt. is only to pay the interest on such debt without ever repaying the principle amount.

Obligations owed to foreigners – govt. institutions, firms and individuals are called external loans.

Debt obligations of the Central Government are broadly divided into two categories:

- Internal Debt
- External Debt

Internal Debt

This includes loans raised within the country, like:

(a) Current market loans, (b) others, comprising balance of expired loans, compensation and other bonds such as National Rural Development Bonds and Capital Investment Bonds, (c) Special Bearer Bonds, (d) Treasury Bills, (e) Special floating and other loans, (f) Special securities issued to the RBI, (g) Small savings, (h) Provident funds, (i) other accounts, and (j) reserve funds and deposits.

External Debt

External debt is raised in foreign currency and a substantial part of it as it is also repayable in foreign currency. External debt represent loans raised by a country from outside sources includes debt raised by the Govt. and by the non-govt. sources such as NRI deposits, commercial borrowings from abroad, suppliers credit and short-term borrowings, etc.

Did u know? Public debt in India has grown immensely in planning period. In 1999 the total debt of central government was ₹ 8,75,925 and in 1998 debt of state government was ₹ 2,84,942. In the budget of 2005-2006 the 22% of total expenditure was only interest payment. If the debt is owned by central bank of India it increases inflation as RBI meets the growing demand by issuing additional quantity of money.

Public debt plays an important role in economy. Public debt contributes to the saving effort of the economy. LDCs are usually short of capital resources. As saving capacity of the masses is very low, appropriate measures are taken to step up rates of saving and investment in the economy. The net effect of the borrowing also depends upon the sources from which they come:

If Govt. goes of the borrowings from the market and public reduces its own consumption and lends its savings to the govt. the result will be a net increase in the rate of savings. But if loans are

Notes

given to govt. by diverting the savings from private investment, then there will be no net increase in savings and investment activity. But even after that public loans can help economic growth by reallocation of resources.

If money is borrowed from the central bank then it results in the addition to aggregate money supply in the country. This results in increment in demand and an upward pressure on prices.

14.3.4 Government Budgetary Policy

A budgetary policy is concerned with the amount of money that is available to a country and how it is to be spent.

Typically, a budget includes the following four components:

(a) Some review of economy

(b) Major policy announcements

(c) Expenditure proposal

(d) Tax proposal

There are three major functions of fiscal policy:

1. First is allocation function of budget policy, that is , the provision for social goods. It is a process by which the total resources are divided between private and social goods and by which the mix of social goods is chosen.
2. Second is the distribution function of budget policy that is distribution of income and wealth in accordance with what society consider at "fair" or "just" distribution.
3. Third is the stabilization function of budget policy, that is marinating high employment, a reasonable degree of price stability an appropriate rate of economic growth, with due considerations of its effects on trade and the balance of payment.

The budget includes revenue and expenditure. Revenue and expenditure is divided in capital and revenue account. Thus receipts are broken into Revenue Receipts and Capital Receipts, and disbursements are broken up into Revenue expenditure and capital expenditure.

Revenue Budget

It consists of revenue receipts and revenue expenditure.

Revenue Receipts

This includes tax revenue and other revenues:

Tax revenue: These comprise of taxes and other duties levied by the Union government.

Other revenue: These receipts of the government mainly consist of interest and dividends on investment made by the government, fees and receipts for other services rendered by the government.

Revenue Expenditure

This is expenditure for normal running of govt. departments and various services interest charges on debt incurred by government, subsidies, etc. Expenditure which does not result in the creation of assets is treated as revenue expenditure.

Notes

Capital Budget

It consists of capital receipts and payments.

Capital Receipts

This includes loans raised by the government from the public called market loans, borrowings by the government from RBI and other parties through sale of treasury bills, loans received from foreign bodies and governments, and recoveries of loans granted by the union government to states and union territory governments and other parties.

Capital Payments

These payments consist of capital expenditure on acquisition of assets like land, buildings, machinery, equipment, infrastructure, as also investment in shares, etc. and loans and advances granted by the union government to state and union territory government companies, corporations and other parties.

Sources of Revenue

The sources of funds to finance development expenditure of a country are:

Taxation

Some important types of taxes are as follows:

- ***Income Tax:*** There are two type of income tax that is personal income tax and corporation tax. Personal Income tax is levied on individuals by the central government and the proceeds are shared between sates and Center. It is based on principle of "ability to pay" that is those who can pay more should pay more to the government. Corporation is a tax on income of the companies. The central govt. has been imposing corporation tax on the profits of the large and small companies.
- ***Interest Tax:*** The interest tax act provided for the levy and a special tax on the gross amount of interest accruing to the commercial banks on loans and advances made by them in India. The tax is levied on the gross interest income of "credit institutions" that is banks, financial institutions, financial companies, etc.
- ***Estate Duty:*** Estate duty was imposed on the estate of a person, which was inherited by his heirs.
- ***Wealth Tax:*** Wealth tax is imposed on accumulated wealth or property of every individual.
- ***Taxes on Commodities:*** Revenue from commodity taxation is the most important source of taxation for the central govt. Central excise and custom duties are two important taxes of the central govt.
- ***Central Excise (Indirect):*** These duties are levied by the centre on commodities which is produced within country MODVAT was introduced for central excise in 1988. Now it has been converted to VAT.
- ***Customs Duties (Indirect):*** These are duties or taxes imposed on commodities imported into India.
- ***VAT (Value Added Tax):*** It is imposed on sales.

Notes

Price

For the development of the economy Govt. has to launch public sector. As private sector don't take interest or it is unable in some highly capital intensive and having a high gestation period projects like infrastructure projects, heavy industry etc. Some time for the rapid development also Govt. have to invest in many sector simultaneously that in consumer industry like clothes etc to meet the huge gap between demand and supply and in heavy industry to make available the resources for the economy. Govt. charges the price for the goods its manufactures or the services it provides. Income from public enterprises now constitutes a substantial source of revenue.

Fee

It is a payment against the services, though it is never more than the cost of the services. Sometime it covers only part of the services.

*Example:*As nominal fees in govt. hospitals, educational fees, etc.

Fees like license fee are much higher than the services rendered. Sometime there is no positive return in terms of services and fees is charged just to grant permission in terms of license, etc. Difference between price and fees is that in fees it is public interest which is prominent that's why part of the cost is charged in most cases on the other hand in price is payment for the service of business charter. Here usually full cost is covered.

Rates

Rates are levied by local bodies, i.e., municipalities and district boards, for local purchases. They are generally imposed on the local immovable properties.

Fines

Fines are imposed as deterrent to breaking the law.

Escheat

When a person dies heirless or without a successor or leaves no will behind, his property or assets will go the State. The claim of the state to deceased's assets is called escheat.

Grants and Gifts

Grants are given by a government at a higher level to that at the lower level, e.g. from the central govt. to the state govt. or to the local district boards, municipalities, etc.

Example: Gifts are sometime received from private bodies and foreign Govt. for relief in natural calamities like earthquake, floods, droughts, cyclones, for building a hospital, schools, etc.

14.3.5 Expenditure of the Central Government

All public expenditure is classified into:

(a) ***Unplanned Expenditure:*** Unplanned expenditure of the central govt. is divided into revenue expenditure and capital expenditure. Under revenue expenditure we include: interest

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payment, defense revenue expenditure, major subsidies (export, food and fertilizer), interest and other subsidies, debt relief to farmers, postal deficit, police, pension and other general services, social service, economic service (agriculture, industry, power, transport, communications, science and technology, etc.) and grants to states and union territories, and grants to foreign government. Capital non plan expenditure includes such items as: Defense capital expenditure, loans to public enterprises, loans to states and union territories and loans to foreign govt.

(b) ***Planned Expenditure:*** Planned expenditure is to finance central plans, such as agriculture, rural development, irrigation and flood control energy industry and minerals transport, communications, science and technology and environment, social services and others and Central assistance for Plans of the state and Union Territories.

Task Go through the Union Budget presented by the Finance Minister for the financial year 2011-2012. Highlight the main points of the budget pertaining to agricultural sector.

14.3.6 Budgets of State Government

In India each state govt. prepares its own budget of income and expenditure every year. State govt. collects the revenue from different sources to meet their expenditure.

Caution The important source of revenue for states are VAT, (earlier sales tax), grant in aid and other contributions from the Centre, states own non tax revenue , consisting of interest receipts, dividends, and profits, general services (of which state lotteries are the most important) social services and economic services. Besides this state also collect taxes on income and commodities. State imposes income tax on agriculture and profession. State govt. receives income from taxes on property and capital transactions. The main sources are land revenue, stamps, and registration, and tax on urban and immovable property.

States also charges commodity taxes like motor vehicle tax, electricity duties, etc. State is also empowered to impose tax alcoholic liquor, opium, Indian hemp, and other narcotics.

Case Study

Budget: Fiscal Policy Overview

External Affairs and Finance Minister Pranab Mukherjee in February, 2009, said the government cannot indulge in 'reckless borrowing' and did not have Parliamentary mandate to tweak taxes.

The following is the government's fiscal policy strategy statement that the finance minister announced in Parliament.

A. Fiscal Policy Overview

1. The Union Budget 2008-09 was presented in the backdrop of impressive growth in the Indian economy which clocked about 9 per cent of average growth in the last four years.

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This striking performance coupled with significant improvement in fiscal indicators, during the Fiscal Responsibility and Budget Management (FRBM) Act, 2003 regime definitely put the country on a higher growth trajectory inspiring confidence in the medium to long term prospects of the economy. The process of fiscal consolidation during these years has resulted in improvement in fiscal deficit from 5.9 per cent of GDP in 2002-03 to 2.7 per cent of GDP in 2007-08. During the same period, revenue deficit has declined from 4.4 per cent to 1.1 per cent of GDP.

In tune with the philosophy of equitable growth, the process of fiscal consolidation was taken forward without constricting the much-required social sector and infrastructure related expenditure.

This improvement in the state of public finances was achieved through higher revenue buoyancy, driven by efficient tax administration and improved compliance which is evident from increase in the tax to GDP ratio from 8.8 per cent in 2002-03 to 12.5 per cent in 2007-08.

2. Riding on the path of fiscal consolidation, the Union Budget 2008-09 was presented with fiscal deficit estimated at 2.5 per cent of GDP and revenue deficit at 1 per cent of GDP.

However, after the presentation of the Union Budget in February 2008, the world economy was hit by three unprecedented crises – first, the petroleum price rise; second, rise in prices of other commodities; and third, the breakdown of the financial system.

The combined effect of these crises of these orders are bound to affect emerging market economies and India was no exception. The first two crises resulted in serious inflationary pressure in the first half of 2008-09. The focus of the monetary as well as fiscal policy shifted from fuelling growth to containing inflation, which had reached 12.9 per cent in August, 2008.

Series of fiscal measures both on tax revenue and expenditure side were undertaken with the objective of easing supply side constraints. These measures were supplemented by monetary initiatives through policy rate changes by the Reserve Bank of India and contributed to the softening of domestic prices.

Headline inflation fell to 4.39 per cent in January, 2009. However, the fiscal measures undertaken through tax concessions and increased expenditure on food, fertiliser and petroleum subsidies along with increased wage bill for implementing the Sixth Central Pay Commission recommendations significantly altered the deficit position of the Government.

3. The global financial crisis in the second half of the financial year which heralded recessionary trends the world over, also impacted the Indian economy causing the focus of fiscal policy to be shifted to providing growth stimulus.

The moderation in growth of the economy and the impact of the fiscal measures taken to stimulate growth can be seen reflected in the estimates for gross tax revenue which stand reduced from ₹ 6,87,715 crore in B.E. 2008-09 to ₹ 6,27,949 crore in R.E. 2008-09.

Additional budgetary resources of ₹ 1,50,320 crore provided as part of stimulus package and various committed liabilities of Government including rising subsidy requirement, provision under NREGS, implementation of Central Sixth

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Pay Commission recommendations and Agriculture Debt Waiver and Debt Relief Scheme for Farmers contributed to the higher fiscal deficit of 6 per cent of GDP in RE 2008-09 as compared to 2.5 per cent of GDP in B.E. 2008-09.

4. The Country is facing difficult economic situation, the cause of which is not emanating from within its boundaries. However, left unattended, the impact of this crisis is going to affect us in medium to long-term.

The Government had two policy options before it. In view of falling buoyancy in tax receipts, the Government could have taken a decision to cut expenditure and thereby live within the estimated deficit for the year.

The second option was to increase public expenditure, even with reduced receipts, to stimulate economy by creating demand and maintain the growth trajectory which the country was witnessing in the recent past.

The Government took the second option of adopting fiscal measures to increase public expenditure to boost demand and increase investment in infrastructure sector.

Ensuring revival of the higher growth of the economy will restore revenue buoyancy in medium term and afford the required fiscal space to revert to the path of fiscal consolidation.

B. Fiscal Policy for the ensuing Financial Year

5. The Interim Budget 2009-2010 is being presented in the backdrop of uncertainties prevailing in the world economy. The impact of this is seen in the moderation of the recent trend in growth of the Indian economy in 2008-09 which at 7.1 per cent still however makes India the second fastest growing economy in the World.

The measures taken by Government to counter the effects of the global meltdown on the Indian economy, have resulted in a short fall in revenues and substantial increases in government expenditures, leading to a temporary deviation from the fiscal consolidation path mandated under the FRBM Act during 2008-09 and 2009-2010.

The revenue deficit and fiscal deficit for R.E. 2008-09 and B.E. 2009-2010 are, as a result, higher than the targets set under the FRBM Act and Rules.

The grounds due to which this temporary deviation has taken place, are detailed in the Fiscal Policy Overview above and also in the Macro-economic Framework Statement being presented in the Parliament. The fiscal policy for the year 2009-2010 will continue to be guided by the objectives of keeping the economy on the higher growth trajectory amidst global slowdown by creating demand through increased public expenditure in identified sectors.

However, the medium term objective will be to revert to the path of fiscal consolidation at the earliest, with improvement in the economic situation.

Question:

Comment on the fiscal policy (only portion given in the case) introduced by the finance minister.

Source: www.rediff.com

Self Assessment

Notes

Multiple Choice Questions:

9. ..... is an effective tool of budget to influence the level of savings and investment in country.
   (a) Public debt
   (b) Interest rate
   (c) Taxation
   (d) Open market operations
10. ..... occurs when the spending of a government exceeds its financial savings.
   (a) Budget surplus
   (b) Budget deficit
   (c) Market equilibrium
   (d) Dissavings
11. Treasury Bills are instruments of ..... debt.
   (a) Short-term
   (b) Long-term
   (c) Permanent
   (d) Floating
12. Which of these is not a part of internal debt?
   (a) Special Bearer Bonds
   (b) Treasury Bills
   (c) Provident funds
   (d) Suppliers' credit
13. ..... are duties or taxes imposed on commodities imported into India.
   (a) Estate tax
   (b) Wealth tax
   (c) Central excise
   (d) Customs duty

14.4 Effectiveness of Fiscal Policy

The following aspects are crucial for the effectiveness of fiscal policy interventions:

First, the effect of a fiscal expansion depends on how the expansion is financed. This applies not only to the short-term debt-tax mix used to finance a current increase in government expenditure, but also - and perhaps even more importantly - to the long-term financing source, i.e., taxes versus spending cuts in the future. The impact of higher current expenditure is strengthened when complemented with a credible plan that ensures it is financed at least in part by future spending cuts. Future spending cuts tend to raise current private consumption and investment

Notes

via their effects on the long-term interest rate. This channel is emphasized by both Keynesian and neoclassical models.

Lower future spending commitments mean that future taxes won't have to rise as much. In other words, such a financing plan, if credible, will help sustaining the spending plans by firms and households who are currently not credit-constrained, and who therefore immediately respond to long-term fiscal prospects.

Admittedly, a commitment to reduce spending in the future may lack credibility, especially in a situation like today, when the uncertainty about the length and the overall fiscal implications of the crisis is enormous.

It may nonetheless pay to identify measures which are inherently temporary, i.e., matched by future cuts in spending. An obvious example consists of measures that bring forward in time investment projects that are already planned, thereby raising current spending while simultaneously reducing future spending. This is not a perfect solution to the commitment problem, but it may help.

Notes **Monetary and Fiscal Policy should Work Together**

Fiscal policy is more effective if it works in consonance with the monetary policy. For fiscal stimulus to work, central banks should not adhere to narrow-mindedly to their mandate of price stability.

Yet, one could envision a situation in which, even if policy interest rates were brought close to zero, it would still be possible that the overall monetary stance of the economy remain too tight. In this situation, the lower bound of zero for nominal interest rates - while providing a rationale for a fiscal expansion - may at the same time limit the effectiveness of any given fiscal intervention.

Limitations of Fiscal Policy

In practice there are many limitations of using a fiscal policy. They are:

Disincentives of Tax Cuts: Increasing Taxes to reduce AD may cause disincentives to work, if this occurs there will be a fall in productivity and AS could fall. However, higher taxes do not necessarily reduce incentives to work if the income effect dominates.

Side Effects on Public Spending: Reduced government spending to Increase AD could adversely affect public services such as public transport and education causing market failure and social inefficiency.

Poor Information: Fiscal policy will suffer if the government has poor information. For example, if the government believes there is going to be a recession, they will increase AD, however if this forecast was wrong and the economy grew too fast, the government action would cause inflation.

Time Lags: If the government plans to increase spending this can take a long time to filter into the economy and it may be too late. Spending plans are only set once a year. There is also a delay in implementing any changes to spending patterns.

Budget Deficit: Expansionary fiscal policy (cutting taxes and increasing G) will cause an increase in the budget deficit which has many adverse effects. Higher budget deficit will require higher taxes in the future and may cause crowding out.

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Crowding Out: Increased government spending (G) to increased AD may cause "Crowding out" Crowding out occurs when increased government spending results in decreasing the size of the private sector.

Monetarist Critique: Monetarists argue that in the long run AS is inelastic therefore an increase in AD will only cause inflation to increase.

Caselet

RBI Must Balance Fiscal and Monetary Policy

The government must do its bit to contain inflation and shore up investment: contain the fiscal deficit and direct investment, by itself or through clearheaded, decisive policy, to remove the supply bottlenecks that feed inflation. This is the unambiguous message of the RBI's first quarter review of monetary policy.

For all the brouhaha over its higher-than-expected hike in the repo rate, at which it lends to banks, there are two reassuring aspects of the policy review. One, the baseline GDP growth rate for the current year has been retained at 8%, the rate projected in the policy statement of May 3. Clearly, the RBI does not expect growth to be hit by its tough love act, raising the repo rate by 50 basis points, twice as much as anticipated, to 8%.

Two, the central bank seems far more determined than before to get inflation under control. Unlike in 2010-11, when it failed to read the writing on the wall and maintained its dovish assumption on year-end inflation, only to end up with egg on its face when the final March 2011 number was way ahead of its estimate, this time round it has opted to play safe. It has raised its inflation projection for March 2012 to 7%, up from 6% projected in its May statement.

This is recognition (albeit belated) both of the limited options available to a central bank in a scenario where the government refuses to play ball and of the fact that inflation has now become a 'dominant' Macro Economic concern.

But as the Statement points out, when the government drags its feet and acts irresponsibly by failing to keep the fiscal deficit under control, monetary policy has to overcompensate. The net effect is that the RBI ends up carrying the can for the government and not achieving very much for its efforts either, since, for a variety of structural reasons, the monetary transmission mechanism or signaling system is not as efficient as it should be.

All the more reason for fiscal and monetary policy to act in tandem in order is to achieve the twin Macro Economic goals of sustained growth with price stability. Sub-optimal results ensue when monetary and fiscal policy pull in different directions. The RBI is doing its job right. It is up to the government to the right thing, too.

Source: www.articles.economictimes.indiatimes.com

Self Assessment

State whether the following statements are true or false:

14. Lower future spending commitments mean that future taxes won't have to rise as much.
15. Crowding out occurs when increased government spending results in increasing the size of the private sector.
16. Higher tax rates don't necessarily mean that there is lesser incentive to work.

Notes

14.5 Summary

- Fiscal policy is a statement of Govt. about its projected source of revenue and expenditure, it tells about the schedule of activities to be undertaken towards the direction of national objectives.
- Fiscal policy is the projected balance sheet of the country, prepared by Chief Finance Officer of the country that is finance minister of the state.
- Fiscal policy is implemented through Budget, which is statement of state's revenue and expenditure. Typically budget includes four components: - Some review of economy, Major policy announcement, Expenditure proposal, and Tax proposal.
- The budget includes revenue and expenditure of the government. Revenue and expenditure is divided in capital and revenue account. Thus receipts are broken into Revenue Receipts and Capital Receipts, and disbursement are broken up into Revenue expenditure and capital expenditure.
- Taxation, Profits of Public Sector (Price), Domestic non-monetary borrowing, external borrowing, borrowing from the RBI (monetised borrowing) are the main source of funds for the Govt. Expenditure of the Govt. The Government expenditure can be divided into non-plan expenditure and plan expenditure.
- Fiscal policy is a potent tool in the hands of Govt. to regulate the economic growth. Through the fiscal policy govt. can influences the demand, supply and even the level of currency in the economy.
- It increases the supply of currency in the economy by resorting to deficit financing thus taking public debt. Through fiscal policy Govt. also influences the level of investment and saving rate.

14.6 Keywords

Budget Deficit: An excess of expenditures over revenues.

Budgetary Policy: It refers to government attempts to run a budget in equilibrium or in surplus.

Crowding Out: Any reduction in private consumption or investment that occurs because of an increase in government spending.

Escheat: When property and/or an estate is transferred to the government because a person has died without a will or an heir to his or her estate.

Fiscal Policy: Government spending policies that influence Macro Economic conditions.

Internal Debt: It is the part of the total debt in a country that is owed to lenders within the country.

Public Debt: In Indian context, it refers to the borrowings of the Central and state government.

Revenue Budget: It consists of revenue receipts of government and the expenditure met from these revenues.

14.7 Review Questions

1. Explain the rationale behind framing a fiscal policy.
2. "Fiscal policy is a potent tool in the hands of government to regulate the economic growth." Discuss.

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3. Describe the various sources of revenue of the government.
4. Discuss the role of fiscal policy in economic growth.
5. Describe public debt? Discuss its role in the economy.
6. State the limitations of a fiscal policy. Do you think that these limitations can be overcome?
7. Evaluate the role of taxes in maintaining growth in the economy.
8. Can the size of the black economy be minimized by using the economic tool of fiscal policy? Justify your answer.
9. Explain the role of public debt in an economy.
10. Contrast revenue budgets and capital budgets.

Answers: Self Assessment

1.	True	2.	True
3.	False	4.	Indirect
5	Direct	6.	regressive
7.	non-planned	8.	budget deficit
9.	(c)	10.	(b)
11.	(a)	12.	(d)
13.	(d)	14.	True
15.	False	16.	True

14.8 Further Readings

Books

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