PG EC S2-02 (DSC)

TWO YEAR MASTER'S DEGREE COURSE

(CBCS in Accordance with NEP 2020)

SEMESTER - II

MACRO ECONOMIC THEORY - II

ECONOMICS

Surya Kumar Bhuyan School of Social Sciences

KRISHNA KANTA HANDIQUI STATE OPEN UNIVERSITY

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COURSE INTRODUCTION

Macro Economics II is one the course of second semester of the M.A. in Economics programme of this University. As we have already studied Macro Economics in first semester of this programme, so, this course basically covers the topics of Macro Economics which are not covered in the first semester course and introduces the learners with various new knowledge and ideas of Macro Economics. This course comprises of 14 units. The first unit of the course discusses the supply of money. This unit will help you understand the meaning of the term supply of money, determinants of supply of money, money and near money, inside money and outside money and the concept of money multiplier and high-powered money. The second unit deliberates on the post-Keynesian theories of demand for money. Important concepts discussed in the unit include Patinkin and the real balance effect, approaches of Baumol and Tobin and Friedman's modern quantity theory of Money. The third unit will introduce you to the concept of inflation. In this unit we will discuss the meaning and types of inflation, causes and effects of inflation in an economy, demand-pull and cost-push inflation, different policies to control inflation and the concept of deflation and stagflation. The fourth unit deals with the relation between unemployment and inflation. This unit explains about short run and long run Philips curve, reasons of shift of Philips curve, natural rate of unemployment, shifts in Philips curve owing to changes in adaptive and rational expectations and Tobin and Solow's modification on Philips curve. The fifth unit discusses about the business cycle, theories of business cycle propounded by Schumpeter, Kaldor, Samuelson and Hicks economic policies and its applicability in different phases of business cycle. The sixth unit will help you to acquire knowledge about the supply side economics. In this unit we will discuss the loopholes of Keynesian Economics, the reasons for the emergence of supply side economics and the main features of Supply Side Economics. The seventh unit deals with the Keynesian and Monetarist view about money. This unit will help you to understand the short run and long run effect of money supply in the economy, factors influence interest rate and price from the approaches of Keynesianism and Monetarism and effectiveness of monetary and fiscal policy in different economic situations. The eight unit introduces you to the macro-economic policy instruments. In this unit we will discuss the concepts of full employment, economic growth, price stability, internal and external balances and the role of macro-economic policies for attaining economic stability. The ninth and tenth unit shall discuss the monetary policy formulation in India. The ninth unit will help you to understand the Reserve Bank of India and its functions, monetary policy of India and its various elements and monetary policy formulations prior to economic reform period. The tenth unit outlines the role of RBI in monetary Policy Formulation, various instruments of

monetary policy of India and monetary policy formulations in the post economic reform period. The eleventh unit of the course discusses about the macroeconomic theories of the open economy. This unit will help you to understand how the loanable fund and foreign exchange market achieves equilibrium in open economy. Apart from it, this unit also explains how budget deficit and trade policy affect the open economy equilibrium and the role of macroeconomic policies in an Open Economy. The twelfth unit discusses about the Harrod-Domar growth model, Solow's Neo-classical growth model and Kaldor's Model of growth. The thirteenth unit describes the selective emerging macroeconomic issues. In this unit, we will discuss about the globalization and the changing environment of the world economy, global financial crisis of 2009 and issues associated with demonetisation and digitalisation of the national economy .The final unit discusses the pros and cons of stabilizing the economy with the help of monetary and fiscal policies, how the central bank tries to manage zero inflation and whether tax laws should be reformed to encourage savings.

While going through a unit, you will notice some along-side boxes, which have been included to help you to know some of the difficult, unseen terms. Again, we have included some relevant concepts in "LET US KNOW" along with the text. And, at the end of each section, you will get "CHECK YOUR PROGRESS" questions. These have been designed to self-check your progress of study. It will be better if you solve the problems put in these boxes immediately after you go through the sections of the units and then match your answers with "ANSWERS TO CHECK YOUR PROGRESS" given at the end of each unit.

UNIT 1: SUPPLY OF MONEY

UNIT STRUCTURE

1.1 Learning Objectives

1.2 Introduction

1.3 Definition of Supply of Money

1.4 Determinants of Money Supply

1.5 Concept of Money and Near Money

1.6 Inside and Outside Money

1.7 Concept of Money Multiplier and High Powered Money

1. 8 Let Us Sum Up

1.9 Further Reading

1.10 Answers to Check Your Progress

1.11 Model Questions

1.1 LEARNING OBJECTIVES

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

- understand the meaning of the term supply of money
- know the determinants of supply of money
- explain the concept of money and near money
- understand the concepts of inside money and outside money
- know about the concept of money multiplier and high-powered money.

1.2 INTRODUCTION

This unit is concerned with familiarizing you with supply of money, determinant of supply of money, the concept of credit multiplier and money multiplier.

In general, the term “supply of money” can be defined as the total stock of currency and other liquid instrument held by the public and circulating in an economy during a particular point of time. The term “public” refers to the individuals and the business firms in the economy, excluding

the central government, the central bank and the commercial banks. Money may be regarded as something, which is generally used as a means of payment and accepted for the settlement of debt.

There are various determinants of supply of money such as monetary base, money multiplier, reserve ratio, currency ratio, confidence in bank money, time deposit ratio, real income, interest rate, monetary policy and seasonal factors and public desire to hold currency etc.

Money is anything that is generally acceptable as a means of payment in the settlement of all transactions, including debt. On the other hand, near money assets do not have any legal status.

Inside money is money issued by private intermediaries (i.e. commercial banks) in the form of debt (credit). Outside money is money that is not a liability for anyone "inside" the economy.

The money multiplier is the amount of money that banks generate from each unit of the currency reserves. The value of the money multiplier depends on the desired currency deposit ratio and the excess deposit ratio.

1.3 DEFINITION OF SUPPLY OF MONEY

The supply of money is a stock at a particular point of time, though it conveys the idea of a flow over time. The term 'the supply of money' is synonymous with such terms as 'stock of money', 'money supply' and 'quantity of money'. The supply of money is a policy variable determined jointly by the monetary authority, banks and the public. However, in most of the time the monetary authority plays the dominant role in the determination of the supply of money. To study the mechanics of supply of money, it is essential to understand the distinction between two types of money- ordinary money and high powered money. All the empirical measures of money as given by the Reserve Bank of India popularly known as M_1, M_2, M_3 and M_4 can be termed as ordinary money. On the other hand, high powered money or powerful money refers to the currency that has been issued by the Reserve Bank of India (RBI) and the Government of India. Some portion of the currency is held by the public and the rest is kept as funds in Reserve Bank. The total amount of supply of money is determined by various factors, which are discussed in the next section of the unit.

1.4 DETERMINANTS OF MONEY SUPPLY

The determinants of money supply are both exogenous and endogenous. Money supply is determined exogenously by the central bank and money supply is determined endogenously by changes in the economic activity, which affects people's desire to hold currency relative to deposits and the rate of interest etc.

Broadly, the determinants of money supply can be classified into two catagories such as monetary base and the money multiplier. These two broad determinants of money supply are, in turn influenced by other factors. We will discuss all the determinants of supply on money as follows:

- **The Monetary Base:** The monetary base is considered as the most important determinant of supply of money. Money supply varies directly in relation to the changes in the monetary base. Monetary base refers to the supply of fund available for use either as cash or reserve of the central bank. Monetary base changes due to the policy of the government or is influenced by the value of money. The current practice is to explain the determinants of the money supply in terms of the monetary base or high-powered money. High-powered money is the sum of commercial bank reserves and currency (notes and coins) held by the public. High-powered money is the base for the expansion of bank deposits and creation of the money supply. Thus, the supply of money varies directly with changes in the monetary base, and inversely with the currency and reserve ratios.
- **Money Multiplier:** Money supply and high powered money are linked through the money multiplier. The money multiplier is the ratio of the stock of money to the stock of high powered money and is always greater than one. Money multiplier has positive influence upon the supply of money. An increase in the size of money multiplier will increase the money supply and vice versa. A detailed discussion regarding the money multiplier is carried out in subsequent section of the unit.

- **The Level of Bank Reserves:** The level of bank reserves is another determinant of the money supply. Commercial bank reserves consist of reserves on deposits with the central bank and currency in their tills or vaults. It is the central bank of the country that influences the reserves of commercial banks in order to determine the supply of money. The central bank requires all commercial banks to hold reserves equal to a fixed percentage of both time and demand deposits. These are the legal minimum or required reserves. Required reserves (RR) are determined by the required reserve ratio (RRr) and the level of deposits (D) of a commercial bank. For example, if the deposit amount is Rs. 100 lakhs and the required reserve ratio is 20 percent, then the required reserves will be Rs. 20 lakhs (20% x Rs. 100 lakhs). If the reserve ratio is reduced to 10 per cent, the required reserves will also be reduced to Rs. 10 lakhs. Thus, the higher the reserve ratio, the higher the required reserves to be kept by a bank, and vice versa. But it is the excess reserves (ER) which are important for the determination of the money supply. Excess reserves are the difference between total reserves (TR) and required reserves (RR): ER=TR-RR. If total reserves are Rs 100 lakhs and required reserves are Rs 20 lakhs, then the excess reserves are Rs 80 lakhs (100 - 20 lakhs).

  When required reserves are reduced to Rs 10 lakhs, the excess reserves increase to Rs 90 lakhs. It is the excess reserves of a commercial bank which influence the size of its deposit liabilities. A commercial bank advances loans equal to its excess reserves which are an important component of the money supply. To determine the supply of money with a commercial bank, the central bank influences its reserves by adopting open market operations and discount rate policy. Open market operations refer to the purchase and sale of government securities and other types of assets like bills, securities, bonds, etc., both government and private, in the open market. When the central bank buys or sells securities in the open market, the level of bank reserves expands or contracts. The purchase of securities

by the central bank is paid for with cheques to the holders of securities who, in turn, deposit them in commercial banks thereby increasing the level of bank reserves. The opposite is the case when the central bank sells securities to the public and banks who make payments to the central bank through cash and cheques thereby reducing the level of bank reserves.

Bank rate policy affects the money supply by influencing the cost and supply of bank credit to commercial banks. The bank rate in India is the interest rate at which commercial banks borrow from the central bank. A high bank rate means that commercial banks get less amount by selling securities to the central bank. The commercial banks, in turn, raise their lending rates to the public thereby making advances dearer for them. Thus, there will be contraction of credit and the level of commercial bank reserves. Opposite is the case when the bank rate is lowered. It tends to expand credit and the consequent bank reserves.

It should be noted that commercial bank reserves are affected significantly only when open market operations and bank policy supplement each other. Otherwise, their effectiveness as determinants of bank reserves and consequently, of money supply is limited.

- **Statutory Liquidity Ratio:** Apart from this CRR, the commercial banks also need to keep liquid in the form of cash, gold and unencumbered approved securities which are known as Statutory Liquidity Ratio (SLR). This SLR is by law an additional measure to determine money supply. The raising of the SLR has the effect of reducing the money supply with the commercial banks for the lending purposes and the lowering of the SLR tends to increase the money supply with banks for advances. At present (as of February, 2020), the SLR as fixed by RBI in India is 18.25%.
- **Open market operations:** To determine the supply of money with a commercial bank, the central bank influences its reserves by adopting open market operation. These refer to the purchase and sale of

government securities and other types of assets like bills, securities, bonds etc, both government and private, in the open market. When the central bank buys and sells securities in the open market, the level of bank reserves expands or contracts. The purchase of securities by the central bank is paid for with the cheque to the holder of securities who in turn, deposit them in the commercial banks thereby increasing the level of bank reserves. The opposite is the case when the central bank sells securities to the public and banks who make payment to the central bank through cash and cheque thereby reducing the level of bank reserves.

- **Discount Rate Policy/ Bank Rate:** The discount rate policy affects the money supply by influencing the cost and supply of bank credit to commercial banks. This is known as bank rate in India. It is the interest rate at which commercial banks borrow from the central bank. A high interest means that commercial banks get less amount by selling securities to the central bank. In turn, the commercial banks raise their lending rates to the public thereby making advances dearer for them. Thus, there will be contraction of credit and the level of commercial bank reserves. The opposite is the case when the bank rate is lower. This means it tends to expand credit and consequently the bank reserves expand.
- **Public Desire to hold Currency and Deposits:** People's desire to hold currency (or cash) relative to deposits in commercial banks also determines the money supply. If people are in the habit of keeping less in cash and more in deposits with the commercial banks, the money supply will be large. This is because banks can create more money with larger deposits. On the contrary, if people do not have banking habits and prefers to keep their money holdings in cash, credit creation by banks will be less and the money supply will be at a low level.
- **Time-Deposit Ratio:** Time deposit ratio (t), which represents the ratio of the time deposit to the demand deposit is a behavioural

parameter having negative effect on the money multiplier (m) and thus on the money supply. A rise in 't' reduces 'm' and thereby the supply of money decreases.

- **Monetary Policy:** Monetary policy is the single most important determinant of money supply by definition. A change in the monetary policy has profound impact on behaviour of the banking institutions and people to hold money in the form of cash. The monetary policy determines the money supply in an economy by deciding on the CRR, SLR, Repo Rate, Reverse Repo Rate, Open Market Operations, Selective Credit Control and so on.

1.5 CONCEPT OF MONEY AND NEAR MONEY

As mentioned in the previous section, money is anything that is generally acceptable as a means of payment in the settlement of all transactions, including debt. It is the commonly used medium of exchange or means of transferring purchasing power. General acceptability as a means of payment or as a medium of exchange is the unique feature of money. What makes money medium of exchange is the belief held by everyone that it will be accepted as such by all others in the economy. Money consists of coins, currency notes and demand deposits of the banks. Near money, on the other hand, includes the financial assets like time deposits, bills of exchange, bonds, shares etc. Money is a legal tender and gives the possessor liquidity in hand. It performs the medium of exchange function. On the other hand, near money assets do not have any legal status. They possess moneyness or liquidity but not ready liquidity like money. They are almost perfect substitutes for money as a store of value.

The difference between money and near money can be explained in terms of liquidity and types of functions of money and near money. Money possesses 100 per cent liquidity; *i.e.,* it is liquid or can be readily acceptable as a means of payment. Near-money lacks 100 percent liquidity, *i.e.,* it involves time cost for its conversion into money. Another difference between money and near money is that money serves as a unit of account or a

common measure of value. All prices are expressed in terms of money. Near-money on the other hand, does not perform such functions. Rather, its own value is expressed in terms of money.

1.6 INSIDE AND OUTSIDE MONEY

In this section of the unit, a discussion is carried out regarding inside and outside money.

Inside money is an asset representing, or backed by, any form of private credit that circulates as a medium of exchange. Inside money is also known as indigenous money as it is created inside the private sector. It is mainly used to identify debt that is considered an asset to the holder while also being a liability to the issuer of the debt. In monetary economics, inside money is money issued by private intermediaries (i.e. commercial banks) in the form of debt (credit). This money is typically in the form of demand deposits or other deposits, and hence is part of the money supply. The money, which is an asset of the depositor but coincides with a liability of the bank, is inside money. Inside money is thus a liability (equivalently a negative asset) to the issuer, so the net amount of assets associated with inside money in an economy is zero. Most money circulating in a modern economy is inside money. One of the most common examples of inside money is the deposits that customers make at banks and similar financial institutions.

Money that are backed by some asset and that are not in zero net supply within the private sector of the economy is known as outside money. Thus, outside money is a net asset for the private sector. Outside money is not a liability for anyone “inside” the economy. It is held in an economy in net positive amounts. Money that is backed by gold and assets denominated in foreign currency or otherwise backed up by foreign debt, like foreign cash, stocks or bonds are examples of outside money.

The distinction between inside and outside money can be explained in case of rising or falling prices. When there is inflation or deflation, a change in the purchasing power of money in case of inside money leads to an equal change in the real value of both assets and liabilities of the private

sector. Thus, a change in the price level does not affect the behavior of the depositors and borrowers possessing inside money.

But in case of outside money, a change in the price level affects the behavior of the economic units possessing outside money because the real value of the cash held by economic unit changes. Thus, given the nominal amounts of outside money, its real value varies inversely with the price level, and each change in its real value leads to a wealth transfer between the private sector and the government.



ACTIVITY 1.1

Q.1: Identify the relation between money and near money.

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CHECK YOUR PROGRESS

Q.1: State whether True (T) or False (F)

(i) Money supply varies directly in relation to the changes in the monetary base. (True/False)

.....

(ii) Demand deposit is an example of near money. (True/False)

.....

1.7 CONCEPT OF MONEY MULTIPLIER AND HIGH POWERED MONEY

Money multiplier and high powered money are related to each other. The current practice to define money multiplier is in terms of high powered money. The high powered money is the sum of the commercial bank reserves and currency held by the public. High powered money is the base for expansion of bank deposit and creation of the value of the money mutplier. This can be explained as follows:

The money supply consists of deposits of commercial bank (D) and Currency (C) held by the public. Thus, the supply of money (Ms)

$Ms = D + C$ ..... (1)

On the otherhand, the high powered money (H) consists of currency held by the public (C) plus required reserve ratio (RR) and the excess reserve of the commercial bank.

$HP = C + RR + ER$ ..... (2)

Now, the relation between Ms and HP can be explained as a ratio of Ms to HP.

$$\frac{M_S}{H_P} = \frac{D + C}{C + RR + ER} \quad \text{.....(3)}$$

$$\frac{M_s}{H_p} = \frac{\frac{D}{D} + \frac{C}{D}}{\frac{C}{D} + \frac{RR}{D} + \frac{ER}{D}}$$ (Dividing the numerator and denominator by D)

or $$\frac{M_s}{H_p} = \frac{1 + \frac{C}{D}}{\frac{C}{D} + \frac{RR}{D} + \frac{ER}{D}}$$ ..... (4)

By substituting Cr for $\frac{C}{D}$, RR_r for $\frac{RR}{D}$, ER_r for $\frac{ER}{D}$ equation 4 becomes

$$\frac{M_s}{H_p} = \frac{1 + Cr}{Cr + RR_r + ER_r}$$ ..... (5)

Thus high powerd money and money supply are equal to

$$\frac{M_S}{H_P} = \frac{D + C}{C + RR + ER} \times H_P$$ ..... (6)

Now, $\frac{1 + Cr}{Cr + RR_r + ER_r}$ can be termed as money multiplier (m) and equation 6 can be rewritten as $M_s = mH$ ..... (7)

Equation 7 expresses the money supply as a function of money multiplier and high powered money.

It can be easily drawn from the above discussion that the size of the money multiplier is determined by the currency ratio (Cr) of the public, the required reserve ratio (RRr) and the excess reserve ratio (ERr) of the

commercial bank. The lower the values of these ratios are, the higher are the values of the multiplier. The significance of money multiplier can be assessed from the fact that if m is fairly stable, the central bank can manipulate the supply of money by manipulating high-powered money.



ACTIVITY 1.2

Q.1: Try to derive the relation between high-powered money and money multiplier.

.....

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CHECK YOUR PROGRESS

Q.2: State whether True (T) or False (F)
Currency ratio is an important determinent of money multiplier (True/False)

.....

Q.3: What is high powered money? (Answer in about 40 words)

.....

.....

.....

Q.4: Mention the determinants of money supply.
(Answer in about 40 words)

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Q.5: Mention the relationship between monetary base and total supply of money in an economy. (Answer in about 40 words)

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1.8 LET US SUM UP

- Supply of money is the total stock of currency and other liquid instruments held by the public and circulating in an economy during a particular point of time.
- There are various determinants of supply of money such as monetary base, the required reserve ratio and excess reserve ratio of the bank, monetary policy, public desire to hold currency and confidence of the people on banks etc.
- Money multiplier is an important determinant of total supply of money in an economy.
- The value of the money multiplier is determined by the currency ratio (Cr) of the public, the required reserve ratio (RRr) and the excess reserve ratio (ERr) of the commercial bank.
- Money is a legal tender and gives the possessor liquidity in hand. It performs the medium of exchange function. On the other hand, near money assets do not have any legal status. They possess moneyness or liquidity but not ready liquidity like money.
- Most money circulating in a modern economy is inside money. Outside money is money that is not a liability for anyone "inside" the economy.
- The significance of money multiplier (m) can be assessed from the fact that if the value of the money multiplier is stable, the central bank can manipulate the supply of money by manipulating high-powered money.



1.9 FURTHER READING

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1.10 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: (i) True (ii) True

Ans to Q No 2: True

Ans to Q No 3: High powered money is the determinant of money supply that consist of i) gold stock, ii) amount of money issued by the government i.e. coins and currency etc. and iii) the outstanding central government credit i.e. loan securities etc. It is given by -

High powered money (H) = C + RR + ER. where C = currency, RR= reserve ratio; and ER= excess reserve.

Ans to Q No 4: The determinants of money supply are both exogenous and endogenous. The exogenous factors of money supply are determined by the central bank. The endogenous factors are determined by changes in economic activities which affect peoples' desire to hold currency relative to deposit, the rate of interest etc.

Ans to Q No 5: The monetary base is considered as the most important determinant of supply of money. Money supply varies directly in relation to the changes in the monetary base. Monetary base refers to the supply of fund available for use either as cash or

reserve of the central bank. Monetary base changes due to the policy of the government or is influenced by the value of money.



1.11 MODEL QUESTIONS

A) Short Questions (Answer each question in about 150 words)

Q 1: Define near money.

Q 2: What is meant by high powered money?

Q 3: Write a short note on supply of money.

Q 4: Explain how the velocity of circulation of money affects the money supply.

B) Essay- type Questions (Answer each question in 300-500 words)

Q 1: Explain the relation between high-powered money and money supply.

Q 2: Explain the process of derivation of money multiplier.

Q 3: Explain the relation between inside money and outside money.

Q 4: Critically discuss the narrower definition of money.

Q 5: Explain the constituents of money supply.

*** ***** ***

UNIT 2: POST-KEYNESIAN THEORIES OF DEMAND FOR MONEY

UNIT STRUCTURE

2.1 Learning Objectives

2.2 Introduction

2.3 Post-Keynesian Approaches to Demand for Money

2.4 Patinkin and the Real Balance Effect

2.5 Approaches of Baumol and Tobin

- 2.5.1 Baumol's Analysis
- 2.5.2 Tobin's Analysis

2.6 Friedman and the Modern Quantity Theory

2.7 Let Us Sum Up

2.8 Further Reading

2.9 Answers to Check Your Progress

2.10 Model Questions

2.1 LEARNING OBJECTIVES

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

- understand the post Keynesian approaches to demand for money
- know the Patinkin and the Real Balance Effect
- explain the approaches of Baumol and Tobin
- illustrate the Friedman modern quantity theory of Money.

2.2 INTRODUCTION

This unit is concerned with familiarizing you with post Keynesian approaches of demand for money, Patinkin real balance effect, approaches of Baumol and Tobin and Friedman modern Quantity theory of Money.

The post Keynesian theories of demand for money were first to emphasise the fact that it was the money supply that responds to the demand for bank money. They are of the view that central bank cannot control the quantity of money, but only manage the interest rate by managing the quantity of money reserves.

The real balanced effect which was introduced by Patinkin analyse the change in real stock of money on consumption expenditure of the consumers. It other words, it analyse the change in consumption expenditure as a result of change in real value of the stock of money in circulation.

William J. Baumol and James Tobin developed independently the transaction demand for money which was somewhat different from Keynesian approach. The theory relies on the tradeoff between the liquidity provided by holding money (the ability to carry out transactions) and the interest forgone by holding one's assets in the form of non-interest-bearing money.

Based on the works of earlier scholars including Irving Fisher, Milton Friedman in his quantity theory of money improved the Keynesian liquidity preference theory by treating money like any other asset.

2.3 POST-KEYNESIAN APPROACHES TO DEMAND FOR MONEY

In general, it has been found that over the last two decades, work on the Post Keynesian theory of demand for money has been flourishing, and has prompted a rethinking of the complex nature of money in modern economies. It has tried to provide a satisfactory explanation of the transaction demand of money as provided by Keynes. A satisfactory theory of the transaction demand for money cannot be constructed only on the non-synchronous character of receipt and expenditure. It has also to explain why they are not synchronous in time and why money is held in the presence of interest-bearing and highly liquid short-term financial asset. The problem is not merely of explaining why transaction balances are held but also of explaining what determines the optimal amount of such balances held by their holders, Besides, the volume of expenditure and transaction cost, the rate of interest as the opportunity cost of holding even transaction balances has to be considered. It has usually found that big business houses with surplus transaction cash are known to invest it on short term basis. The

post Keynesian economist such as Baumol and Tobin has put forwards these aspects in their portfolio balance approach. In this unit, we are going to discuss some of the main post Keynesian approaches to demand for money.

2.4 PATINKIN AND THE REAL BALANCE EFFECT

Patinkin's 1956 book "Money, Interest, and Prices: An Integration of Monetary and Value Theory" is regarded as the most important contribution to the neo-Walrasian synthesis where he provided an explanation of the real balance effect. Real balance effect as provided by Patinkin considers the behavioural effects of changes in the real stock of money. The term has been used by Patinkin in a wider sense so as to include the net wealth effect, portfolio effect, Cambridge effect, as well as any other effect one might think of. Patinkin used the term real balance effect to include all the aspects of real balances. Unless the term is used in a wider sense so as to include all the aspects of real balances, its use is likely to be misleading and may fail to describe a generalized theory of people's reactions to changes in the stock of real balances. The use of the term in the wider sense as enunciated above also helps us to resolve the paradox— that income is the main determinant of expenditure on the micro level and wealth is a significant determinant of income on the macro level. Earlier this influence was taken into consideration by Pigou which is popularly known as 'Pigou Effect'. Compared to Pigou effect, which was used in a narrow sense to denote the influence on consumption only, the term real balance effect has been made more meaningful and useful by including in it all likely influences of changes in the stock of real balances.

As discussed in the introductory section, the term 'real balance effect' was coined by Patinkin to denote the influence of changes in the real stock of money on consumption expenditure. It other words, the real balance effect analyses the change in consumption expenditure as a result of changes in the real value of the stock of money in circulation. The real-balance effect is one of the effects that indicate why aggregate expenditures are inversely related to the price level. According to the real

balanced effect, a higher price level decreases the purchasing power of money resulting in a decrease in consumption expenditures, investment expenditures, government purchases, and net exports. A lower price level has the opposite affect, causing an increase in the purchasing power of money which results in an increase in consumption expenditures, investment expenditures, government purchases, and net exports. When the price level changes, the real-balanced effect is activated, which is what then results in a change in aggregate expenditures and the movement long the aggregate demand curve.

The real-balanced effect is based on the realistic presumption that the supply of money in circulation is constant at any given time. Money is what the four basic macroeconomic sectors use to purchase production. How much production they are able to purchase (that is, aggregate expenditures) depends on the amount of money in circulation relative to the prices of the goods and services produced (that is, the price level). When the price level changes, the purchasing power of the available money supply also changes and so too do aggregate expenditures. A higher price level means money can buy less production. A lower price level means money can buy more production. The real balance effect can be explained with the help of a hypothetical example as given below. Suppose, for example, that consumer A has an income of Rs 100. At a price of Rs 10 of a specific product X each, he can afford to purchase ten units of it. However, if the price level rises, he can no longer afford to purchase five units of the product X. At Rs 20 each, he can now afford to buy only five units of the product. His share of aggregate expenditures on real production declines from ten units of X to five units of X. The purchasing power of his Rs 100 of money has fallen and with it his aggregate expenditures on real production. He has succumbed to the real-balance effect.

According to Patinkin, real balance effect can lead to equilibrium in the money market. The real balance effect is represented diagrammatically by using the IS and LM technique for the reason that IS curve represents the goods market and LM curve represent the money market.

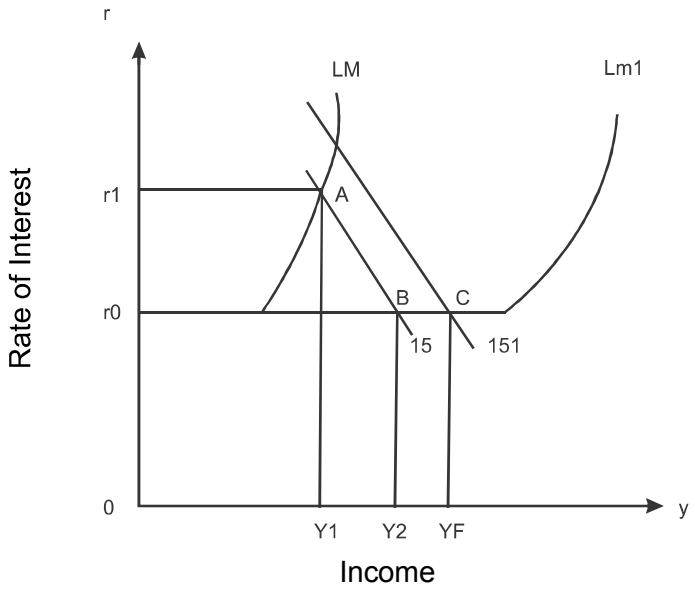


Fig.1: IS LM model for real balance effect

As shown in the diagram, Patinkin was of the view that equilibrium in the real economy can be restored even if money supply changes. As there is an increase in money supply, the LM curve will shift rightwards and the new equilibrium will be at point C at Y_F.



ACTIVITY 2.1

Trace out the factor which effect the transaction demand for money.

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.....

.....



CHECK YOUR PROGRESS

Q.1: State whether True (T) or False (F)

(i) The term real balance effect was given by Don Patinkin (True/False)

.....

(ii) Real balance effect is considered to be superior than Pigou effect (True/False)

.....

2.5 APPROACHES OF BAUMOL AND TOBIN

Keynes' liquidity theory unnecessarily bifurcated aggregate demand for money into transaction demand and speculative demand. The transaction demand depends upon the level of income and Keynes assumed a constant relation between money holders and income. The speculative demand is based on portfolio approach which considers the yields of assets and competes with money in the individual's portfolios. The combination of demand motives with two different approaches is inconsistent. In the post Keynesian period, William Baumol and James Tobin applied the portfolio analysis to correct the inconsistency in Keynesian approach.

2.5.1 Baumol's Analysis

W. Baumol argues that transactions demand for money also depends on rate of interest. According to him, holding of cash involves two types of cost such as interest cost and non-interest cost. Baumol developed his algebraic model of the demand for transaction balances at the micro level. He assumes that an individual invests his money income in interest bearing bonds and these bonds are converted for money in equal lots of amount M each to finance his expenditure. It is also assumed that the individual has uniform expenditures or transactions to make over a given time period. Each conversion will involve a brokerage fee. The total brokerage fee will be equal to the number of conversions into money times the brokerage fee, or b(T/M), where T represents total transactions, M,the amount of bonds converted to money and b, the brokerage fee.

Thus, Baumol assumed that when bonds are converted into money, the individual forgoes interest-income and the total interest income forgone over the expenditure period is equal to the average money holding per conversion period (M/2) multiplied by the interest rate (i). That is, total interest income forgone will be i (M/2). Hence total cost of holding cash balances over the expenditure period (C) will be written as:

$$C = b\left(\frac{T}{M}\right) + i\left(\frac{M}{2}\right)$$

The aim of the investor is to minimise the cost associated with money holding which can be done by finding out the rate of change in C with respect to M and ultimately, we will get as equation as

$$M = \sqrt{\frac{2bT}{i}}$$

The above equation is the demand for money as provide by William Baumol which states that the nominal money holdings for the cost-minimising individuals will vary directly with the square root of planned nominal expenditure and inversely with the square root of market interest rate, The demand function can be expressed in terms of real money balances (M/P), by making expenditure and the brokerage fee real magnitudes, i.e by dividing each nominal magnitude by a suitable price index.

2.5.2 Tobin's Analysis

Keynes' liquidity preference analysis requires an investor to put all his wealth either in cash or in some other single asset. But, according to Tobin, the real explanation attempts to show the reasons for which an investor holds a variety of assets. In fact, what is needed is a theory of portfolio balancing. The portfolio-balancing model provides a monetary theory of the interest rate. The model, states that the portfolio demand for financial assets and the interest rate adjusts to equilibrate the supply and the demand for financial assets. Tobin formulated the model in which the simultaneous desire to avert risk and to maximise the utility from wealth will lead an individual to choose a diversified portfolio consisting of both money and bonds. In this respect, he introduced the concept of risk aversion. The basic idea about the risk aversion is that given two assets with same average return, an investor prefers that asset which has less dispersion. One has to consider two things in this respect. There is always a risk that an asset with an unstable yield would provide a smaller average return, if it has to be sold before

maturity. Income being subject to the law of diminishing marginal utility, the gains of utility to the wealth-holder during periods of higher yield would be smaller than the loss of utility during periods of low yields.

If λ represents the part of funds invested in bonds, i represents interest rate and g represents capital gains, the average value of total return, μ will be

$$\mu = \lambda(i + \mu g) \quad \text{..... (1)}$$

If capital gains (g) is zero, then average value of total return will depend on λ and i because

$$\mu = \lambda i \quad \text{..... (2)}$$

If rate of interest is fixed, there will be no risk. Risk is only due to capital gains or losses. The risk is measured by the standard deviation of capital gains and is designated as π_g. Thus, the standard deviation of total return (π) is represented as

$$\pi = \lambda \pi_g \text{ or } \lambda = \pi / \pi_g \quad \text{..... (3)}$$

Substituting (3) in (2), we get,

$$\mu = \frac{\pi}{\pi_g} i \quad \text{..... (4)}$$

Equation (4) thus indicates that the average of total return depends upon the rate of interest and the risk of capital gains and losses on the investment in bonds.

Thus, Tobin's approach has done away with the limitation of Keynes' theory of liquidity preference for speculative motive, namely, individuals hold their wealth in either all money or all bonds. Thus, Tobin's approach, according to which individuals simultaneously hold both money and bonds but in different proportion at different rates of interest yields a continuous liquidity preference curve.

Further, Tobin's analysis of simultaneous holding of money and bonds is not based on the erroneous Keynes's assumption that interest rate will move only in one direction but on a simple fact that individuals do not know with certainty which way the interest rate will change. It is worth mentioning that Tobin's portfolio approach, according to which liquidity preference (i.e. demand for money) is determined by the individual's attitude towards risk can be extended to the problem of asset choice when there are several alternative assets, not just two, of money and bonds.

2.6 FRIEDMAN AND THE MODERN QUANTITY THEORY

Friedman in his essay, "The Quantity Theory of Money-A Restatement" published in 1956 beautifully restated the old quantity theory of money. In his restatement he says that "money does matter". It is necessary to state the major assumptions and beliefs of Friedman. First of all, Friedman says that his quantity theory is a theory of demand for money and not a theory of output, income or prices.

Building on the work of earlier scholars, including Irving Fisher of Fisher Equation fame, Milton Friedman improved on Keynes's liquidity preference theory by treating money like any other asset. He concluded that economic agents (individuals, firms, governments) want to hold a certain quantity of real, as opposed to nominal, money balances. If inflation erodes the purchasing power of the unit of account, economic agents will want to hold higher nominal balances to compensate, to keep their real money balances constant. The level of those real balances, Friedman argued, was a function of permanent income (the present discounted value of all expected future income), the relative expected return on bonds and stocks versus money, and expected inflation. Milton Friedman quantity demand function for money can be represented as

$M = f(Y, w, P, r_b, r_e, w, u)$ ..... (i)

Where, M = aggregate demand for money

Y = total flow of income

w = ratio of non-human to human wealth

P = general price level.

r_b = bond yields, the market bond interest rate

r_e = equity yields, the market interest rate of equities

w = Ratio of non human to human wealth

u = utility determined variables which tend to influence taste and preferences

The demand function as shown in equation (i) indicates that the amount of money demanded changes proportionately to the changes in the units in which prices and money income are expressed. The equation thus expresses that if price level and money increases to λ times their original level, demand for money also increases to λ times its original quantity. Thus, we can express the demand equation as

$\lambda M = f(\lambda Y, w, \lambda P, r_b, r_e, r_c, u)$ ..... (ii)

now by putting $\lambda = 1/P$, the equation (ii) can be expressed as

$$\frac{M}{P} = f\left(\frac{Y}{P}, w, r_b, r_e, r_c, u\right) \quad \text{..... (iii)}$$

Equation (iii) expresses demand for money as demand for real balances, which is function of real variables, independent of monetary values, Friedman was of the view that money is a luxury like durable consumer goods. With a change in per capita income, people's standard of living changes and, as a result, they may desire to hold cash balances more or less according to the changes in the per-capita income. A comparison can be made between Friedman and Keynes theory of demand for money.

Comparison of Friedman Vs Keynes:

First, in order to explain his demand for money function, Friedman uses a broader definition of money than that of Keynes. Friedman treats money as an asset or capital good capable of serving as a temporary abode of purchasing power. On the other hand, the Keynes definition of money consists of demand deposits and non-interest bearing debt of the government.

Secondly, there is also the difference between the monetary mechanisms of Keynes and Friedman as to how changes in the quantity of money affect economic activity. Unlike Friedman, Keynes assumes that monetary changes affect economic activity indirectly through bond prices and interest rates.

Thirdly, differences between the two approaches can be explained with regard to the motives for holding money balances. Keynes divides money balances into "active" and "idle" categories. The former consist of transactions and precautionary motives, and the latter consist of the speculative motive for holding money. On the other hand, Friedman makes no such division of money balances.

Fourthly, Friedman introduces a demand for money function significantly different from that of Keynes. According to Friedman, the demand for money on the part of wealth holders is a function of many variables such as the yield on money, the yield on bonds, the yield on securities, the yield on physical assets etc. In the Keynesian theory, the

demand for money as an asset is confined to just bonds where interest rates are the relevant cost of holding money.

Fifth, Keynes does not make a distinction between permanent income and nominal income. Friedman, on the other hand, in his analysis makes distinction between permanent income and nominal income to explain his theory. Permanent income is the amount a wealth holder can consume while maintaining his wealth intact. Nominal income is measured in the prevailing units of currency. It depends on both prices and quantities of goods traded.



ACTIVITY 2.2

Identify the factors that affect portfolio balancing.

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CHECK YOUR PROGRESS

Q.2: State whether True (T) or False (F)

(i) The Quantity Theory of Money-A Restatement was written by Milton Friedman. (True/False)

.....

(ii) W. Baumol argues that transactions demand for money also depends on rate of interest. (True/False)

.....



2.7 LET US SUM UP

- The post Keynesian theories of demand for money were first to emphasise the fact that it was the money supply that responds to the demand for bank money.
- The Patinkin real balanced effect analyses the change in real stock of money on consumption expenditure of the consumers. In other words,

it analyses the change in consumption expenditure as a result of change in real value of the stock of money in circulation.

- Baumol-Tobin model shows that demand for money depends positively on the income level and negatively on the interest rate. This model is explained in terms of assets. An individual holds portfolio for monetary assets (currency and checking account) and non-monetary assets (stocks and bonds).
- Demand for real money balances, according to Friedman, increases when permanent income increases and declines when the expected returns on bonds, stocks, or goods increases versus the expected returns on money, which includes both the interest paid on deposits and the services banks provide to depositors.



2.8 FURTHER READING

1) Gupta, S. B. (2007). Monetary Economics: Institutions, Theory and Policy. New Delhi: S. Chand & Company Ltd.
2) Mithani, D. M. (2002). A Course in Macroeconomics. Mumbai: Himalaya Publishing House.
3) Paul, R. R. (2008). Monetary Economics. Ludhiana: Kalyani Publisher
4) Rana, K. C. & Verma, K. N. (2009). Macro Economic Analysis. New Delhi: Vishal Publishing Co.
5) Sheth, M. L. (2002). Monetary Economics. Agra: Lakshmi Narayan Agarwal.



2.9 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: (i) True (ii) True

Ans to Q No 2: (i) True (ii) True



2.10 MODEL QUESTIONS

A) Short Questions (Answer each question in about 150 words)

Q 1: What is meant by transaction demand for money?

Q 2: What is meant by real balance effect?

Q 3: Explain the Baumol's Approach of the Quantity Theory of Money.

B. Long Questions (Answer each question in about 500 words)

Q 1: Discuss the real balance effect as provided by Don Patinkin.

Q 2: Make a critical analysis of the Tobin's approach towards transaction demand for money.

Q 3: Discuss the Milton Friedman restatement of the quantity theory of money.

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UNIT 3: INFLATION

UNIT STRUCTURE

3.1 Learning Objectives

3.2 Introduction

3.3 Concept of Inflation

3.4 Demand Pull and Cost-Push Inflation

3.5 Effects of Inflation

3.6 Inflationary Gap Analysis

3.7 Policies to control inflation

3.8 Structural Inflation

3.9 Concept of Deflation and Stagflation

3.10 Let Us Sum Up

3.11 Further Reading

3.12 Answers to Check Your Progress

3.13 Model Questions

3.1 LEARNING OBJECTIVES

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

- understand the meaning and types of inflation
- discuss the causes and effects of inflation in an economy
- explain the demand-pull and cost-push inflation
- describe different policies to control inflation
- understand the concept of deflation and stagflation.

3.2 INTRODUCTION

Basically inflation is a monetary phenomenon characterized by rising prices. However, it is to be noted that inflation is a complex phenomenon and hence it can not be precisely defined. In this unit, we shall try to look at some of the important definitions of inflation. We shall also discuss its various types, causes and the important anti-inflationary measures.

3.3 CONCEPT OF INFLATION

As we have already stated, *inflation* is a monetary phenomenon characterized by rising prices. However, the phenomenon inflation is very complex, and hence it can not be precisely defined. In this section, we shall try to derive the meaning of inflation and discuss a few important definitions of it.

Inflation is characterized by *rising prices*. Here, the phrase *rising prices* is important. This is because inflation denotes a situation where the prices are rising continuously and not for once only. Thus, a sudden increase in the ***price level*** of the economy will not be termed as inflation, unless it is experienced on a continuous basis. However, it is also true that there can be inflation even without a rise in the price level. This type of inflation may occur during a war period. On account of many controls and rationing that exist during war time, prices will be kept under check. But the moment controls are withdrawn, prices will go up. So the real test of inflation is neither an increase in the amount of money nor a rise in prices, but the appearance of abnormal profits. Whenever businessmen and producers make huge profits, it is a sign of inflation.

Definition of Inflation: As we have repeatedly noted, inflation is a complex, multi-dimensional phenomenon. Many economists have tried to define it; but often they end up highlighting on certain aspects while leaving aside others. Therefore, it is very difficult to put forward an all acceptable definition of inflation. Even then, we shall discuss some of the important definitions of this term.

Crowther has defined the term in these simple words: *"Inflation is a state in which the value of money is falling, i.e, prices are rising"*. So it is generally regarded that during a period of inflation, the price level will rise. It is also described as a situation where too much money chases too few goods resulting in an abnormal increase of price level. Ackley has defined inflation

as *"a persistent and appreciable rise in the general level or average of prices"*. **Milton Friedman** has defined it as a process of *"a steady and sustained rise in prices"*.

3.4 DEMAND PULL AND COST-PUSH INFLATION

In general, based on the four types of inflation, four theories of inflation exist: a) Demand-pull inflation, b) Cost-push inflation, c) Mixed demand-pull cost-push inflation and d) Sectoral-demand shift theory. In this unit, we shall basically deal with the first two theories of inflation.

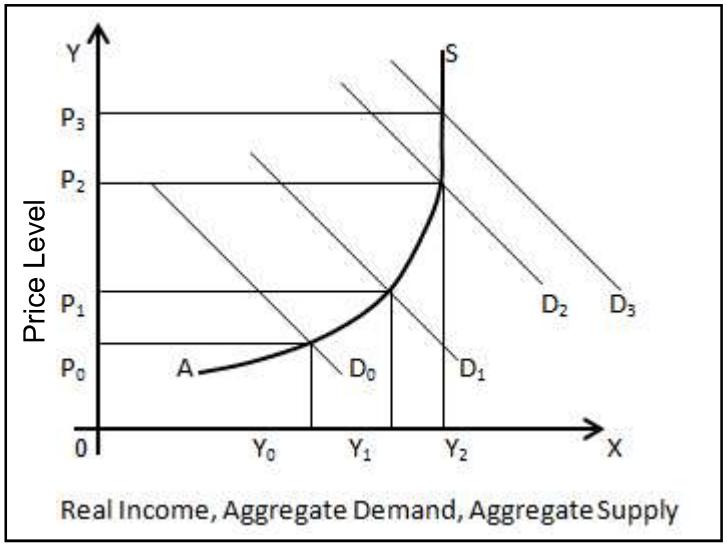
Demand – Pull Inflation

This type of inflation is loosely described as *"too much money chasing too few goods"*. It refers to the situation where general price level rises because the demand for goods and services exceed the supply available at the existing prices.

Traditionally, classical economists viewed that increase in the supply of money is mainly responsible for inflation in the economy. Thus, according to them, rise in the price level is proportionate to the rise in quantity of money supply. For example, an increase in the quantity of money supply by 5% raises the price level by 5%. Keynes however, rejected such direct and proportionate relationship between the quantity of money and level of aggregate demand. It is to be noted here that there exists three major approaches to the demand pull theory of inflation; viz., (a) the excess demand analysis analysis, (b) Keynes' inflationary gap analysis and (c) Bent Hansen's demand inflation theory. In this unit, we shall, however, utilise only the excess demand analysis and Keynes' inflationary gap analysis to explain the demand-pull theory of inflation.

Excess Demand Analysis Approach: This approach views inflation as the process of rising prices initiated and sustained by excess of demand for goods and services over the level of their supply. The concept can be explained with the help of figure 3.1.

Figure 3.1: Demand-pull Inflation



In the above figure 3.1, the price level has been shown in the Y-axis, while real income has been depicted on the X-axis. Here, D_0, D_1 and D_2 are the aggregate demand curves, while AS represents the aggregate supply function. It can be seen from the figure that as the level of real income increases, the level of aggregate demand also rises. Thus, as real income rises from Y_0 to Y_1, the level of aggregate demand rises from D_0 to D_1. As a result, price level increases from P_0 to P_1. However, it is to be noted that, as level of aggregate demand rises as a consequence to the rise in the level of real income,aggregate supply rises as well. Finally, the stage comes when aggregate supply can not increase further. This is the stage where the economy reaches the level of full employment. As level of full employment has been reached, the level of real income can not increase further. Thus, at this stage, supply will also not increase further; this will make the aggregate supply curve become parallel to the Y-axis. The significance of this situation is that given real income, any rise in aggregate demand further will only induce the price level to rise. This is what is known as demand pull inflation.

Cost–push Inflation

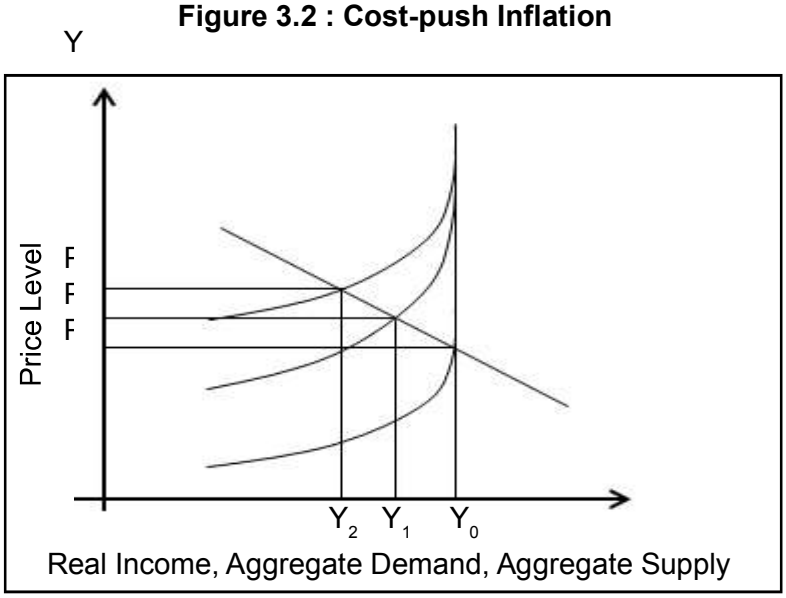
According to the cost–push inflation approach, inflation is induced by rising costs. This approach to inflation became popular during and

after the World War II. The underlying idea of this approach is that inflation may arise even in the absence of excess demand for goods and services. Thus, this theory propagates that even in the absence of demand-pull situations, certain factors may push-up the cost of production and this increased cost of production may result in inflation. The factors that may push cost of production are basically three viz., (a) *increase in wage rates* (wage push inflation); (b) *increase in profits* (profit-push inflation) and (c) *increase in material cost* (*material cost* -push inflation). Now, let us discuss each of the approaches as follows:

Wage-push approach: Before discussing the wage-push approach to inflation in detail, let us consider some of its underlying propositions. First, this type of inflation is experienced in industries where the sellers can exercise great discretionary control in the formulation of pricing of products and wage rates. Secondly, increase in the wage rate is the result of persisting pressures of trade unions (and not for increase in their productivity). Let us suppose, the factory owner increases the price of the final product. This may be due to the increase in the price of inputs or increased wage rate. This increase in price of the goods and services will adversely affect the living standard of the labours. As a result, the labour union will pressurise the factory owner to raise their wage rate so that their real income remains unaffected. This will further increase the price of the goods and services; which in turn push up the price level to another height. Thus, the inflationary process continues and at each time, the increase in money wage and costs (i.e., cost push) will move the price level up. Interestingly, in such movements of the price level, the pressure of excess demand is absent all the while.

Economists point out that such type of inflation will affect employment adversely. The higher wage rate and subsequent rise in the price level will ultimately reduce the level of output and employment in each stage of the cycle. This has been explained with the help of figure 3.2.

Figure 3.2 : Cost-push Inflation



From the above figure, it can be seen that the initial level of aggregate supply and demand are represented by the curves S_0S and D_0 respectively. The output and employment level at this stage is $0Y_0$; and the price level is $0P_0$. Now, as wage increases (which are basically for the pressure of the trade union and not because of any increase in labour productivity) from S_0 to S_1, the new supply curve becomes S_1S. Given the aggregate demand, this increase in wage rate will push-up the price level to $0P_1$. This increase in the price level in turn reduces the level of employment from $0Y_0$ to $0Y_1$. Again, increased price will also have unfavourable effect on the real income of the wage earners. Thus, the trade union will further put pressure on their employees to increase their wage rate further (such that their real income remains unchanged). Thus, as the wage rate is increased further, the supply curve will further shift from S_1S to S_2S. This will push the price level up from $0P_1$ to $0P_2$. As a result, with the level of aggregate demand remaining the same, the level of output and employment will further decline from $0Y_1$ to $0Y_2$. Such movements in the price level cause cost-push inflation in the economy.

This cycle is, however, likely to discontinue for an infinite period (or in the long-run). This is because reduction in employment (or increase in unemployment) will affect the workers and their families as well. The children of the workers will remain unemployed. This may restrain the trade union

itself from pressurizing the owner to increase their wage rate further.

Profit – Push Inflation: The explanation of profit push inflation is offered only with respect to such prices as are administratively fixed and not market determined.In fixing administered prices, business men are assumed to apply a markup factor to their labour and material cost per unit of output to earn a target rate of return. Such price fixing is common with oligopolistic firms or firms enjoying some market power in their respective industries. When such administered prices are pushed up due to hiked markup, it is called profit push inflation.Once started by a few powerful firms and inducing other firms to markup their profit margins,their material costs may go up. The speed of such increases have been called profit-profit spiral.

Material cost – Push Inflation: The prices of some key materials such as crude oil, steel, basic chemicals etc. may get pushed up either due to domestic autonomous push factors or due to autonomous international development. Such materials are used directly or indirectly almost in the entire economy. Therefore, increase in their prices affect significantly the cost structure in almost all industries. Consequently, whether prices are competitively determined or determined administratively, all prices are revised upward. Periodic increases in the prices of basic materials then give continual boost to the general price level through the usual spread mechanism, which is known as material cost push inflation.The Indian economy has suffered from such material cost push inflation from time to time, as for example, we can talk about the experience from the first quarter of 2007 to the 3rd quarter of the calender year of 2008.



CHECK YOUR PROGRESS

Q.1: State whether the following statements are True (T) or False (F)

(i) Cost-push inflation is also known as “too much money chasing too few goods”. (T/F)

.....

(ii) Crowther described inflation as "a steady and sustained rise in prices". (T / F)

.....

Q.2: What do you mean by demand-pull inflation? (Answer in about 40 words).

.....

.....

.....

3.5 EFFECTS OF INFLATION

Inflation is not considered bad so far as it creates additional employment for the factors of production of the economy. The evil effects of inflation start when it fails to do so. The major effects of inflation include the following:

- **Effects on production:** So far as there are unemployed resources in the economy, a creeping inflation may induce business to invest more. But once creeping inflation goes out of control, then it affects production adversely. It hampers the proper functioning of the price mechanism, capital formation in the economy. Harmful and unlawful practices like hoarding, speculative trading, etc., on the other hand, go up.
- **Effects on distribution:** Inflation also adversely affects redistribution of income and wealth. Due to inflation, the value of money falls. This affects the poorer section of the society more than the richer section. Rising prices may help businessmen, hoarders, speculators and black marketers to earn huge profits. But, it adversely affects the fixed income earners (salaried people) and the poor section of the people. Thus, inflation may result in redistribution of income in favour of the richer section of the society and thus causes serious problem in social equity and justice.
- **Debtors and creditors:** During inflation, creditors (who lend money) tend to lose while the debtors (who borrow money) tend to gain.

This is because inflation causes decline in the value of money. When the creditor lends money, he charges a fixed rate of interest. But as the value of money falls, he tends to lose. For example, let us suppose Mr. X lends Mr. Y a sum of Rs. 1000/- on 1st of January, 2008. He charges 8 percent per annum interest on it. Mr. Y repays the money with interest on June 30, 2009. Thus, Mr. Y pays him a total amount of Rs.1120/- (Rs. 1000/- + interest Rs.120/-) on June 30, 2009. But at the same time, the price level rises by 10 percent per annum. This means that to purchase a product Mr. X had to pay Rs. 1000/- in January 2008. But for the same good, he will now have to pay Rs. 1150/- in June 2009. Thus, he loses in terms of ***purchasing power*** of money. But contrarily Mr. Y gains. Because, he repays back less purchasing power to Mr X.

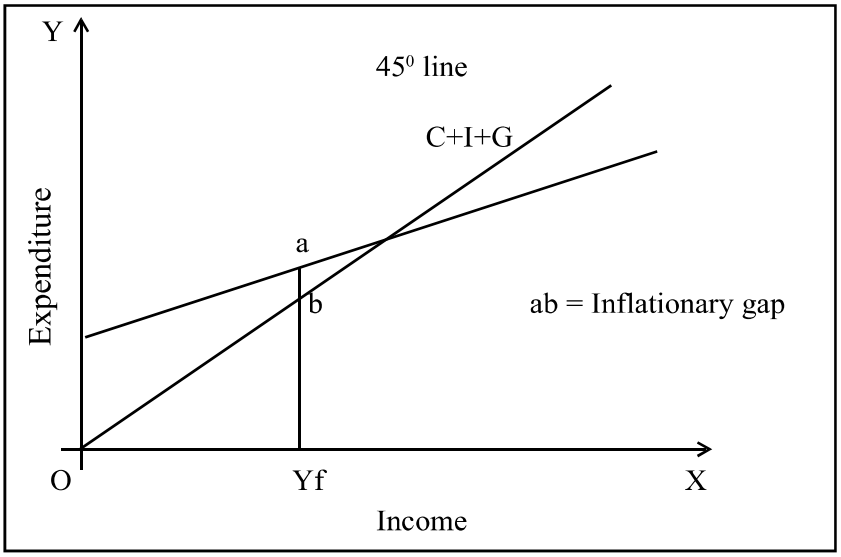
- **Farmers:** Farmers tend to gain during inflation. This is because his receipts (i.e., prices of food grains) go up. But his payments on the other hand, remain either constant or do not increase much. When the farmer has to pay interest on his loan previously opted during the cultivation period, he stands to gain (as we saw in case of Mr. Y). Similarly, if he has to pay taxes on his income, he ultimately pays less (as the rate of tax is already fixed at the beginning of a financial year).
- **Entrepreneurs:** Entrepreneurs just like as the farmers gain from inflation. They get higher prices for their products. This increases the profitability of the entrepreneurs and induces them to invest more. Again, as they often undertake loans for running/expansion of the business activities, they tend to gain from that side as well.
- **Wage earners:** Wage earners are hit adversely. As the rate of inflation rises the cost of living also rises; but contrary to this the wage rate is not raised proportionately. Again, inflation causes rise in the prices of different commodities at different rates. Prices of some commodities may increase more while the prices of some commodities may increase slightly. Even when the wage rate is increased to the ***cost***

of living index, this is unlikely to relieve the wage earners to the fullest. This is because the price of a very essential commodity not included in the ***cost of living index*** may rise very high and thus, may adversely affect the real income of the wage earners. The real value of past savings also declines during inflation. This also adversely affects the wage earners. Fixed income groups such as salaried and pensioners, are the worst sufferers during inflation.Persons who live on pensions, interest and rent suffer during the period of rising prices because their incomes remain constant.

3.6 INFLATIONARY GAP ANALYSIS

This theory was developed by Keynes in his book, *'How to pay for the war'* in 1940.It is an application of the static aggregate demand model of his general theory to the situation of inflation.The notion of inflationary gap can be explained with the help of conventional Keynesian cross diagram.

Fig. 3.3: Keynes'Inflationary Gap



In the figure 3.3, the 45° line represents the income expenditure identity. The aggregate expenditure in the economy is represented by the line C+I+G. The full employment level of output or income is indicated by the point Y_f. At this level of income ,the aggregate expenditure is more than the value of output or aggregate supply by an amount given

by the distance 'ab'.Thus 'ab' constitutes the excess demand that pushes up the general price level. Keynes calls this the *inflationary gap*.If the economy is placed in this situation, the excess demand will continue to cause prices to rise, because by assumption, output cannot be increased beyond Y_f.Thus, this is a demand pull inflation as prices are pulled up by the excess demand.

3.7 POLICIES TO CONTROL INFLATION

Since inflation has many evils, every government tries to check it. Inflation can be checked by some or all of the following measures:

- ***Fiscal Measures*:** Following fiscal measures may be adopted for the control of inflation:
  - **Cutting down unnecessary spending:** During inflation the government should attempt to cut down unnecessary developmental spending. This will help in curbing the additional flow of money to the economy.
  - **Raising tax rates:** Raising of tax rates especially on luxurious commodities, the corporate tax rates etc can help in checking inflation. At the same time, promotion of saving through the provision of higher interest rates on savings can also help in controlling inflationary pressure on the economy as people will save more and spend less. Keynes in this regard prescribed for compulsory saving (he called it *'deferred payment')* to increase saving and curb the money supply in the economy.
  - **Surplus budget:** Government should present surplus budget (means collection of more revenue than expenditure) during inflation to present a surplus budget is an important fiscal instrument.
  - **Public debt:** Postponement of repayment of public debt is another instrument of controlling inflation. When the

government postpones payment of public debt, it reduces the volume of liquidity available in the economy.

- ***Monetary Measures*:** The following monetary measures may be adopted for the control of inflation:
  - **Credit control:** For reducing the availability of liquidity in the economy, the central bank of the country may undertake various credit control measures. These include raising the *bank rate* and *reserve ratio*, sale of *government securities* in the open market among others.
  - **Issue of new currency:** This is an extreme measure of monetary control. Under this system, one new currency note is exchanged for a number of old currency notes. The value of bank deposits is also changed accordingly. Such measure is adopted during hyperinflation.
- **Other Measures:** Other important measures for the control of inflation include:
  - **Increase in production and productivity:** Increase in production of essential commodities as well as increasing the productivity of the production system producing such categories of products is one important tool of controlling inflation. Increasing the production of essential commodities will check the price rise of the important commodities. Again, raising the productivity will also help in reducing the cost of production.
  - **Price control:** Price control (means fixing an upper limit of the sale price) of essential commodities is another important tool to control inflation in the economy. This helps in easing out the inflationary pressure of the economy and in maintaining the living standard of the people.
  - **Wage freeze policy:** Sometimes a 'wage freeze' is recommended to check inflation. That is, trade unions are requested not to ask for an increase in wages during a given period.

The success of the above measures in tackling inflation depends upon the efficiency of the government in implementing the measures.

3.8 STRUCTURAL INFLATION

The inflationary situation associated with developing countries is known as structural inflation, because it is associated with the very structure of such countries. In the early 1950's different economists like Myrdal, Streeten and several Latin American economists contributed to the concept of structural inflation.Inflation in developed countries is related with full employment policies and the labour market respond to these policies.But inflation in developing countries is associated with the developmental efforts made by such countries in order to achieve higher order of development and the structural rigidities and bottlenecks suffered by such countries. Also the socio-economic structure of developing countries is quite different from that of developed countries, which also determines the source and character of inflation in such countries.

The important causes of structural rigidities are as follows-

- **Resource Gap:** Developing countries cannot raise enough resources from taxes, borrowing, and profits of state enterprises to meet the rapidly growing public expenditure. Therefore, they depend on deficit financing. This results in excess supply of money year after year which fuels inflation.
- **Food bottlenecks:** Due to various structural factors such as defective land ownership and tenancy, technological backwardness and low agricultural investment; the domestic supply of food does not keep pace with increase in demand for food due to increase in population and urbanization. The extreme dependence of agriculture on weather produces acute shortage of food from time to time due to drought, wide spread floods etc. In years of food shortage , prices of food grains rise very fast, boosted by further speculative hoarding of food grains by traders. Food grains, being the key wage good, with increase in their prices tend to raise other prices as well.

- **Foreign exchange Gap:** The industrial development of developing countries requires heavy import bill. But due to low exportable surplus and relatively poor competitive power, the export earnings of these countries do not increase very fast. Most of the occasions developing countries face serious shortage of foreign exchange. So, the domestic availability of goods is short and supply cannot be easily improved through imports. As a result of that the prices of such goods increase and the increase spread to other goods as well.
- **Infrastructural bottlenecks:** Due to resource and foreign exchange gaps, inefficiency and corruption, faulty planning and implementation, most of the developing countries suffer from serious infrastructural bottleneck in the fields of power and transport. This holds back the development in other sectors creating underutilized capacity in the economy which in turn discourages further investment. In that process, the rate of development of the entire economy gets arrested. Therefore, even small increase in expenditure gets converted into excess demand process and generates inflation.
- **Other structural factors:** It is also said that entrepreneurs in developing countries do not possess adequate spirit of enterprise, adventure and innovation and they prefer safe and conventional investment. At the same time, socially unproductive, private investment in land, precious metals etc. take away a sizeable part of investable resources. This behavioural pattern holds back growth and prepares the ground for inflationary forces to operate successfully.

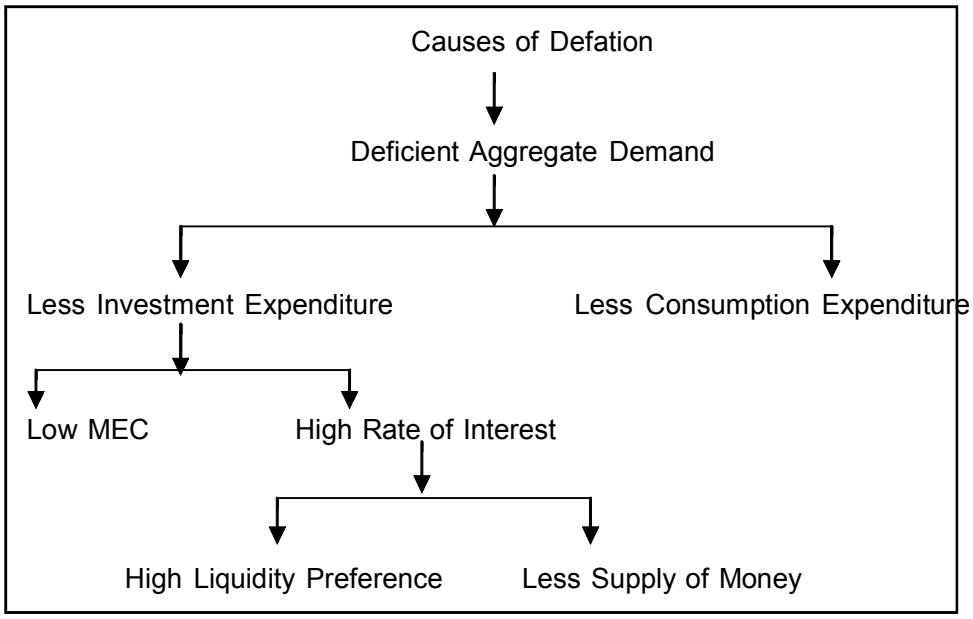
According to the structural approach of inflation, the above factors and similar other structural features of a developing country best explain inflation in that country.

3.9 CONCEPT OF DEFLATION AND STAGFLATION

Deflation: Both inflation and deflation refer to the movement of prices. Deflation is the opposite of inflation. In loose terms, it may be described as the phenomenon of falling prices. During deflation, since prices fall faster

than costs, there will be heavy losses for producers and businessmen. There will not be profits in any branch of economic activity. So there will be a fall in investment. This results in unemployment. Crowther defines deflation as a '*state in which the value of money is rising, i.e., prices are falling'*. Keynes developed a theoretical model explaining the various causes of deflation. The key elements in this model can be shown with the help of the following tree diagram 3.4:

Figure 3.4: Causes of Deflation according to Keynes



Stagflation: The term 'stagflation' has been coined by joining together 'stag' of stagnation and 'flation' and of 'inflation'. The term was coined to describe a phenomenon the world witnessed during the early 1970s, in which two paradoxical situations: inflation, on one hand and declining output, employment and under-utilisation of productive capacity on the other, were found to co-exist. Thus, the term stagflation is defined as the situation in an economy in which periods of recession and rising unemployment is coupled with positive rates of price inflation.

The phenomenon of stagflation was first witnessed in the western countries in the 1970s. As an economic phenomenon, stagflation emerges when sudden shock increases the costs of supply. The stagflation of the

early 1970s was caused by the sudden increase in the oil prices enforced by the ***OPEC*** countries. In 1973, the OPEC countries increased the oil prices by four times. Such sharp rise in oil prices adversely affected the oil importing countries. For example, due to such steep rise in oil prices, the prices of manufactured goods in USA increased sharply, as a consequence, the rate of inflation in the US economy in 1974 increased upto 12 percent. The result was a decline of the ***real GNP*** growth rate, which further led to high rate of unemployment in the economy, which shot upto nearly 9 percent. This was however, not seen only in the USA, but also in the developed economies like UK, Germany and France, etc.

These countries started to recover from such recession in 1975 and it took a few years to recover. However, a revolution broke out in Iran in 1979 again that led to a crisis in the world oil market. This time, OPEC doubled its oil prices. This brought back stagflation in the developed countries.

The phenomenon of stagflation, i.e., the combination of high rate of inflation coupled with high rate of unemployment, is not easily comprehensible from the theoretical perspectives of Economics. In fact, this phenomenon puzzled many who believed in the theoretical framework of the monetarists or the Keynesian economics; as both were unable to explain this phenomenon adequately. This led to the emergence of a new economic thought called as the 'supply side economics'. You would be able to know more about these concepts later on.



CHECK YOUR PROGRESS

Q.3: State whether True (T) or False (F)

(i) Inflation affects the farmers adversely.(T/F)

.....

(ii) Wage earners stand to gain during inflation. (T/F)

.....

(iii) Presenting a surplus budget is an important monetary policy to curb inflation. (T/F)

.....

(iv) Deflation is a phenomenon of falling prices. (T/F)

.....

Q.4: How are the wage earners affected during inflation? (Answer in about 50 words)

.....

.....

.....

Q.5: Why and how does a debtor stand to lose during an inflation? (Answer in about 40 words)

.....

.....

.....



3.10 LET US SUM UP

- Inflation is generally described as the situation when the price level keeps on rising. It is also described as a situation where too much money chases too few goods, resulting in an abnormal increase of price level.
- Based on four types of inflation, four theories of inflation exist, viz., Demand-pull inflation, Cost-push inflation, Mixed demand inflation and Sectoral-demand shift theory of inflation.
- Demand – Pull Inflation is loosely described as *"too much money chasing too few goods"*. It refers to the situation where the general price level rises because the demand for goods and services exceeds the supply available at the existing prices.
- There exists three major approaches to the demand pull theory of inflation; viz., Keynes' inflationary gap analysis, the excess demand analysis and Bent Hansen's demand inflation theory.
- According to the cost – push inflation approach, inflation is induced by rising costs. The underlying idea of this approach is that inflation

may arise even in the absence of excess demand for goods and services.

- Inflation also adversely affects redistribution of income and wealth.
- During inflation creditors (who lend money) tend to lose while the debtors (who borrow money) tend to gain.
- The inflationary situation associated with developing countries is known as structural inflation, because it is associated with the very structure of such countries.



3.11 FURTHER READING

1) Ahuja, H.L. (2007). *Macroeconomics: Theory and Policy*. New Delhi: S.Chand & Co.

2) Gupta, R. D. & Rana, A. S. (2009). *Keynes and Post-Keynesian Economics*. Ludhiana: Kalyani Publisher.

3) Rana, K. C. & Verma, K. N. (2009). *Macro Economic Analysis.* New Delhi: Vishal Publishing Co.

4) Shapiro, E. (1988). *Macroeconomic Analysis*. New Delhi: Galgotia Publications pvt.ltd.



3.12 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: (i) False (ii) False

Ans to Q No 2: Demand – Pull Inflation is loosely described as *"too much money chasing too few goods"*. It refers to the situation where general price level rises because the demand for goods and services exceeds the supply available at the existing prices.

Ans to Q No 3: (i) False (ii) False (iii) True (iv) True

Ans to Q No 4: Wage earners are adversely affected during inflation. Compared to the rate of inflation, the wage rate is not raised

proportionately. Even when wage rate is increased to the cost of living index, this is unlikely to relieve the wage earners to the fullest. The real value of past savings also declines during inflation.

Ans to Q No 5: During inflation debtors stand to gain. This is because by the time debtors pay back the loan amount, the value of money declines. The rate of interest remaining the same, the debtors transfer less purchasing power to the creditors. Thus, the debtors gain during inflation.



3.13 MODEL QUESTIONS

A) Short Questions (Answer each question in about 150 words)

Q 1: Write a short note on inflation, deflation and stagflation.

Q 2: Briefly explain the concept of structural inflation.

Q 3: Briefly explain the various causes of inflation.

Q 4: Distinguish between the demand pull and cost-push approach of inflation.

B. Essay-type Questions (Answer each question in about 300-500 words)

Q 1: Discuss the inflation in the framework of demand pull inflation.

Q 2: Describe the cost-push approach to inflation.

Q 3: Describe anti-inflationary measures other than fiscal measures.

Q 4: Write an essay on Policies to control inflation.

*** ***** ***

UNIT 4: INFLATION AND UNEMPLOYMENT

UNIT STRUCTURE

4.1 Learning Objectives

4.2 Introduction of Philips Curve

- 4.2.1 Derivation of Philips Curve
- 4.2.2 Explanation of Philips Curve (Short Run)
- 4.2.3 Limitation and Policy Implication of Philips Curve
- 4.2.4 Causes of shift of Philips Curve

4.3 Natural Rate of Unemployment

4.4 Adaptive Expectations: Friedman's View on Philips Curve

- 4.4.1 Long Run Philips Curve and Adaptive Expectations
- 4.4.2 Implication of Adaptive Expectation Theory

4.5 Rational Expectation Hypothesis

- 4.5.1 Critique and Policy Implication of Rational Expectation Theory

4.6 Tobin's View on Philips Curve and His Modification

4.7 Samuelson and Solow's View on Philips Curve

4.8 Let Us Sum Up

4.9 Further Reading

4.10 Answers to Check Your Progress

4.11 Model Questions

4.1 LEARNING OBJECTIVES

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

- understand the relation between unemployment and inflation
- understand about short run and long run Philips curve
- identify the reasons of shift of Philips curve
- understand the natural rate of unemployment
- explain shifts in Philips curve owing to changes in adaptive and rational expectations
- discuss Tobin and Solow's modification on Philips curve.

4.2 INTRODUCTION OF PHILIPS CURVE

The early idea for the Phillips curve was proposed in 1958 by economist A.W. Phillips. In his original paper, Phillips tracked money wage changes and unemployment changes in Great Britain from 1861 to 1957, and found that there was a stable, inverse relationship between money wages and unemployment. This correlation between money wage changes and unemployment seemed to hold good for Great Britain and for other industrial countries. In 1960, economists Paul Samuelson and Robert Solow expanded this work to reflect the relationship between inflation and unemployment. Because wages are the largest components of prices, inflation (rather than wage changes) could be inversely linked to unemployment.

4.2.1 Derivation of Philips Curve

Prof. Philips found that there existed a stable, inverse and nonlinear relationship between the rate of change of money wage (w) and unemployment rate (u). In other words, when unemployment is low, wage and price level will rise; when unemployment is high, wages will tend to fall but slowly because of downward rigidity of wage rate. The inverse relationship between the rate of change of money wage (or the rate of wage inflation) and the rate of unemployment became known after his name as Philips Curve. The inverse relationship between wage inflation and unemployment is shown in fig. 4. 1.

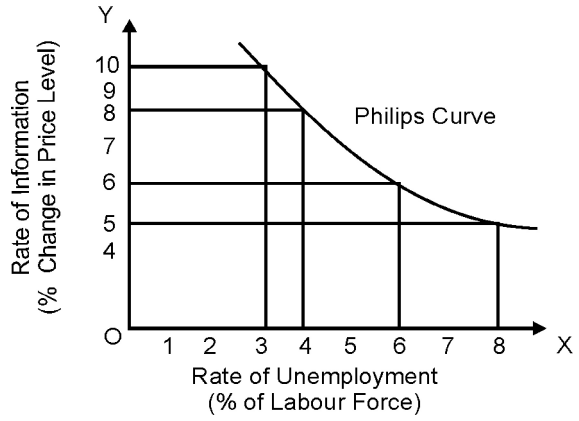


Fig. 4.1: Philips curve showing negative relationship between Rate of Inflation and Unemployment

On graphically fitting a curve of historical data Philips obtains a downward sloping curve exhibiting the inverse relationship between wage inflation and rate of unemployment. The curve is convex to the origin which shows the percentage increase in money wages with decrease in unemployment rate and vice-verse. In the figure, at unemployment level 8%, inflation is 5%. If wage inflation increases to 10% unemployment decreases to 3%. The curve is not a straight line but convex to the origin because successful reduction of unemployment leads to progressively greater increases in wage inflation. Similarly, to reduce wage inflation to zero high level of unemployment is required and negative wage inflation requires very high level of unemployment.

Philips' basic argument was demand pull in nature. Excess demand is backed by more employment. Excess demand in labour market triggers off wage inflation and also determines its speed. In the period of low unemployment, excess demand for labour exists and labour scarcity pushes money wage upward. Similarly, in terms of high unemployment, excess supply of labour exists and the surplus labour drives money wages downward.

4.2.2 Explanation of Philips Curve (Short Run)

The explanations of Philips curve by Keynesian economics is simple and illustrated in the fig. 4.2. Keynesian economics assumes the upward sloping short run aggregate supply (SAS) curve and down ward sloping aggregate demand (AD) curve. Keynes recognised that the SAS curve is upward sloping in intermediate range and as the economy approaches to near full employment the aggregate supply curve slopes upward. According to Keynesian economists the short run aggregate supply curve is upward sloping due to two reasons. First, as output is increased by firms the diminishing marginal returns to variable factors while if wage and other cost remain constant, there is increase in marginal cost of production. The second reason is that marginal cost goes up due to rise in the wage rate, employment and

output pressure created from aggregate demand. With the pressure for more output, demand for labour increases and wage tends to rise. The supply curve of labour is being upward sloping along with high marginal cost. The equality between aggregate demand and supply at various price level and relation between unemployment and inflation can be explained by fig. 4.2 (panel a and b)

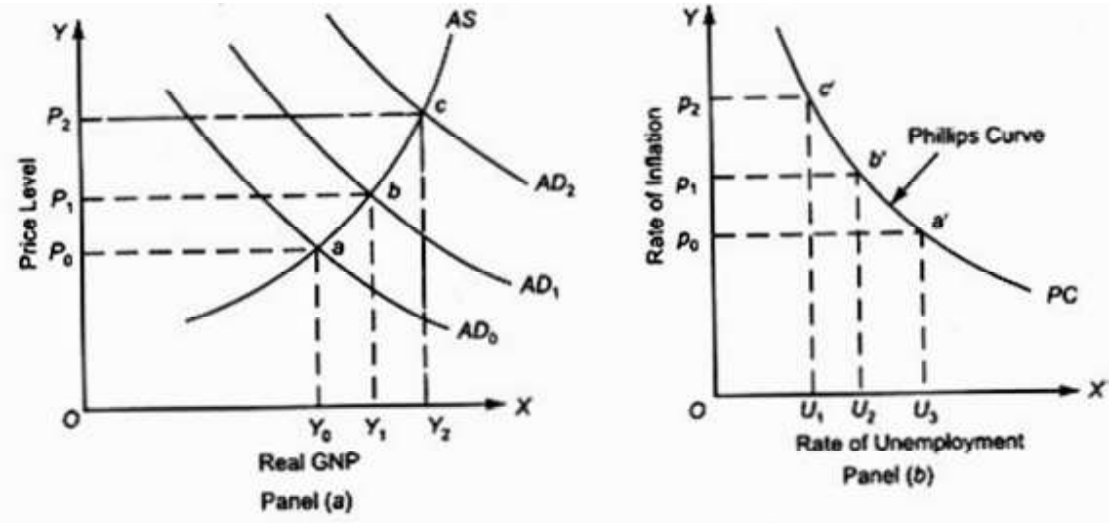


Fig. 4.2: Keynesian Explanation of Philips Curve

In the fig. 4.2 Panel (a) the aggregate demand (AD) and aggregate supply (AS) curves determine the price level. The equilibrium point a, b, c determines price op_o, op_1 and op_2 with income level oy_o, oy_1 and oy_2. The increase in national income as a result of increase price level reduces the unemployment rate in the economy. Thus the rise in price level from op_o to op_1 means inflation created in the economy result in lowering unemployment rate showing inverse relationship between the two. Further if aggregate demand increases to AD_2 the price level further increases to op_2 and national income increases to oy_2 which will further lower the rate of unemployment. The higher the level of AD the higher level of inflation and output and that result in much lower rate of unemployment.

In panel (b) shows the trade off between unemployment and inflation according to equilibrium point a, b, c of panel (a). As aggregate

demand and price increases from op_o to op_2 unemployment decreases from ou_3 to ou_1 according to the plotted Philips curve in panel (b). Thus, down ward sloping aggregate demand curve and upward sloping aggregate supply curve explain the downward sloping Philips curve showing negative trade off between inflation and unemployment.

4.2.3 Limitation and Policy Implication of Philips Curve

Though, the Philips Curve suggests a stable and nonlinear trade off between wage inflation and unemployment, the explanation has certain limitations.

Philips Curve analysis ignores the problem of Stagflation. But from 1967 onwards the major industrialised countries of the world experienced both high levels of inflation and unemployment which is known as stagflation. Theories based on the Philips Curve suggested that this could not happen, and the curve came under a concerted attack from the group of economist headed by Milton Friedman. Friedman argued that the Philips Curve relationship was only a short run phenomenon and there is no trade off between inflation and unemployment in the long run as the economy experiences natural rate of unemployment in the long run. Friedman Samuelson and Solow argued that in the long run workers and employers will take inflation in to account resulting in employment contract that increase pay at rates near anticipated inflation. Unemployment would then begin to rise back to its previous level, but now with higher inflation rates. This result implies that over the long run there is no trade off between inflation and unemployment. This implication is significant for practical reasons because it implies that Central banks will not set unemployment targets below the natural rates.

During the sixties the Philips Curve became an important concept of macroeconomic analysis but the stable relationship between inflation and unemployment could not hold good during the seventies and eighties, especially in the United States. Therefore, experience in two decades from 1971 to 91has promoted some economists to say that

the stable Philips Curve has disappeared. The slope of Philips Curve appears to have declined and there has been controversy over the usefulness of the Philips Curve in predicting inflation. In the two decades rate of both inflation and unemployment increased i.e. a high unemployment rate was associated with high unemployment, which shows no trade off between the two. Fig. 4.3 shows that the data of the United States during the seventies and eighties did not confirm a stable Philips Curve and the Curve became disappeared.



Fig. 4. 3: Shift of Philips Curve in the United States

Apart from the limitations, the Philips Curve remains the primary frame work for understanding and forecasting inflation used in Central bank. Philips Curve analysis received significant attention from the policy makers, particularly because of its explanation of the relationship between price inflation and unemployment. Price level changes are linked with money wage rate and inflation in such a way that Philips Curve expressed the inverse relationship between the rate of price inflation and the rate of unemployment. A stable Philips Curve enables the policy makers to choose a given rate of unemployment or inflation and enable the Govt. to maintain proper strategy or to bear the cost for necessary action. In other words, less inflation can be possible only at the cost of higher unemployment and lower unemployment is possible at the cost of higher inflation.



CHECK YOUR PROGRESS

Q.1: What is the relation exhibit by Philips curve between inflation and unemployment? (Answer in about 50 words)..

.....

.....

Q.2: What is "adverse supply shock" as explained by Keynes? (Answer in about 50 words).

.....

.....

4.2.4 Causes of Shift of Philips Curve

There are two causes of shift of Philips curve. First, according to Keynesians the occurrence of higher inflation rate along with the increase in unemployment rate witnessed during the seventies and early eighties due to price hike of petroleum products delivered to American companies. The increase in the price of petroleum resulted in the increase in price of all products in the market, as petroleum is used as an energy inputs and thereby increase transportation cost and other cost of production. The increase cost of production caused a shift of aggregate supply curve to the leftward with high price. It is termed as the **"Adverse Supply Shock".** The adverse supply shock raised the unit cost at each level of output as shown in fig 4.4.

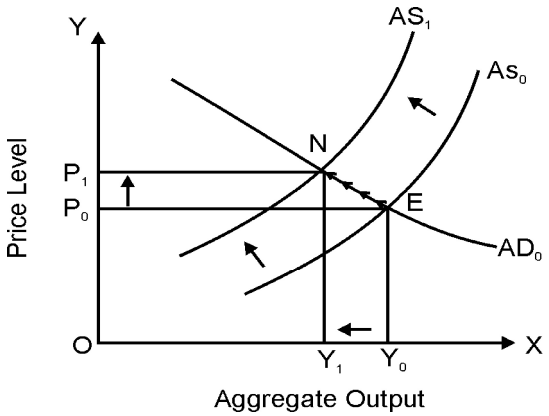


Fig. 4.4: Adverse supply Shock giving rise to Stagflation and breakdown of Philips Curve

In the fig. 4.3 Initial equilibrium point is at E. Due to adverse supply shock the aggregate supply curve AS_o shift to AS_1 which intersect the given aggregate demand curve AD_o at point H. At the new equilibrium point price increases to OP_1 and decreases output to OY_1 which will cause to increases unemployment at point H.

The second reason of shift of Philips curve is the change of adaptive expectations in the long run developed by Friedman (explained in 4.4 and 4.4.1).

4.3 NATURAL RATE OF UNEMPLOYMENT

The natural unemployment is the rate at which the labour market and current number of unemployment of a country is equal to the number of jobs available. These unemployed workers are not employed for frictional and structural reasons, though the equivalent number of jobs are available to them. For instance, due to lack of information, lack of mobility, lack of good utilisation of time, some workers unable to find jobs; this situation is called frictional unemployment. On the other hand, some labour are unemployed due to lack of training, skill, efficiency etc.in newly created job opportunities in the growing industries; this situation is called structural unemployment.

Thus it is this frictional and structural unemployment that constitute the natural rate of unemployment. Full employment is said to prevail even in the presence of natural rate of unemployment. It is generally believed that 4 to 5 percent of unemployment represents the natural rate of unemployment.

4.4 ADAPTIVE EXPECTATIONS: FRIEDMAN'S VIEW ON PHILIPS CURVE

Milton Friedman provided the explanation of the occurrence of higher rate of inflation simultaneously with higher rate of unemployment. According to him, though there is trade off between rate of inflation and unemployment, it is applicable only in the short run and it is not stable; and it often shifts leftward or rightward. In the long run there is no trade off between rate of

inflation and unemployment. His view is that the economy is stable in the long run at the natural rate of unemployment. Therefore, in the long run Philips curve is a vertical straight line. These views expounded by Friedman and Phelps have come to be known as Friedman Phelps approach or Acceleration hypothesis.

Friedman's explanation of shift of short run Philips curve is based on the expectation about the future rate of inflation. People adapt their expectations on the basis of inflation on the previous period. The adaptive expectation according to Friedman is to change or adapt their expectations only when the actual inflation rate turns out (exceed) from their expected rate of inflation. Therefore, there may be trade off between rate of inflation and unemployment in the short run but there is no trade off in the long run as shown in Fig. 4.5.

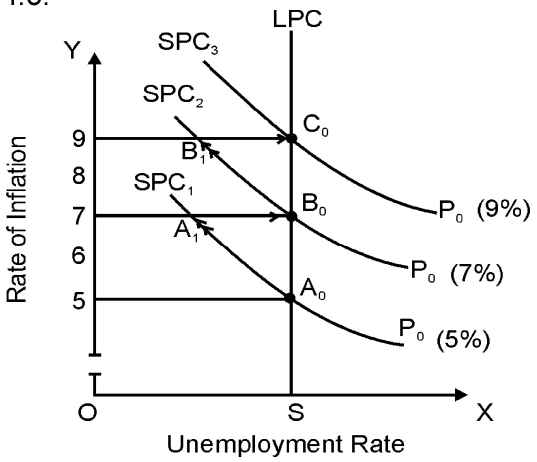


Fig. 4.5: Shift of Short run Philips Curve and deriving Long run Philips Curve

In the fig. 4.5, the economy begins with SPC_1 in the short run Philips Curve at point Ao (5% rate of inflation) corresponding to the natural rate of unemployment 5% at point S. The nominal wage rate is determined according to expectation such that 5% inflation will be continuing in future.

Assume that the Government adopts expansionary fiscal and monetary policy to rise aggregate demand and cause the inflation rise to 7% given the level of money wage rate which was fixed on the basis of 5% earlier. Philips curve explains higher inflation and price than the expected level would raise the profit of the firms and induced to invest more and thereby reduce

unemployment than the natural rate 5% (assume unemployment decrease to 3.5%) and economy move to point A_0 to A_1in short run Philips curve SPC_1.

4.4.1 Long Run Philips Curve and Adaptive Expectations

Friedman addresses the above explanation in a different way taking into account natural rate of unemployment. He thinks that lower rate of unemployment achieved with higher inflation is only a temporary phenomenon. Because, when the actual rate of inflation increases surpasses the expected rate, unemployment increases again. The economy will not be a stable equilibrium at point A_1. This is because the workers realise that due to higher rate of inflation than the expected rate, their real wages and income fall down. The workers will, therefore, demand higher wage to restore their real income. Payment of higher wage reduces the profit of the businessman. Therefore, they reduce employment. The unemployment again increases from 3.5% to 5% with high inflation of 7% and the economy moves from point A_1 to B_0. Further at point B_0 on SPC_2 the actual inflation is 7%. The workers expected that 7% inflation rate will continue further. With this expectation, if again Government adopts expansionary policy the economy will move to B_1 on SPC_2 at 9% inflation rate. The 9% inflation rate reduces the unemployment for a short period (i.e. unemployment reduce to 3.5%). But 9% inflation is more than expected 7% inflation; and it will cause SPC_2 shift to SPC_3 to point C_0 at which point the economy experiences the natural rate of unemployment 5% at point S in the diagram which is shown at OS level of unemployment.

By joining point A_0, B_0, C_0 corresponding to the given natural rate of unemployment the vertical LPC exhibits that there is no trade off between inflation and unemployment in the long run.

The adaptive expectation theory also can be explained by the reverse process of disinflation. Assume the economy is originally at point C_0 at 9% inflation rate and if the Govt. contract the money supply, it will reduce the inflation rate to less than the expected 9% of inflation. As a result profit and employment will decline as price declines more

rapidly than wages. Eventually, firms and workers will adjust their expectation and unemployment rate will be retained at the natural rate.

4.4.2 Implication of Adaptive Expectation Theory

Adaptive expectation is an economic theory that looks at past activity to predict future outcomes. The theory is especially concerned with inflation rate or relationship between increase in price and decrease is purchasing power. The effectiveness of monetary policy can be explained with the help of Friedman Phelp's approach. The model suggests that monetary or fiscal policy can affect employment and output only in the short run due to error of anticipation. But in the long run the Govt. policies will became ineffective because, firms, businessman, consumer, workers will fully anticipate the inflation rate and as a consequence unemployment will return back to its natural rate.



CHECK YOUR PROGRESS

Q.3: What is Natural Rate of Unemployment? (Answer in about 50 words)

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Q. 4: Define the term Adaptive Expectation.(Answer in about 50 words)

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4.5 RATIONAL EXPECTATION HYPOTHESIS

The idea of Rational Expectation was first discussed by John F. Muth in his article, "Rational Expectations and the theory of price movements" in 1961. However, the idea was not widely used in macro economics until the new classical revolution of the early 1970s. Later on it was popularized by Robert Lucas (University of Chicago), Thomas Sergeant and Nail Wallace (University of Minnesota). No doubt the theory of Rational Expectation is a major breakthrough of macroeconomics.

According to Rational Expectation hypothesis, people have rational expectations about economic variables. The implication of the theory is that people make intelligent use of available information in forecasting variables that affect their economic decisions. The forecasting variables are unbiased and based on all available information. People use all available information and economic theory in forecasting variables that affect economic decisions. This implies that people understand how the economy works and how the Govt. policies alter macroeconomic variables such as the price level, level of employment, aggregate output etc. The theory posits that individuals base their decisions based on three primary factors viz.

- Human rationality
- Information available to him
- Past experience.

The doctrine suggests that people's current expectations are themselves able to influence what the future state of the economy will become. This precept contrasts with the idea that Govt. policy influences financial and economic decisions. Economists often use the doctrine of rational expectation to explain anticipated inflation rate. For example if past inflation rates were higher than expected people might consider this along with other indicators to mean that future inflation also might exceed of their expectations. Expectations and outcomes influence each other. There is continual feedback flow from past outcomes to current expectations. In current situation, the way to future unfolds from the past trends to be stable

and people adjust their forecasts to confirm to stable pattern. Thus, if individuals are expecting inflation by expansionary fiscal and monetary policies of the Govt. then the rational expectation model can be expressed as follows.

$$P_e = a\left(\frac{\Delta M}{M}\right)e + b(F)e$$

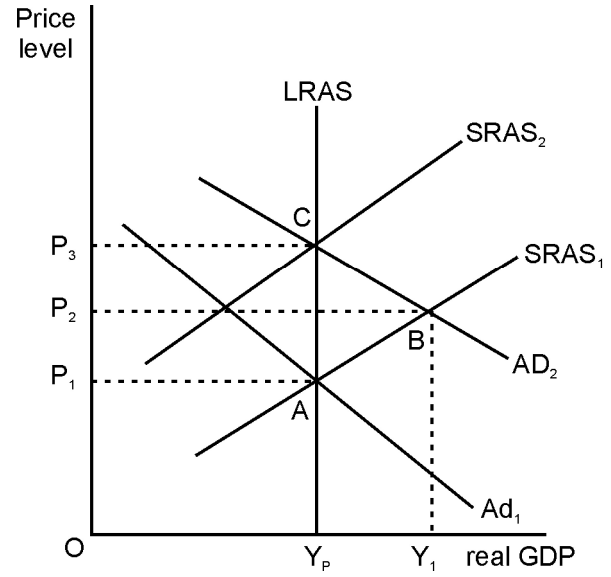
Where, Pe is expected rate of inflation (or price rise)

$\left(\frac{\Delta M}{M}\right)$ is the expected rate of monetary policy

$(F)^e$ is the expected rate of fiscal policy

a and b are the coefficient, which indicate that the impact on the expected money supply growth and fiscal policy will have influence on the public expected rate of inflation.

Thus rational expectation theory involves detailed information and clear understanding about the past, current and expected behaviour of variables and changes in economic policies. Therefore, the theory argued that nominal wages are quickly adjusted to any expected changes in the price level so that there exist no Philips curve to show trade off between rate of inflation and unemployment. The rate of inflation resulting from increase in aggregate demand is fully corrected and anticipated by workers, firms and businessmen and get completely and quickly incorporated into the wage agreements resulting in higher price of product. The Fig. 4.6 shows that as price increases the level of output or real GDP (Gross Domestic Product) remain unchanged at the natural level. The long run aggregate supply (LRAS) curve according to the rational expectation theory is vertical straight line at potential level of national output and the long run Philips curve corresponds to the long run aggregate supply curve is a vertical straight line at natural rate of unemployment as shown in figure 4.6 and 4.7.



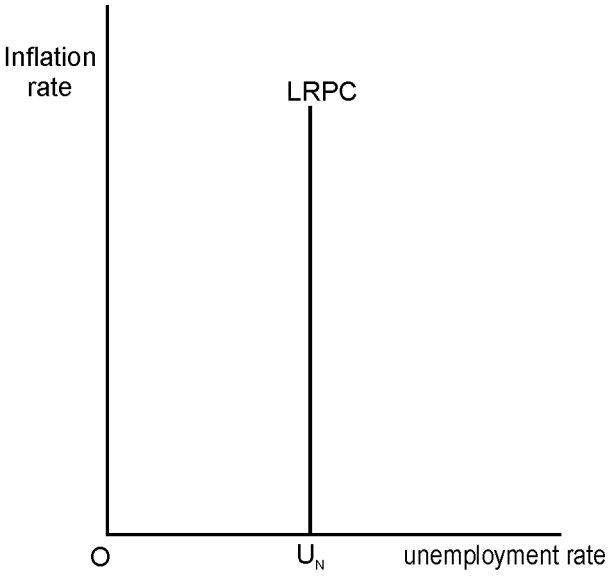


Fig. 4.5: Inflation and National output **Fig. 4.6: The long run Philips Curve**

To illustrate fig. 4.6 Yp is the level of real and potential output corresponding to the full employment of labour (natural rate of unemployment). LRAS is the long run aggregate supply curve at Yp level of potential output. To begin with aggregate demand AD_1 curve intersects LRAS and SRAS curve at point A and determine price OP_1. Let the Govt. adopts expansionary monetary policy to increase output and employment and consequently the aggregate demand curve shifts upward to the new position AD_2. According to the rational expectation theory, people (i.e. workers, businessmen, customers, firms) will correctly anticipate with expansionary policy and they would take promotional measures to protect themselves against the inflation. Workers would press for higher wages and get granted, businessman would raise the price of their product, and financial institutions increase their rates of interest. All of these increases would take place immediately. The expansionary monetary policy finally leads to higher aggregate demand AD_2 and will cause new equilibrium to shift at point C. At new equilibrium point C, price will increase to OP_3 while real national income, real wage rate, real interest rate remain unchanged.

It is to mentioned that like Friedman's adaptive expectation theory in rational expectation doctrine the economy does not move temporarily

equilibrium position from position A to position B in the short run along with short run aggregate supply curve $SRAS_1$. When aggregate demand shift from AD_1 to AD_2 short run supply curve immediately shifts from $SRAS_1$ to $SRAS_2$ such that immediate and quick adjustment takes place with anticipated rate of inflation. Therefore, according to the rational expectation theory long run aggregate supply LRAS curve will be a vertical straight line at potential level of national income Y_P. Since, the (LRAS) curve is vertical in the long run, the long run Philips curve (LRPC) will also be a vertical straight line at the natural rate of unemployment U_N as shown in the fig. 4.7. The long run Philips curve shows the relationship between inflation and unemployment when the actual inflation rate equals to anticipated (i.e. expected) rate of inflation.

4.5.1 Critique and Policy implication of Rational Expectation theory

The rational expectation theory is not free from critique and policy implications, some of such critique and policy implications are mentioned below:

The most important critique of rational expectation doctrine is ineffectiveness of fiscal and monetary policies in reducing unemployment. The basic idea is that a predictable attempt to stimulate the economy would be known in advance, and it would have no effect on the economy which is represented as a policy ineffectiveness of the Government.

To ignore the role of capital and money in economic decisions is the weak point of rational expectation theory because, the theory is not concerned about the capital accumulation, inventories, taxes and money behaviour in economic activities. Thus it is essentially a classical type of model in which there is sharp division between real and monetary phenomenon.

To be rational, expectation should be unbiased. People's expectation should be based on all possible relevant information. But

expectations are not directly observable. In reality, it is not possible to have unbiased expectations especially when information is costly.

The theory of rational expectation gained its importance in recent years. Many economists have viewed on the basis of this expectation concept that people can set their expectations about the accuracy of inflation forecasts or change in the government policy correctly. Rational expectation hypothesis claims that government policies are effective in the short run because people cannot form their expectations correctly. But people can correctly anticipate about the government's policy change in the long run and hence it is ineffective in the long run. Thus the theory succeeds in putting serious question in front of policy makers. The rational expectation theory threw a challenge to the Philips curve analysis of the short run trade off between inflation and unemployment that Philips curve analysis is partial succeed in solving two main problems of inflation and unemployment in the economy only in the short run but ineffective in the long run.



CHECK YOUR PROGRESS

Q.5: What is the Rational Expectation? (Answer in about 50 words).

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Q.6: What is the shape of long run aggregate supply and Philips curve according to Rational Expectation hypothesis? (Answer in about 50 words).

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4.6 TOBIN'S VIEW ABOUT PHILIPS CURVE AND HIS MODIFICATION

In 1971, Jams Tobin, in his Presidential address in "American Economic Association" compromised between negative sloping and vertical Philips curves by different shape. Tobin believes that there is a limit in Philips curve. Because, as economy expands employment grows and the curve becomes more fragile and vanishes until it becomes vertical at some critical rate of unemployment. Thus Tobin Philips curve is of kinked shape of which one part is like normal Philips curve and the rest is vertical as shown in fig. 4.8.

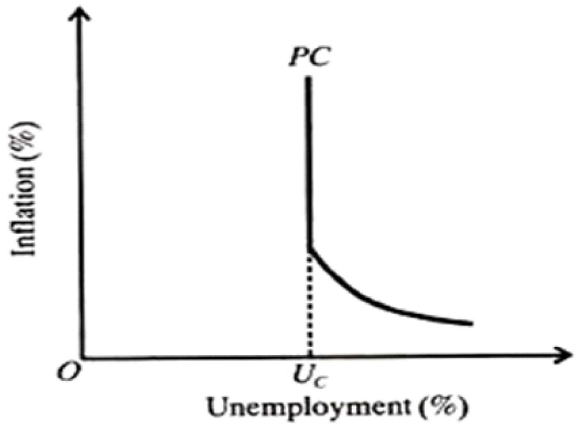


Fig. 4.8: Tobin modified Philips curve

In fig. 4.8 Uc is the critical rate of unemployment at which the Philips curve became vertical and there is no trade off between unemployment and inflation. According to Tobin the vertical portion of the curve is not due to increase demand for more wages but due to the imperfections in the labour market. The critical rate of unemployment is the rate at which there is no possibility of more employment in the economy because of imperfections in labour market. These imperfections emerge due to job seekers have wrong skill, wrong age, wrong sex, or may be the wrong place etc. On the other hand, the downward portion is like the normal properties in Philips curve.

For Tobin, there is a wage change floor in excess supply situation. In the range of relatively high unemployment to the right of critical rate of unemployment, the inflation increases the involuntary unemployment and wage floor market gradually diminishes. When all sectors of labour market are above the wage floor the level of critically low rate of unemployment Uc is reached.

4.7 SAMUELSON AND SOLOW'S VIEW ON PHILIPS CURVE

Paul Samuelson and Robert Solow extended the Philips curve to the trade off between unemployment and level of price (Inflation). Thus the Philips curve suggests that unemployment can be reduced by having more inflation and vice versa.

Samuelson Solow Philips curve provided economic rationale for expansionary Government policies in 1960s that the unemployment rate could be lowered with small rise in inflation. Their contribution played an important role in the great inflation that occurred in the United States during 1960 and 1970.

Samuelson and Solow in their research paper published in 1960 in *'American Economic Review and Proceedings'* presented the result of Philips type of relationship (hand drew curve) for United States. The notion of Samuelson Solow Philips curve was first advanced as a policy tool with attractive option of pursuing expansionary and fiscal policy which rise inflation and lower unemployment. Like Philips curve trade off between nominal wage and unemployment, Samuelson Solow estimated their curve trade off between inflation and unemployment by using 25 years of data from 1934 to 1958. This relationship, which looks like that of what Philips curve reported for 1861 to 1913 and 1948 to 1957 periods, is downward sloping and nonlinear. Samuelson and Solow called it the Philips curve.

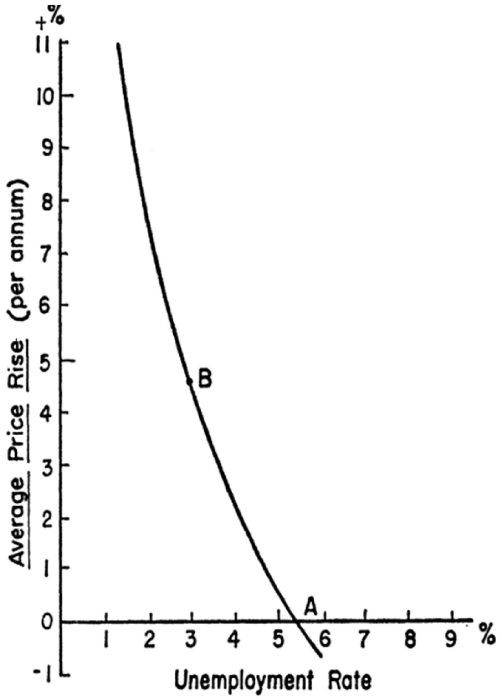


Fig. 4. 9: Samuelson Solow Philips Curve (1934 - 1958)

Samuelson and Solow interpreted their statistical Philips curve as a structural relationship that had the potential of offering menu of exploitable trade off between inflation and unemployment. However they warned that the trade off may not be sustainable i.e.the Philips curve might shift. This message seemed to quickly lost when in 1961 Samuelson incorporated the Philips curve in to the 5th edition of his Economics text introducing the notion of an inflation-unemployment trade off and again as reported by Leeson, (1997) in an interview in mid-1960s Samuelson and Solow themselves seemed to downplay the possibility of an unstable Philips curve. At the same time they argued that an unemployment rate of about 4% is a reasonable and prudent full employment target for stabilization policy.

Thomas E. Hall and William R. Hart (Miami University) in their working paper (2010) presented that Samuelson and Solow Philips curve was neither statistical nor structural. Samuelson Solow provided no empirical estimates of the Philips curve in their celebrated 1960 paper. Instead they simply hand-drew a line they believed fit the data for the 25 years period from 1934 - 1958. By using same data of the period 1934 -

1958 Thomas E. Hall and William R. Hart estimated Philips curve and and it turned out that the new curve bore small resemblance to their hand-drawn curve and provided little support for a menu of lower unemployment and higher inflation trade off.

Like Tobin, in the long run, Solow does not believe that the Philips curve is vertical at all rates of inflation. According to him the curve is vertical at positive rate of inflation and it is horizontal at negative rate of inflation (at the time of deflation) as shown in fig. 4.10.

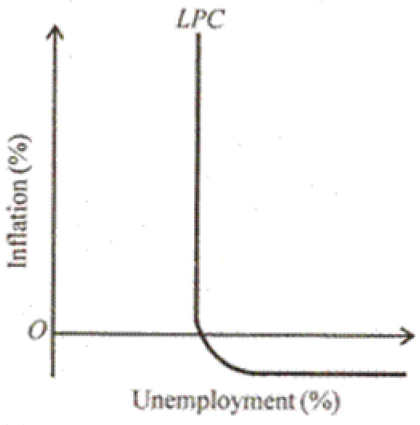


Fig. 4. 10: Solow's modified Philips curve

In the fig. 4.10 on the basis of Philips curve LPC wage rate is starkly downward even in the face of heavy unemployment or at the time of deflation. But at a particular level of unemployment when the demand for labour increases and wage rises in the face of expected inflation the Philips curve became vertical at minimum level of unemployment (which unemployment level is mentioned as critical by Tobin and as natural unemployment by Friedman) and there is no trade off between unemployment and inflation.

The vertical Philips curve has been accepted by the majority of economist. They agree that at unemployment rate about 4% the Philips curve becomes vertical and the trade off between unemployment and inflation disappears. It is impossible to reduce unemployment below this level because of market imperfections.



CHECK YOUR PROGRESS

Q.7: State the view of Tobin about Philips Curve. (Answer in about 50 words).

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Q.8: What is meant by critical rate of unemployment? (Answer in about 50 words).

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Q.9: Mention is Solow's view about Philips Curve. (Answer in about 50 words).

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4.8 LET US SUM UP

- The Philips Curve states that there is an inverse relationship between inflation and unemployment. Higher inflation is associated with lower unemployment and vice verse.
- A stable Philips Curve enables the policy makers to choose a given rate of unemployment or inflation and enables the Govt. to maintain proper strategy or to bear the cost for necessary action. In other words, less inflation can be possible only at the cost of higher unemployment and for lower unemployment is possible at the cost of higher inflation.

- Philips curve in the light of consumer and workers expectations in explaining the relationship between inflation and unemployment may not hold good in the long run.
- Stagflation occurs when an economy experiences stagnant economic growth, high unemployment and high price inflation. This scenario directly contradicts the theory behind the Philips curve.
- The increase in cost of production caused a shift of aggregate supply curve to the left with increase in price. It is called the "Adverse Supply Shock". The adverse supply shock raised the unit cost at each level of output and are responsible for the shift of Philips curve.
- The natural unemployment is the rate at which the labour market and current number of unemployment of a country is equal to the number of jobs available. It is generally believed that 4 to 5 percent of unemployment represents the natural rate of unemployment.
- The adaptive expectation hypothesis proposes that people adjust their future behaviour and expectations based on recent past experience and behaviour.
- The effectiveness of monetary or fiscal policy can be explained with the help adaptive expectation approach. The model suggests that monetary or fiscal policy can affect employment and output only in the short run due to error of anticipation. But in the long run the Govt. policies will became ineffective because of anticipation of inflation and as a consequence unemployment will return back to its natural rate.
- The rational expectation theory involves detailed information and clear understanding about the past, current and expected behaviour of variables and changes in economic policies.
- Then rational expectation doctrine suggests that the economy does not move temporarily equilibrium position in the short run along with short run aggregate supply curve as explained in adaptive expectation hypothesis. According to rational expectation hypothesis, when aggregate demand shifts upward in the short run supply curve

immediately shifts upward such that immediate and quick adjustment takes place in the economy with anticipated rate of inflation.

- The long run Philips curve shows the relationship between inflation and unemployment when the actual inflation rate equals the anticipated (i.e. expected) rate of inflation.
- Tobin's view on Philips curve is that as economy expands employment grows and the Philips curve becomes more fragile and vanishes until it becomes vertical at some critical rate of unemployment. Thus Tobin Philips curve is of kinked shape of which one part is like normal Philips curve and the other part is vertical.
- Like Tobin, Robert Solow does not believe that the Philips curve is vertical at all rates of inflation. According to him the curve is vertical at positive rate of inflation and it is horizontal at negative rate of inflation.



4.9 FURTHER READING

1) Ahuja, H.L. (2015). Macro Economic Theory and Policy. New Delhi : S. Chand & Company Ltd.
2) Chopra, P. N. (2011). Advanced Economic Theory Micro and Macro. New Delhi: Kalyani Publishers. 12th Edition.
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4) http://www. investopedia.com
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8) http//www. Economicshelp.org>blog
9) http://www.fsb.miamioh.edu/fsb/ecopapers/docs/hallte-2010-08-paper.pdf
10) https://www.economics.ox.ac.uk/department-of-economics-discussion-paper-series/economists-on-samuelson-and-solow-on-the-phillips-curve

4.10 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: Prof. Philips found that there existed a stable, inverse and nonlinear relationship between inflation and unemployment. The Philips curve is convex to the origin which shows increase in inflation with decrease in unemployment rate and vice verse.

Ans to Q No 2: The adverse "supply shock" is a situation of shift of aggregate supply curve to the left with high price due to increase in cost of production. The adverse supply shock raised the unit cost at each level of output and result in the occurrence of higher inflation along with higher unemployment.

Ans to Q No 3: The natural unemployment is the rate at which the labour market and current number of unemployment of a country is equal to the number of jobs available. These unemployed workers are not employed for frictional and structural reasons. It is generally believed that 4 to 5 percent of unemployment represents the natural rate of unemployment.

Ans to Q No 4: The adaptive expectation is the expectations on the basis of inflation on the previous period. The adaptive expectation according to Friedman is to change or adapt their expectations only when the actual inflation rate exceeds their expected rate of inflation.

Ans to Q No 5: The rational expectation is the anticipation about the future state of the economy. The implication of rational expectation is that people make intelligent use of all available information that affects their economic decisions from past to present and from present to future.

Ans to Q No 6: The long run aggregate supply (LRAS) curve according to the rational expectation theory is vertical straight line at potential level of national output and the long run Philips curve corresponding to the long run aggregate supply curve is a vertical straight line at natural rate of unemployment.

Ans to Q No 7: According to Tobin, as economy expands employment grows and the Philips curve becomes more fragile and vanishes until it becomes vertical at some critical rate of unemployment. Thus Tobin Philips curve is of kinked shape of which one part is like normal Philips curve and the other part is vertical.

Ans to Q No 8: The critical rate of unemployment is the rate at which there is no possibility of more employment in the economy because of imperfections in labour market. These imperfections emerge because job seekers have wrong skill, wrong age, wrong sex, or may be the wrong place etc.

Ans to Q No 9: Robert Solow believes that the Philips curve is vertical at all rates of inflation. According to him the curve is vertical at positive rate of inflation and it is horizontal at negative rate of inflation.



4.11 MODEL QUESTIONS

A) Short Questions (Answer each question in about 150 words)

Q 1: What is meant by Philips curve? What kind of trade off between unemployment and inflation rate does it imply?

Q 2: Write a note on natural rate of unemployment.

Q 3: Define short run and long run Philips curve.

Q 4: What modifications are made by Tobin on the Philips curve?

Q 5: Write a note on Solow's view on the Philips curve.

B. Long Questions (Answer each question in about 300-500 words)

Q 1: Explain the improvements of Philip curve by Friedman, Tobin and Solow.

Q 2: What is meant by adaptive expectation? Explain how Friedman proves that short run Philips curve is downward sloping while in the long run Philips curve is vertical.

Q 3: What is meant by rational expectation? Explain briefly the rational expectation hypothesis.

Q 4: What is meant by rational and adaptive expectation? Explain how the rational expectation hypothesis differs from adaptive expectation hypothesis.

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UNIT 5: BUSINESS CYCLE

UNIT STRUCTURE

5.1 Learning objectives

5.2 Introduction

5.3 Theories of Business Cycle

- 5.3.1 Schumpeter's Theory of Business Cycle
- 5.3.2 Kaldor's Model of Business Cycle
- 5.3.3 Samuelson's Model of Business Cycle
- 5.3.4 Hicks' Theory of Business Cycle

5.4 Control of Business Cycles

5.5 Relative Efficiency of Monetary and Fiscal Policies

5.6 Let us Sum Up

5.7 Further Reading

5.8 Answers to Check Your Progress

5.9 Model Questions

5.1 LEARNING OBJECTIVES

After reading this unit the learner will be able to

- understand about business cycle
- explain the theories of business cycle propounded by Schumpeter, Kaldor, Samuelson, and Hicks
- know about economic policies and its applicability in different phases of business cycle.

5.2 INTRODUCTION

The business cycle is also known as economic cycle or trade cycle which shows the upward and downward movement of economic activity that an economy experiences over a long period of time. The fluctuations or the upward and downward movement of the economic activities are usually measured in terms of the growth rate of real gross domestic product. A typical Business Cycle is characterised by five different stages or phases-

---- depression, recovery, prosperity, boom and recession. All these five stages have different characteristics or features. Some stages are favourable for the economy while some are not. By using the monetary and fiscal policies it is possible for the economy to attain a favourable economic stage. Various economists had provided different theories of business cycle. So this unit mainly tries to cover the theories of business cycle and steps which are taken for controlling it.

5.3 THEORIES OF BUSINESS CYCLE

Out of the all business cycle theories some theories are remarkable. Following are the important theories developed by economists from time to time to explain the phenomenon of the business cycle.

5.3.1 Schumpeter's Theory of Business Cycle

The name of Joseph Schumpeter is associated with the innovations theory of trade cycle. According to him, innovations are the cause of cyclical fluctuations. But the question here is what innovation he refers to. Innovation should not be confused with inventions. An invention is an act of bringing ideas together in a novel way to create something that did not exist before. On the other hand, innovations simply indicate the commercial application of new techniques of production, new materials and new methods of organisation and management. Schumpeter assigns the role of innovator to an entrepreneur who has revolutionary attitudes and capacity to take new factor combinations, new methods or techniques, new products, new ideas for innovating the business activity.

Initially when a few innovators begin investment in the risky new ideas, the cyclical upswing process starts gradually in the economy, assuming full employment situation. Once the initiative is taken by a few leaders and becomes successful and profitable then the other entrepreneurs follow it in an increasing number and the path gets progressively smoothened for successors by an accumulation of

experience and removals of obstacles. The innovating entrepreneur is financed by the expansion of bank credit. Such 'swarm like cluster' appearance of the entrepreneur raises the demand for existing productive resources which raises their prices and money income and helps to create a cumulative expansion throughout the economy. With the increase in the purchasing power of consumers, the demand for the consumer goods increases in relation to supply. Consequently, price and profit of the industries increase and so they expand their industries by borrowing more from the banks.Such over optimistic and speculative thought leads to credit inflation or boom situation.

After a period of gestation, when the new products flow into the market, disequilibrium exists in the economy as it displaces the previous products. The demand for previously produced goods are decreased and as a result prices of the products fall. So the firms contract their output and some are even forced to run into liquidation. In such unfair economic situation if repayment of loan is made then it causes deflationary effects. The quantity of money is decreased and prices tend to fall. Profits decline whereas uncertainty and risk increases in the economy. The strong wish for innovation is reduced and eventually comes to an end. As a result depression occurs and the process of re-adjustment begins to achieve a new point of neighbourhood of equilibrium. This is the recovery process. Once the equilibrium is restored the economy is set for a new wave of innovation and a repetition of the same trade cycle.

Thus, in Schumpeter's trade cycle theory the innovative entrepreneur plays a very important role to bring upswing stage in the economy through innovation and the bank credit helps them to fulfil their desires; once the upswing ends, the downswing begins and reached full-fledged depression situation. After that, recovery process starts to achieve a new point of neighbourhood of equilibrium.

The main weaknesses of Schumpeter's theory are - a) It is based on unrealistic assumption of full employment of resources to begin with (b) Schumpeter gives too much importance to bank credit although

it has limiting role in the long run when the need for capital funds is much higher (c) Innovation is also not the only cause of cyclical fluctuation as natural financial reasons also cause fluctuations in the economy.



CHECK YOUR PROGRESS

Q.1: Mention the various stages of Business Cycle. (Answer in about 20 words)

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Q.2: What is the inherent meaning of Innovation according to Schumpeter? (Answer in about 20 words)

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5.3.2 Kaldor's Model of Business Cycle

Nicholas Kaldor's model of business cycle is based on Keynes saving-investment analysis and makes both the saving and investment dependent on the level of output and stock of capital. Symbolically, $I = I(Y, K)$, $\frac{dI}{dY} > 0$ and $S = S(Y, K)$, $\frac{dS}{dY} > 0$; where I is investment, S is saving, Y is income and K is capital stock.

Kaldor believes that both the saving as well as the investment functions are non-linear in nature. A non-linear investment function conforms more closely with the investment behaviour during the course of business cycle. The $\frac{dI}{dY}$ is very low at low levels of income. During the mid range of income, the entrepreneurs like to increase the volume of investment and at relatively high levels of income the value of $\frac{dI}{dY}$ reduces. Similarly, in case of saving function, the $\frac{dS}{dY}$ tends to increase at an increasing rate at very high levels of income. During the mid range of income, saving will increase at some normal rate and at very low levels of income savings will greatly be depleted and may even

be negative so that when expansion starts, $\frac{dS}{dY}$ is expected to be relatively large.

Now, equilibrium national income requires the equality of saving and investment. Equating Kaldors' saving and investment functions, logically there are three possible equilibrium points exist, which is shown below in the diagram.

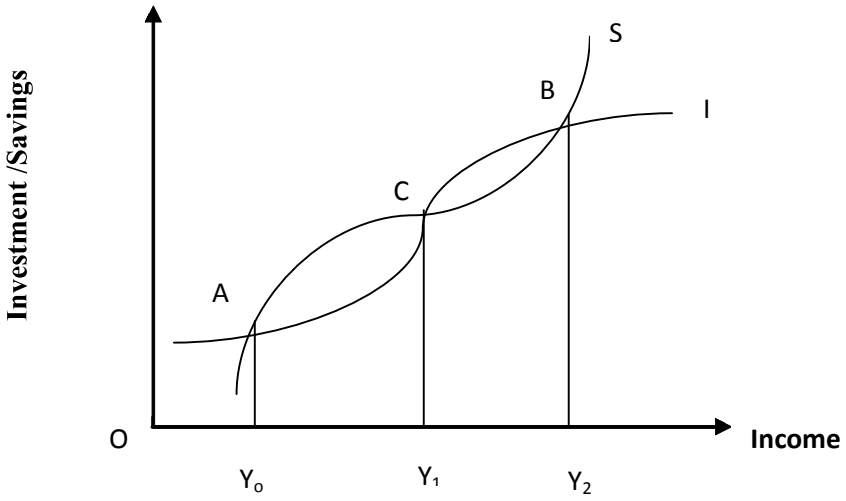


Fig. 5.1: Possible equilibrium points

In the above Fig. 5.1, points A and B are the stable positions of equilibrium while C represents an unstable position. If Y<Yo or Y_1 < Y < Y_2 , then I > S which causes the level of Y to rise. If Y >Y_2 or Yo <Y< Y_1, then S > I, which decreases the income level. If income is Y_1 then a slight fall in income will initiate the process of contraction until Yo is reached. Similarly if a slight disturbance causes income to rise above Y_1, a process of expansion will be initiated that will come to be terminated at Y_2 stable equilibrium position.

But Kaldor asserts that both these two positions (i.e.; A and B) are stable only in the short period; not in the long period. To start with, let us assume that the economy is enjoying high employment and output at point B (equilibrium point). Here, both the saving and investment are high. As the capital accumulates, the rate of profit declines and the investment schedule shifts downward. And the point B coincides with the point C, as shown in the fig. 5.2.

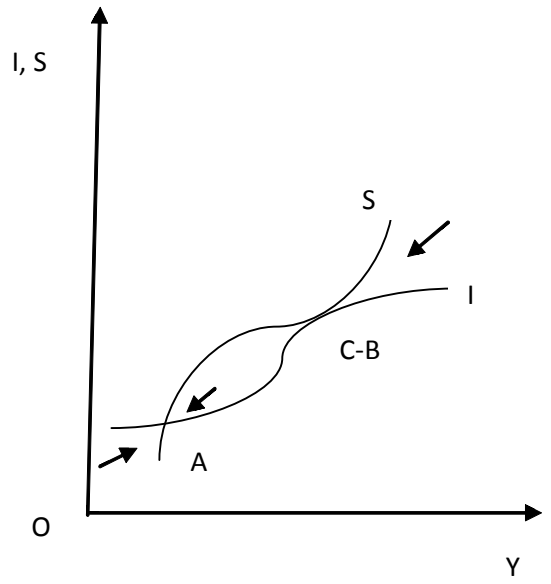


Fig.5.2: Capital accumulation, unstable equilibrium and depression

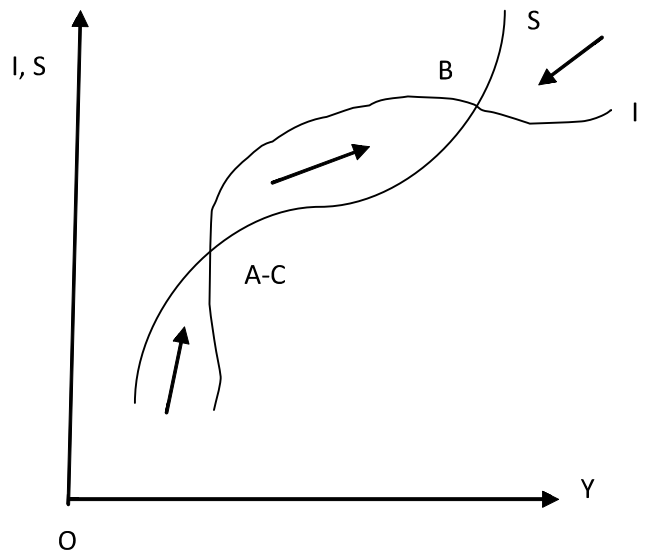


Fig.5.3: Capital depletion, unstable equilibrium and boom

At the point C-B in figure 5.2, the equilibrium is unstable. So the economy moves to the point A, where the output and employment are low i.e.; depression.

At point A, income is low. As capital stock starts depleting, the investment schedule shifts up. After a while, points A and C coincide (shown in Fig. 5.3). With further depletion of capital, the economy will experiences a strong boom and reach point B. Thus, from this analysis it is found that the forces of saving and investment not only arrest depression but lead the system onwards through expansion. This model is an endogenous self-generating model of cyclical fluctuations.

The main weakness of this model are - (a) it overlooks the working of the accelerator or the multiplier-accelerator interaction, (b) it ignores the impact of monetary forces on business variations, (c) it does not involve the impact of business expectations upon economic cycles.



CHECK YOUR PROGRESS

Q.3: State the nature of investment and saving function used in Kaldor's model. (Answer in about 40 words)

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5.3.3 Samuelsons' Model of Business Cycle

Samuelson developed a three sector closed economy model where he shows how the interaction between multiplier and accelerator causes cyclical fluctuations in economic activities. Mathematically, this can be represented as-

$Y_t = G_t + C_t + I_t$ ..... (1)

$C_t = \alpha Y_{t-1}$ ..... (2)

$I_t = \beta(C_t - C_{t-1})$ ..... (3)

Here Y_t is National income or output, Gt is Autonomous government expenditure, C_t is induced consumption expenditure, I_t is induced private investment, α is marginal propensity to consume, β is the accelerator and 't' represents the time period.

Now, $I_t = \beta(\alpha Y_{t-1} - \alpha Y_{t-2})$ ..... (4)

Since C_t is the $f(Y_{t-1})$, C_{t-1} is the $f(Y_{t-2})$

Putting the value of equation (2) and (4) in equation (1)

$$Y_t = G_t + \alpha Y_t + \beta(\alpha Y_{t-1} + \alpha Y_{t-2})$$

$$= G_t + \alpha Y_{t-1} + \alpha\beta Y_{t-1} - \alpha\beta Y_{t-2})$$

$$= G_t + Y_{t-1}(1+\beta)\alpha - \alpha\beta Y_{t-2}$$

With different values of α and β, various super multiplier effects can be noted and these values will cause different types of fluctuations. Samuelson has described the different types of fluctuations in four different regions, given the different magnitude of α and β. Figure

5.4 depicts the four regions of movements which the economy passes -- Region-A, Region-B, Region-C and Region- D.

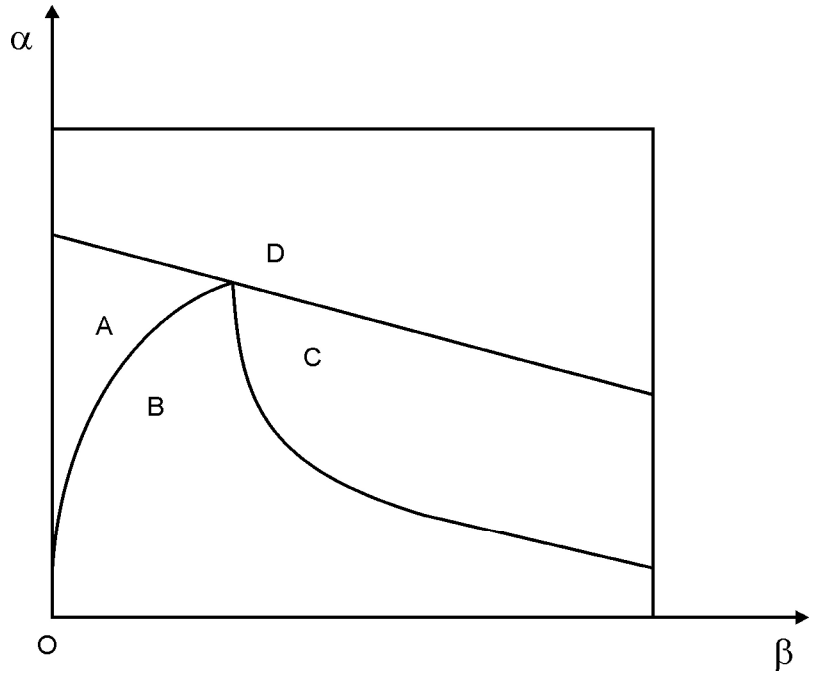


Fig. 5.4: Regions of economic fluctuations

In the diagram, the horizontal axis represents β and the vertical axis represents α. Region A is relevant when α is 0.5 and β is 0. The growth in income is simply due to the multiplier effect. Region B is relevant when α is 0.5 and β is equal to 1. It shows the situation when constant continual autonomous spending dampens the fluctuations of national income. Region C is relevant when α is 0.6 and β is 2. This region represents the explosive or ever increasing fluctuations situation due to a constant level of autonomous spending. If α is 0.8 and β is 4 then Region D is relevant. Here, a constant level of spending causes an ever increasing national income approaching a compound interest rate of growth. Even a single dose of investment likewise will make the system move into infinity at a compound interest rate of growth. This model provides a simple and logical explanation of the essential mechanism of the business cycle. So it has a great appeal for the economists.

This model is criticised because it rests upon crude and mechanical concepts of multiplier and accelerator and also because of the assumed constant values of α and β, which is not true in actual reality. This model fails to state the periodicity of business cycle and do not prescribe the ceiling and floor limits of the fluctuations. Samuelson also assumed closed economy. He did not analyse the cyclical variations in an open economy.



CHECK YOUR PROGRESS

Q.4: Under what background has Samuelson's model been criticised? (Answer in about 30 words)

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5.3.4 Hicks' Theory of Business Cycle

The business cycle model of Hicks is regarded as the modified version of Samuelsons' business cycle model. According to Hicks' model, the autonomous investment (through the multiplier) and induced investment (through the accelerator) cause cyclical fluctuations in business activity. Suppose due to spurt of autonomous investment the equilibrium situation of an economy is suddenly disturbed.Then the income and output will expand to the degree indicated by the multiplier. Such expansion will result in induced investment via the accelerator which further increases the income (multiplier) and further induce investment (accelerator) and so on. In this upswing stage, the income and output rises faster than the equilibrium rate. This process of rising income and output will continues till it reaches the *Upper limit or Ceiling* determined by full employment. As it hit the ceiling, their expansionist force is bound to be checked. As a result, the mechanism of multiplier-accelerator works in reverse

order which reduces income, output, investment etc. The output may plunge downward below the equilibrium level to a greater extent than it rose above it on account of the reverse working of the multiplier and accelerator.

Hicks' theory can be explained with the help of fig. 5.5

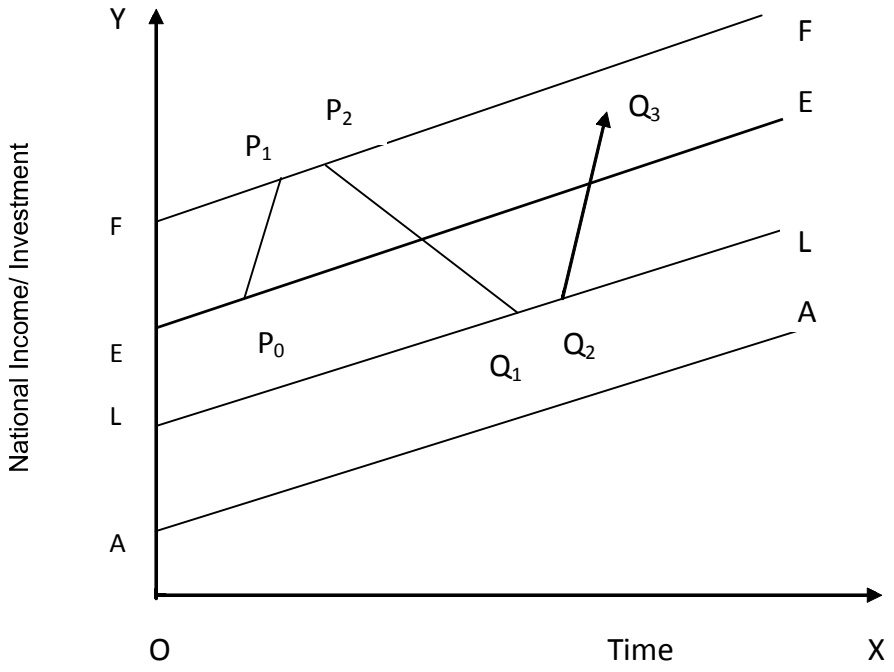


Fig. 5.5: Fluctuation of business activity in between ceiling and floor line

In the diagram, Y-axis represents the national income and investment and X-axis represents time. AA line indicates that the autonomous investment grows annually at a rate given by the slope of AA. LL line is the floor-line. The line EE shows the equilibrium time path of national income determined by investment and accelerator. FF line represents the full employment ceiling or maximum output line at any period of time. The economy starts from E and moves along the path EE. Let the economy reach the point P0 along the EE path. At this point, suppose there is outburst of investment which pushes the economy above the EE path after the point Po. This increase in income will cause further increase in income due to

combined effect of multiplier and accelerator. As a result the economy moves along the time path P0P1 and inevitably stops at P1 because P1 is located on the FF line which is the full employment ceiling. From the P1 of FF line, the economy creeps along the FF line at the same rate at which the autonomous investment increases and reaches P2. Since the national income has now ceased to grow at a rapid rate, therefore, the national income moves downward to EE from P2. The fall in national income will not stop on touching the line EE, but will continue moving downwards, till it reaches the point Q1. But it will not slip down beyond Q1, because the floor has now been reached. The economy may creep along the LL from Q1 to Q2. Once again there is a growth in the national income and the economy moves in the upward direction towards Q3 and the full employment ceiling. In this way, the multiplier and accelerator cause fluctuations in the economy. In brief this is Hicks' theory of business cycle.



CHECK YOUR PROGRESS

Q.5: What is meant by Autonomous Investment? (Answer in about 20 words)

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5.4 CONTROL OF BUSINESS CYCLES

To control the business cycles, the following steps can be undertaken-

- **Monetary Policy:** The monetary authority (i.e., Central bank) has the power to influence upon the supply, cost and availability of money to ensure a more efficient operation of the economic system. For realisation of this the authority deliberately used the monetary instruments like bank rate, open market operations, reserve requirements and quantitative credit control method. In the upswing state of the trade cycle, generally the higher prices, higher profits and an optimistic outlook among the agent are the basic features; while in

the downswing stage of the trade cycle lower prices, lower profits and pessimistic outlook are the basic characteristics. Thus, some steps should be taken to check and control such situation. So far as money supply is concerned in the upswing stage, it is needed to check the undue expansion of money (like issue of new notes) in proper and adequate way. And, for curbing the excess supply of credit, the central bank uses both the quantitative and qualitative monetary instruments. The Central bank favours to raise the rate of interest by modifying its bank rate and sale the government securities in the open market operation to reduce the availability of money in the economy. On the contrary, in the downswing stage the monetary instruments are used to adequately expand the credits. Thus, monetary policy has an important part to play in curbing cyclical business fluctuations and contributing to economic stability.

- **Fiscal Policy:** Needless to say, the role of government has been increasing in today's globalised society. For achieving the higher levels of growth and economic stability, the government has started employing the various fiscal instruments, namely, taxation, government spending and borrowing. Keynes and his followers have recommended compensatory fiscal policy to bring stability in the business activity.

  If the business activity shows signs of slacking down, the government should at once enforce the three instruments of fiscal policy to check down-trend and ensure stability in the economy. The government does not impose any new taxes on the people; even the existing taxes should be substantially reduced for encouraging the people to spend and buying additional goods. The government also increases its expenditure by taking various public works programme. In this way government tries to offset the deflationary effect on the economy. Public borrowing policy is also used to fight depression and unemployment. On the other hand, if the economy recovers and retains a position towards prosperity then the government should follow exactly the opposite policy. That is, government should raise the tax rate and also impose new taxes, favour to reduce the government expenditure programmes etc.

- **Automatic Stabilizers:** An automatic stabilizer or built in stabilizers is an economic shock-absorber that helps smoothing the cyclical business fluctuations on its own accord, without requiring deliberate action on the part of the government. The personal income tax, unemployment insurance benefits, agricultural price support etc. are some examples of automatic stabilizers. Suppose income level declines, then taxes fall and consumption expenditures increase automatically. On the opposite, if income expands, then the tax level increases and the consumption expenditures decline automatically.



CHECK YOUR PROGRESS

Q.6: Mention two instruments of monetary policy. (Answer in about 20 words)

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5.5 RELATIVE EFFICIENCY OF MONETARY AND FISCAL POLICIES

Although both the policies are useful and helps to fight economic cycles to establish stabilization in the economy, but in relative sense their efficiency level is different in different economic situations.

- **Monetary Policy:** There has been widespread belief among the academicians and the policy framers that the monetary policy during depression is almost ineffective and helpless. It fails to pull the economy out of depression by lowering the rate of interest or injecting cash and often liquid asset.

  During the period of depression, it is necessary to invest in more productive and risky asset to expand the economic activities but due to prevalence of uncertainty and general panic situation in the economy, the firms and individuals are not interested to invest in risky assets; instead they prefer less and more liquid asset.

But the effectiveness of monetary policy is much greater in the inflationary situation. By adapting the anti-inflationary monetary policy (the reduction of money supply and increase in the rate of interest) it is possible to control the Aggregate Demand, which is a major factor of inflation.

A combination of light money and credit measures may keep the system in equilibrium at full employment without inflation. This is shown in Fig.5.6

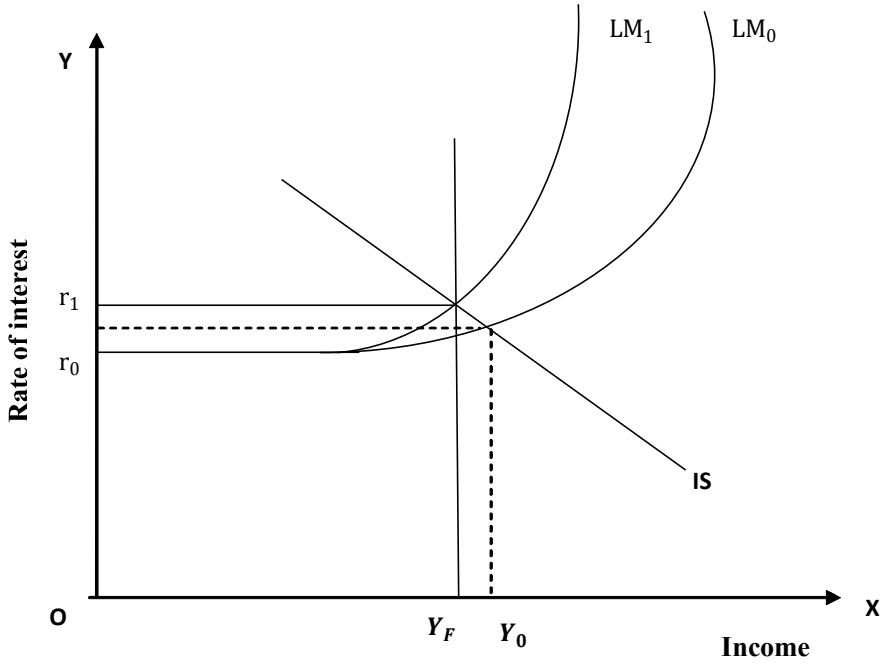


Fig. 5.6: Effectiveness of monetary policy

In the diagram (Fig: 5.6), OX and OY represents income and rate of interest respectively. When the LM_0 and IS intersect each other, the original equilibrium income OY_0 exceeds full employment income OY_f.

$Y_0 Y_f$ is the inflationary gap. A contractionary money supply shifts LM function to LM_1 so that equilibrium gets determined at full employment income OY_f and interest rate increases from r_0 to r_1. In this way full employment situation is established.

Fiscal policy: It refers to the use of government spending and tax policies to influence the economic conditions. During recession or depression, the government must adopt a deficit budget policy by

reducing the rate of tax or by increasing the government expenditure. Such an increase in government expenditure as well as reduction in tax rate helps to increase the aggregate demand in the economy. As a result deflationary gap vanishes and the economy achieves the full employment equilibrium position.

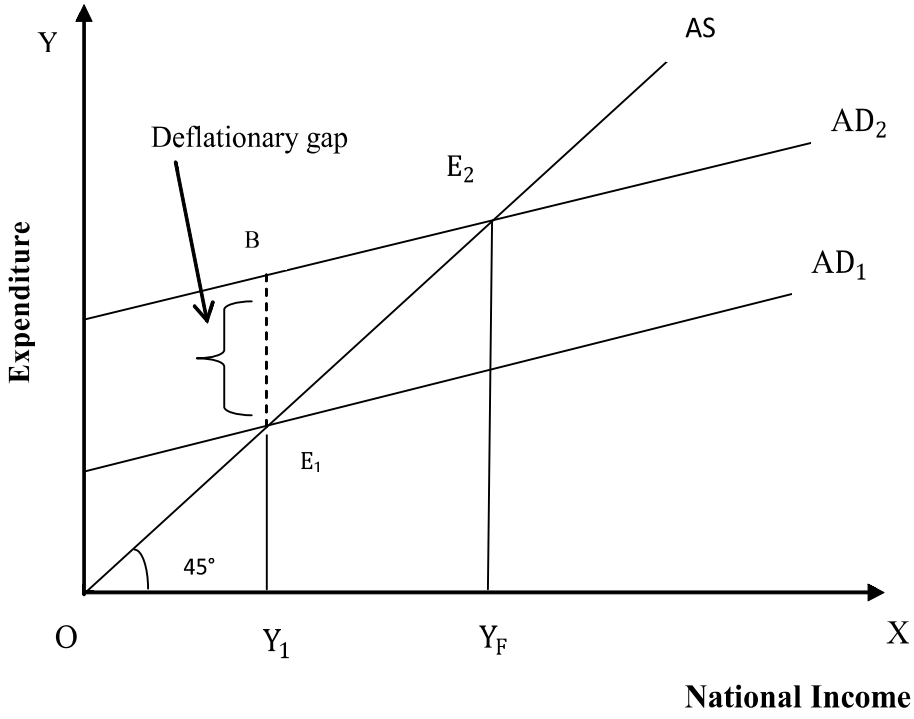


Fig.5.7: Effectiveness of fiscal policy in Deflation

Suppose the equilibrium level of the economy decreases from the full employment equilibrium point E_2 to E_1 due to reduction of investment level. Now if the government intends to overcome this situation then the level of government expenditure must have to increase an equal amount of deflationary gap (E_1B). As a result AD_1 curve shifts upward to position AD_2 and the equilibrium level of income will increase to the full employment income Y_F and the economy will be out of depression.

On the other hand, in the inflationary situation it is needed to increase the tax rates along with the reduction in government expenditure to wipe out inflationary pressure completely.

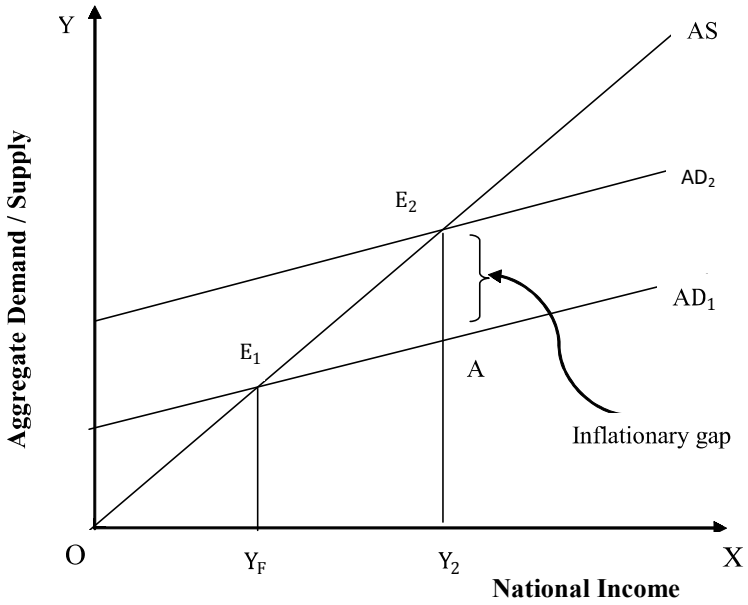


Fig.5.8: Effectiveness of fiscal policy in Inflation

In figure: 5.8, at point E_1 full employment equilibrium level is attained. If due to increase in consumption and investment expenditure, the AD_1 curve shifts to AD_2, then AE_2 amount of inflationary gap arises. By reducing the government expenditure or by increasing the tax rate, it is possible to decrease the aggregate demand curve from AD_2 to AD_1. As a result the economy is restored at the full employment level OY_F.



CHECK YOUR PROGRESS

Q.7: What is meant by inflationary gap? (Answer in about 20 words)

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5.6 LET US SUM UP

- The business cycle shows the upward and downward movement of economic activity that an economy experiences over a long period of time.

- A typical Business Cycle has five different stages or phases–depression, recovery, prosperity, boom and recession.
- Schumpeter shows the upswing and downswing of economic activity in terms of innovations.
- Nicholas Kaldor's model of business cycle is based on Keynes saving-investment analysis and believes that both the saving as well as the investment functions are non-linear in nature.
- Samuelson developed a three sector closed economy model where he shows how the interaction between multiplier and accelerator causes cyclical fluctuations in economic activities.
- Hicks believes that the autonomous investment and induced investment cause cyclical fluctuations in business activity.
- The monetary authority (eg. RBI) adopts monetary policy by using monetary instruments like bank rate, open market operations, direct control, etc. On the other hand, the government of a country uses the fiscal policy and used taxation, government spending and borrowing as fiscal instruments.
- Both monetary and fiscal policy along with automatic stabilizer helps to maintain business stability of an economy.



5.7 FURTHER READING

1) Gupta, K. R.; Mandal, R. K and Gupta, A. (2008). Macro Economics. 5th Revised and Enlarged Edition.

2) Mankiw, N.G. (2012). Macroeconomic. New York: Worth Publisher. 8th Edition.

3) Rana, K.C. & Verma, K. N. (2009). Macroeconomic Analysis. New Delhi: Vishal Publishing Co.

5.8 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: A typical Business Cycle is characterised by five different stages or phases- depression, recovery, prosperity, boom and recession.

Ans to Q No 2: By innovation, Schumpeter means the introduction of something new that changes the existing methods of production.

Ans to Q No 3: Kaldor in his model asserted that both the saving as well as the investment functions are non-linear in nature. A non-linear investment function conforms more closely with the investment behaviour during the course of business cycle.

Ans to Q No 4: Samuelson's model is criticised because it rests upon crude and mechanical concepts of multiplier and accelerator and also because it assumed constant values of α and β, which is not true in actual reality.

Ans to Q No 5: If investment does not depend either on income/output or the rate of interest, then such investment is called Autonomous Investment.

Ans to Q No 6: The two instruments of monetary policy are bank rate and open market operations.

Ans to Q No 7: According to Keynes, the excess Aggregate Demand over Aggregate Supply after the full employment is regarded as inflationary gap.

5.9 MODEL QUESTIONS

A) Short Questions (Answer each question in about 150 words)

Q 1: What are the main objectives of economic policy?

Q 2: Why do Hicks use ceiling line and floor line in his model?

Q 3: State two differences between Monetary and Fiscal policy.

Q 4: How can business cycles be controlled?

B. Long Questions (Answer each question in about 300-500 words)

Q 1: Write a short note on the Schumpeter's theory of innovation.

Q 2: Explain Kaldor's model of Business Cycle with diagram.

Q 3: Discuss Samuelson's theory of Business Cycle.

Q 4: Hicks's model is regarded as modified version of Samuelson's business cycle model. Discuss.

Q 5: How is fiscal policy helpful to curb inflationary situation? Explain with diagram.

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UNIT 6: SUPPLY SIDE ECONOMICS

UNIT STRUCTURE

6.1 Learning objectives

6.2 Introduction

6.3 Failure of Keynesianism

6.4 Features of Supply Side Economics

6.5 Critical Evaluation

6.6 Let Us Sum Up

6.7 Further Reading

6.8 Answers to Check Your Progress

6.9 Model Questions

6.1 LEARNING OBJECTIVES

After going through this unit you will be able to-

- know the loopholes of Keynesian Economics
- understand the reasons behind the emergence of Supply Side Economics
- explain the main features of Supply Side Economics.

6.2 INTRODUCTION

John Maynard Keynes' General Theory marks a turning point in intellectual history. In less than a decade since its publication, the numerous converts to Keynesianism attained dominance in both the academic and political realms. Their hold on these positions has, since the 1970's, weakened under the combined force of theoretical criticisms and practical failures.

After the failure of demand-side economics due to the economic problems, alternative economic theories and policies appeared in the late 1970's and 1980's. Mainly, monetarism, rational expectations theory, public choice economics, Neo-Austrian economics and supply-side economics criticized the Keynesian economics and suggested new remedies to the

economic problems. Supply-side economics made a critique of the Keynes' Law, which means that "demand creates its own supply." In contrast, it defended the idea of "supply creates its own demand", popularly known as Say's Law. The present unit highlights this economic theory which focused on the effects of fiscal policy on incentives and relative prices in order to provide high GNP and government revenues.

6.3 FAILURE OF KEYNESIANISM

Critics have been arguing that the Keynesian theory is doomed in practice because the idea of 'giving spending money to some people' in the form of government jobs or directly as transfer payments and welfare and then borrowing the necessary funds from savers is like a zero-sum exercise, resulting in no addition to aggregate demand.

According to Prof. Schlesinger, "Overall demand is of course to some extent affected by relations on the supply side; Keynes' treatment of demand was thus over simple in that it neglected the possibility that the relative prices prevailing in the different sectors determine in-part the total amount of outlays."

Professor Don Patinkin believes that Keynes' treatment of the aggregate supply function has some inherent defects. The aggregate supply is considered as stable during the short run. Moreover, the representation of the aggregate supply curve by the 45 degree line in the Keynesian cross diagram conveys the meaning that "demand creates its own supply."

Conversely, it implies that the aggregate supply is ruled by aggregate demand. According to Patinkin, "this line of reasoning is yet another facility by product of the usual Keynesian neglect of the supply side of the commodity market."

Another condemnation of the Keynesian economics is that it is appropriate to the short run. Keynes therefore assumed a given stock of capital tool; active practice, choices and behavior of the people, organization, and dimension of populace etc. But all these aspects vary during the short run. This makes Keynes' study imaginary.

Monetarists claim that monetary policy is the real driver of the business cycle. Monetarists like Milton Friedman blame the Depression on high-interest rates. They believe expansion of the money supply will end recessions and boost growth.

Socialists criticize Keynesianism because it doesn't go far enough. They believe that the government should take a more active role to protect the common welfare. This means owning of some factors of production. Most socialist government owns the nation's energy, health care, and education services.

Even more critical are communists. They believe that the people, as represented by the government, should own everything. The government completely controls the economy.

Austrians are more critical of government intervention. They argue that government intervention only prevents the private sector dealing with the disequilibrium.

In the 1950s and 60s, Keynesian demand management was in vogue, as governments appeared to have a choice between unemployment and inflation. However in the 1970s, there was a period of stagflation (higher inflation and higher unemployment). It appeared to the critics of Keynesian demand management that policies to boost demand were only aggravating inflation and not reducing unemployment in the long-term. To monetarist critics, such as Milton Friedman, the better policy was to target low inflation and accept that there may be a temporary period of unemployment. Friedman and other 'supply-side economists' tended to focus on supply-side reforms to increase market efficiency and reduce imperfections in labour markets (such as minimum wages and labour markets). A number of economists including Arthur Laffer, Paul Craig Roberts, Norman Ture, Michael Evans, Alan Reynolds, George Gilder, Robert Mundell, Jude Wanniski, etc.contributed to this theory.

Supply-side economists say that increasing business growth, not consumer demand, will boost the economy. They agree the government has a role to play, but fiscal policy should target companies. They rely on tax cuts and deregulation.



CHECK YOUR PROGRESS

Q.1: Name some economists who had contributed to the Supply-Side Economics. (Answer in about 30 words)

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6.4 FEATURES OF SUPPLY-SIDE ECONOMICS

Supply-side economics (SSEs) is a relatively new term which came into use in the mid-1970s as a result of the failure of Keynesian demand-side policies in the US economy which led to stagflation. Supply-side economics is based on two propositions- first, full faith in the validity of Say's Law of Markets and secondly, a believe that tax rates are the prime determinant of incentives, which in turn, are the prime determinant of production.

Supply-side economists insist on the validity of Say's Law because it will be possible to explain how the economy works by approaching it from the viewpoint of aggregate supply rather than aggregate demand.

When we talk of supply-side economics, it means impacting the aggregate supply curve by modernization, rationalization, skill formation, liberal depreciation, reorganization and cost reduction. Modern supply-side economics lays emphasis on providing all types of economic incentives to raise aggregate supply in the economy. The essential argument of supply-side theory is that adding to supply unlike adding to demand is not a zero-sum task.

The most common theme of Supply-side economics is the responsiveness of work, productivity, saving, investment and enterprise to after-tax rewards. High tax rates are opposed because they discourage economic activity; divert resources to tax- shelter industries and tax-exempt goods; drives economic activity underground; induces tax evasion and encourages smuggling and fraud; and causes the disintegration of the moral

values of the nation. Supply-siders argued that high tax rates collect tiny revenues; Laffer's Curve graphically shows that a 100 percent tax rate will collect no revenue and it is illustrated in the Fig. 6.1 below:

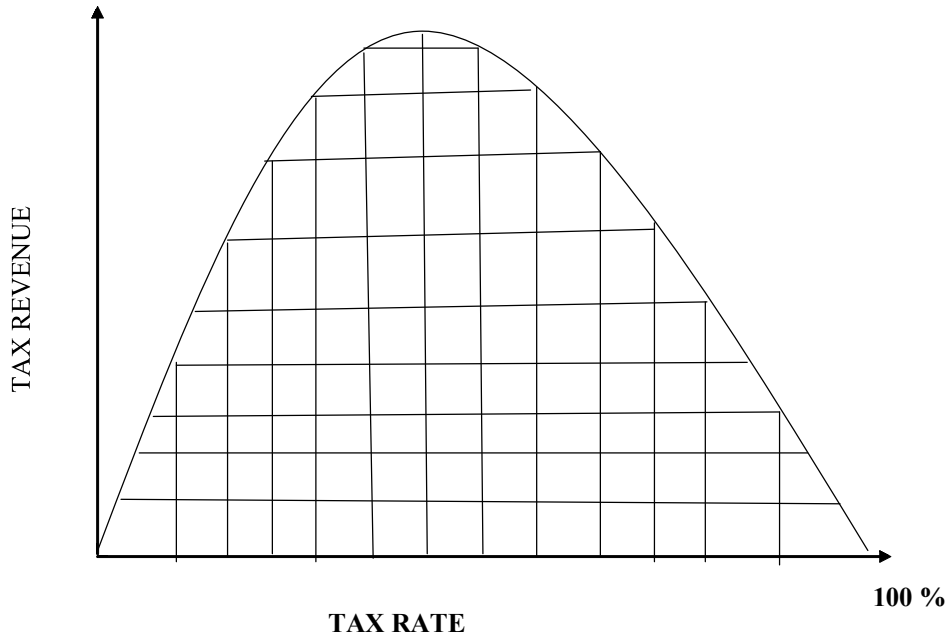


Fig. 6.1: Laffer's Curve

According to economist Arthur Laffer, there is a close relationship between tax rates, revenues and productivity. When the tax rate is 100 percent, all revenue cease; people will not work for nothing. On the other hand, if the tax is zero, there is no government. At the left hand side of the scale, the government imposes no taxes on income and so gets no revenues. Moving right along the scale, as the tax rate increases, so do the revenues. Thus, Laffer Curve is a graphical representation of the disincentives created by high tax rates which is an essential element of the theory of Supply-side Economics.

The government's role is limited to liberalising markets, reducing taxes and freeing the labour market. The main objectives of supply-side policies are to keep inflation at a low level, achieve and maintain full employment and attain faster economic growth. Supply-side economists suggest the following policy measures in order to achieve these objectives.

- **Tax-induced Change in Aggregate Supply:** An important feature of Supply-side economics is the issue of incentives and tax cuts. Supply-

siders treat incentives as the main engine of growth as it energies the economic system. To assess the likely effects of tax reductions, they distinguish between income and substitution effects of a cut in the marginal rate of income tax.

The substitution effect of a wage cut induces people to work more and have less leisure, and the income effect causes people to work less and enjoy more leisure. It is only when the substitution effect of a tax cut is larger than the income effect that there will be an incentive to work more, thereby leading to reduction in unemployment.

Thus supply-side tax cuts by raising work, effort, saving and investment, increase the supplies of labour and capital and shift the aggregate supply curve to the right. The effect of a supply-side tax cut is illustrated in Fig. 6.2 where AS is the aggregate supply curve and AD is the given demand curve.

Real output or GDP is measured along the horizontal axis and the price level on the vertical axis. AS and AD curves intersect at point T and determine OP price and OQ real output of the economy. Suppose there is a tax cut both on persons and firms. This increases work effort and saving on the part of workers and investment by firms.

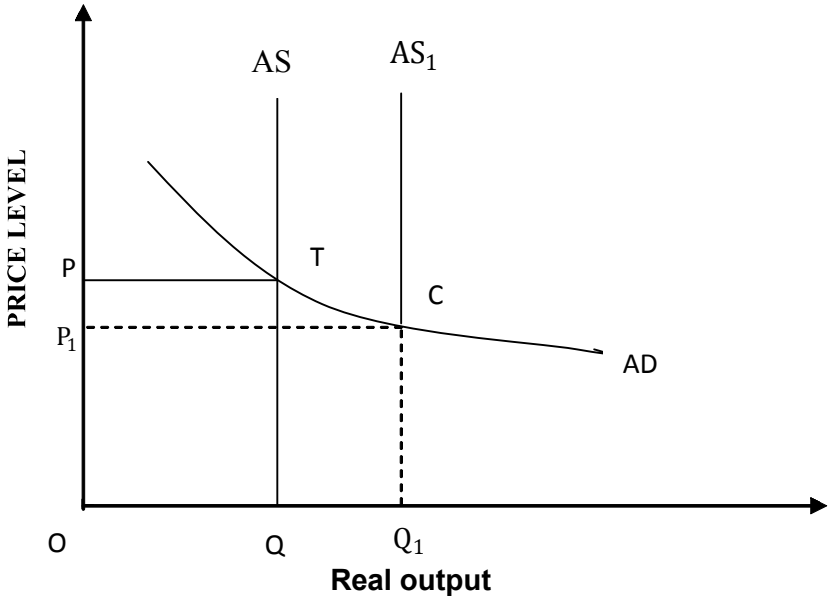


Fig. 6.2: The effect of a supply-side tax cut

As a result, supplies of labour and capital increase which shift the aggregate supply curve AS to the right as AS_1. Now the AS_1 curve cuts the AD curve at point C. As a result, the price level falls to OP_1 and the real output increases to QQ_1 as a result of a tax cut.

Similarly, reduction in corporate tax rates, by giving incentives to the corporate sector in the form of increasing tax credit for larger investment and providing higher depreciation allowance, encourage investment. Higher investment leads to the production of more goods and services per unit of labour and capital.

- ***Increasing Growth Rate:*** According to supply-side economists, tax cuts increase the disposable income of the people who raise additional demand for goods and services. On the other hand, the faster growth in productivity leads to the production of additional goods and services to match the additional demand.

This leads to balanced growth in the economy without shortages. When the economy is moving towards balanced growth, the rate of inflation is low. This, in turn, leads to an increase in the real disposable income of the people which raises consumption, output and employment.

Low inflation leads to increase in net exports which strengthens country's foreign exchange reserves and BOP Current Account. The increase in productivity increases the production of more goods for export, thereby further strengthening the country's foreign earning.

Thus supply-side economists advocate reduction -in tax rates in order to increase the incentives to work, save and invest and to get more tax revenue by the government. Increase in investment leads to an increase in the economy's capital stock, to increase in productivity, to larger output, low inflation, high level of employment and high growth rate of the economy.

These policy prescriptions shift the aggregate supply curve of the economy to the right. This is illustrated in Fig. 6.3 where AS is the aggregate supply curve and AD is the given aggregate demand curve. They intersect at point E which is the initial equilibrium point of the economy with OP price level and OQ real output.

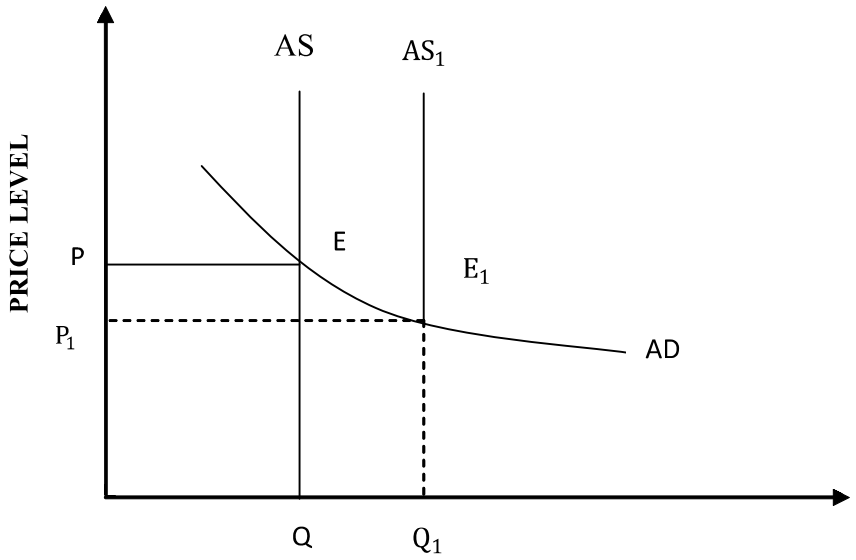


Fig. 6.3 : Shifting of aggregate supply curve of the economy

Suppose the supply-side policies increase the total supply of factors like labour and capital due to tax policies, incentives, etc. They increase real output and shift the AS curve to the right as AS_1. The new equilibrium is at where the AS_1 curve cuts the AD curve. Now real output increases to OQ_1 and the price level falls to OP_1 thereby increasing the growth rate of the economy.



CHECK YOUR PROGRESS

Q.2: What is meant by Laffer curve? (Answer in about 20 words)

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Q.3: What is meant by supply- side economics? (Answer in about 30 words)

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6.5 CRITICAL EVALUATION

The above prescriptions of supply-side economics have been criticized by economists on the following grounds:

- **Laffer Curve Controversial:** The Laffer curve is an interesting but a controversial concept. No one knows with certainty either the location of the optimum point or the exact shape of this curve. The curve may peak at 40% or 90% tax rate, or it may peak in-between these rates.
- **Tax Cuts not Dependable:** Tax changes have both income and substitution effects. The Supply-side Economics assume that the substitution effects will dominate over income effects. But there is absolutely no ground for such an assumption. The effect of tax cut on savings, investment, output, a tax revenues, will very likely vary between countries and over time within a given country for various reasons including cultural factors, level of current tax rates, inflation and the investment climate.
- **No Trickle down Effects and Rise in Income Inequalities:** Tobin asserts that, "The only sure results of supply-side policies are redistributions of income, wealth, and power- from government to private enterprises, from workers to capitalists, from poor to rich." Supply Side Economists are not averse to this result. They assert that such redistribution will, in the long-run, benefit the immediate losers as well as the beneficiaries. This is the famous 'trickle down' theory. Hans Singer argued that automatic 'trickle down' is most unlikely because there is unequal access to the opportunities of producing or obtaining the income incremental GNP. Richer groups have privileged access, and so the larger slice goes to them, creating sharper inequalities.
- **Weak as a Theory of Underdevelopment:** From the angle of underdevelopment, the most objectionable parts of the SSE arguments are (i) neutral role of government; (ii) small size for the public sector; and (iii) support for the maintenance of the existing inequalities.

- **Supply-side Policies fail to bring Social Justice:** Supply-side economists emphasize that reduction in social spending, subsidies, grants and budget deficit with reduction in taxes. But such a policy has actually led to huge budget deficits in the United States. Further, the policy of reducing social spending, subsidies and grants adversely affects the poor and unemployed and fails to bring social justice.



6.6 LET US SUM UP

- Monetarism, rational expectations theory, public choice economics, Neo-austrian economics and supply-side economics criticized the Keynesian economics and suggested new remedies to the economic problems.
- Friedman and other 'supply-side economists' tended to focus on supply-side reforms to increase market efficiency and reduce imperfections in labour markets.
- The most common theme of Supply-side economics is the responsiveness of work, productivity, saving, investment and enterprise to after-tax rewards.
- An important feature of Supply-side Economics is the issue of incentives and tax cuts.
- The Laffer curve is an interesting but a controversial concept.



6.7 FURTHER READING

1) Gupta, K.R., Mandal, R.K. & Gupta, A. (2008). *Macro Economics*. New Delhi: Atlantic Publishers & Distribution (P) Ltd. *5th Revised & Enlarged Edition.*

2) Keleher, R.E. (1982). *Historical Origins of Supply - Side Economics*. Economic Review, Federal Reserve Bank of Atlanta.

3) Paul, R.R. (2007). *History of Economic Thought*. New Delhi: Kalyani Publishers.

6.8 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: The economists who had contributed to Supply-Side Economics include Arthur Laffer, Paul Craig Roberts, Norman Ture, Michael Evans, Alan Reynolds, George Gilder, Robert Mundell, Jude Wanniski, etc.

Ans to Q No 2: Laffer Curve is a graphical representation of the disincentives created by high tax rates.

Ans to Q No 3: Supply-side economics means manipulating the aggregate supply curve by modernization, rationalization, skill formation, liberal depreciation, reorganization and cost manipulation.

6.9 MODEL QUESTIONS

A) Short Questions (Answer each question in about 150 words)

Q 1: Mention the two propositions on which supply-side economics is based.

Q 2: State the main features of supply side economics.

Q 3: According to economist Arthur Laffer, there is a close relationship between tax rates, revenues and productivity. Explain the statement.

B. Long Questions (Answer each question in about 300-500 words)

Q 1: Discuss the reasons for the failure of Keynesianism.

Q 2: Explain the Laffer Curve with suitable diagram.

Q 3: Explain the criticisms against supply-side economics.

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UNIT 7: MONETARISM VS KEYNESIANISM

UNIT STRUCTURE

7.1 Learning Objectives

7.2 Monetarism Vs Keynesianism

7.3 The Monetarist View

7.3.1 Increase Money Supply and Price: Monetarist View

7.4 The Keynesian View

7.4.1 Effect of Money Supply: Keynesian View

7.4.2 Ineffectiveness of Monetary Policy: Keynesian View

7.4.3 Money Supply and Price: Keynesian View

7.5 Policy Implication of Monetarism and Keynesianism

7.5.1 Keynesianism

7.5.2 Monetarism

7.6 Policy Differences of Keynesianism and Monetarism

7.6.1 Policy of Keynesianism

7.6.2 Policy of Monetarism

7.7 Crisis in Keynesian Economics and Revival of Monetarism

7.8 Fiscal and Monetary Policy Mix and Growth

7.9 Let Us Sum Up

7.10 Further Reading

7.11 Answer to Check Your Progress

7.12 Model Questions

7.1 LEARNING OBJECTIVES

After going through this unit, you will be able to learn-

- understand about Keynesian and Monetarist view about money
- understand about short run and long run effect of money supply in the economy
- identify the factors influencing interest rate and price from the approaches of Keynesianism and Monetarism
- enable to understand the effectiveness of monetary policy at liquidity trap

- enable to understand crowding out effect of government expenditure
- enable to understand effectiveness of fiscal and monetary policy in different economic situations i.e. inflation and deflation
- understand the differences and policy mix of fiscal and monetary policy.

7.2 MONETARISM VS KEYNESIANISM

The two most prominent theories of macro economics to emerge during the 20th century are the Keynesianism (1883 – 1946) and the Monetarism (1912 – 2006). Keynesian thoughts trace back to the early part of the century as a response to panic of 1914 and First World War and the Monetarist theory arose in the later decades by Milton Friedman following the great depression and Second World War. Each theory attempts to explain the fundamental derives of the economic cycle and to prescribe the best policies to restore growth during recession and depression. While both theories aim to achieve the same goal, each of them focus on fundamentally different economic phenomenon. Monetarism relates to the money matters of a country and hold that monetary policy is a more potent instrument than fiscal policy in economic stabilisation. The key focuses of Monetarism are Cash Reserve Ratio (CRR), Statutory Liquidity Ratio (SLR), money supply, exchange rate or the function of Central bank etc. On the other hand, Keynesianism believes that “money does not matter” for economic stabilisation. The fiscal policies i.e. government intervention, investment, taxes, policies etc. are more powerful tools than monetary policy.

7.3 THE MONETARIST VIEW

Monetarism is an economic theory that says that money supply is the most important instrument of economic growth. As money supply increases in the economy people’s demand increases, producer produce more and create job opportunities. The monetarist emphasises on the role of money in explaining the short term changes in national income. They warn that the

increasing money supply only provides temporary boost to economic growth and job creation but in the long run it increases inflation as demand outstrips supply. Monetarism argues that the role of money has been neglected by Keynes. They hold that all recession and depression are caused by severe contraction of money and credit and booms influenced by excessive supply of money. Friedman and monetarist economist focus on keeping inflation low and stable by controlling the money supply. The greatest danger of an economy is felt when the money supply falls too low or rise too high for a given economic environment. When the inflation is too high the money supply should be decreased such that with less money circulating supply and demand principle bring inflation back down to lower level. In the opposite scenario of liquidity crisis monetarist think that the monetary base should be expanded to prevent damaging deflationary spiral. As a result in both cases, interest rate will move to appropriate level to either encourage or discourage borrowing, keeping aggregate demand and aggregate supply in balance.

According to monetarists money supply is the determinant of the level of output and prices in the short run and the level of price in the long run. In the long run the level of output is not influenced by supply of money. It is dependent on real factors such as technology quantity and quality of productive resources etc. The money supply is the only determinate factor of price level and output in the short run. But in the long run the affect of money supply is directly related to price level, because in the long run, the economy is near full employment and an increase in money supply tend to increase price level. Thus changes in money supply affect national income directly. The monetarist holds that the rate of interest has no part in determining the demand for money. The demand for money is the transaction demand for money which is direct function of the level of income. They believe that money supply is also not determined by rate of interest. The insensitiveness of demand and supply of money to rate of interest is based on the quantity theory of money. The simplest equation of quantity theory of money is PT=MV (P = Price level, M = Quantity of money, V = Velocity of circulation of money, T = Number of physical transactions). Taking PT =Y (Y = National income) the equation becomes MV = Y; if V remain constant income changes with changes in quantity of money.

The concept of demand for money to hold as put forward by Friedman can be written as

$$M_d = KPy$$

Where M_d = Demand for money or cash balances to hold.

K = Proportion of national income, people desired to hold in the form of money or cash balances.

Py = National income which is obtained by multiplying price (P) with real income (y).

Monetarists believe that demand for money holding depends on the real rate of interest, inflationary expectation and frequency of payments. The higher the rates of interest the lesser is the amount of money people want to hold. Similarly, with inflationary pressure they would spend more money and increase the frequency of payments and velocity of money and vice verse. Given frequency of payments, interest rates people desire to hold money (M_d) in cash balances of nominal income can be explain in fig. 7.1.

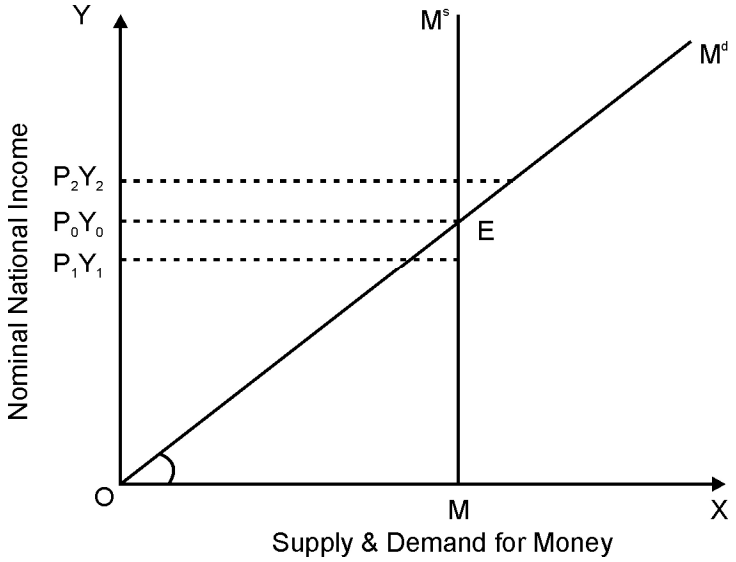


Fig. 7.1: Determination of Nominal income and Money Demand

In the fig. 7.1 the money demand curve M_d is drawn from the origin and it explains the amount of money people want to hold for transaction purpose at various nominal income level. The M_d curve being an upward sloping straight line implies that public demand for money is a constant

function of K = 1/V (K = Portion of nominal income held in the form of real cash balances i.e. M_d = KPy). The vertical M_S is the money supply curve, and it shows that given amount of money supply OM is fixed in the economy. The demand and supply of money are in equilibrium by intersection of M_S and M_d curves at point E ($M_d = M_s$ = KPy) which determine equilibrium level of nominal income equal to P_oY_o. At P_1Y_1 level of income money supply is more (Ms > KPy) and people start to spend their excess money till income increases to equilibrium level P_oY_o. On the other hand, when income level is P_2Y_2 there is shortage of money supply (Ms < KPy) and people start reducing their spending such that income decreases to equilibrium level.

Friedman holds that the demand for money is a stable function of income and money is the good substitutes for all types of asset i.e. bond, securities, and all types of durable goods. Therefore, people want to hold certain fixed amount of their income. If central bank increases money supply it affects interest rate in three different ways.

- **Liquidity effect:** When money supply increases it will cause short run reduction of interest rate and people sell their securities and their holding of money increases. People therefore expend their excess money balances to financial asset or consumer durable goods.
- **Output effect:** When people starts spending their excess money balances due to liquidity effect production, income and employment increases in the economy.This will tend to increase interest rate and price.
- **Price expectation effect:** When interest rate and price rise due to output effect the interest rate in the economy further tends to increase because of expected inflation or expectation of higher price in future. The money lender charge higher interest rate to cover expectation of price hike.

Thus the liquidity effect in the short run tend to downward pressure to interest rate on the one hand but the output and price expectation effect bring upward pressure to rise interest rate on the other hand. The combined effect will pressure an increased interest rate in the economy. These will in

turn discourage investment and reduce output and employment. The combined effect of liquidity, output and price expectation can be explained by fig. 7.2.

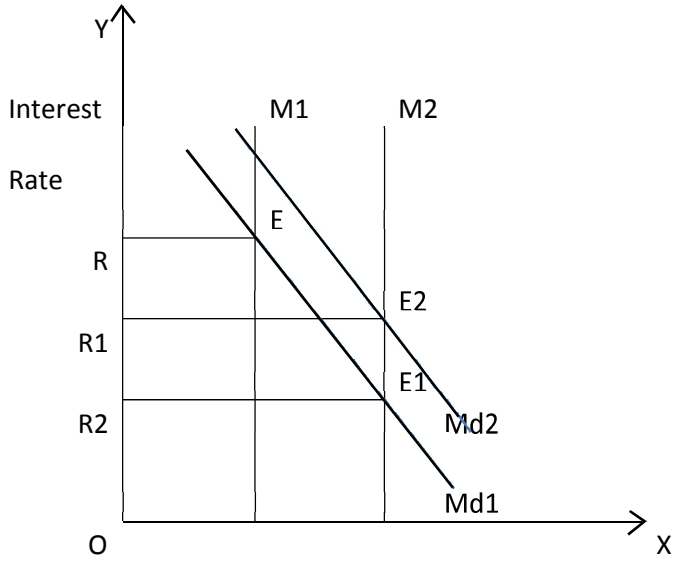


Fig. 7.2: Effect of Money Supply and Interest Rate

In fig. 7.2 demand and supply of money measured in OX axis and interest rate is measured on OY axis. The Md_1 money demand curve and M_1 money supply curve intersect each other at point E indicate equilibrium level of interest rate OR. If the Central bank increases money supply the M_1 curve shift to M_2 and new equilibrium is reached at point E_1. The new equilibrium tends to decrease interest rate to OR_2. At this point people start spend their excess money due to liquidity effect which will tend to increase price income, output and employment in the economy.As a result the demand of money curve shifts to Md_2 from Md_1. The new Md_2 curve intersects M_2 money supply curve at point E_2 and reach new equilibrium and take interest rate to a higher at OR_1.

7.3.1 Increase Money Supply and Price: Monetarist View

According to monetarist an increase in money supply in the economy affect price level and national income. Consider the equation of monetary equilibrium

$M_d = M_s = KPy$

$M_s = KPy$

$P = Ms/Ky$

Now if K and Y remain constant price is directly proportional to money supply. This is the view point of old quantity theory of money which believes that velocity of money (V), in other words K = 1/V, and real income are constant. Monetarists stress that K and V are stable; the real GNP will change if the economy is working below the full employment level. The increase in money supply (constant K or V) leads to increase in output or income more than the rise in the price level (P). But in the long run aggregate supply curve is vertical straight line at full employment level of output and at this situation an increase in money supply will cause rise of price level and inflation in the economy. Fig. 7.3 explains monetarist view about the relation between money supply and price level.

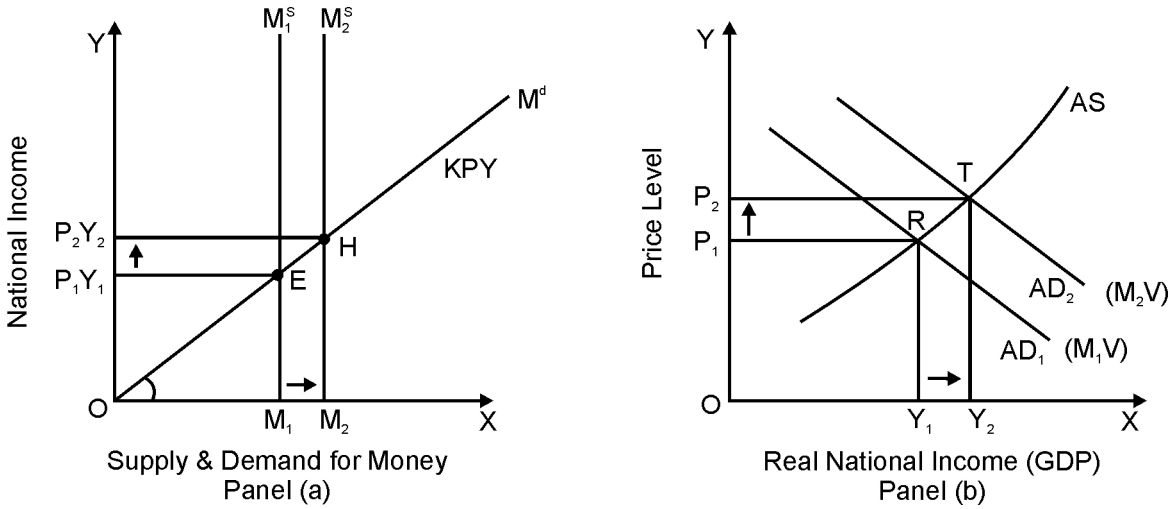


Fig. 7.3: Money Supply and level of price

In the diagram 7.3 in panel (a) let supply of money increases from OM_1 to OM_2 causes increase nominal income from P_1Y_1 to P_2Y_2. Thus people will be induced to spend the excess money supply and thereby raise aggregate demand for goods and services and tend to shift AD_1 to AD_2 and result increase in price level from OP_1 to OP_2 with increases real national income from OY_1 to OY_2 in panel (b).

But in the long run at full employment level of output the aggregate supply curve is a vertical straight line and real income becomes constant. At full employment level of output any further increase in money supply will cause a rise in aggregate demand and thereby increase price level and thus brings about a rise in nominal income.



CHECK YOUR PROGRESS

Q.1: What are the key focuses of monetarism? (Answer in about 50 words)..

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Q.2: What is liquidity, output and price expectation effect as explained by monetarism? (Answer in about 50 words).

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7.4 THE KEYNESIAN VIEW

The Keynesian economy is a demand side economy that believes that the economy is best controlled by manipulating the demand for goods and services. However, the economists of Keynesianism do not completely disregard the role of money supply in affecting gross domestic product (GDP). Keynesianism emphasises the role of fiscal policy to stabilise the economy and suggests that raising of the government expenditure in recession will help in quicker economic recovery. Keynes holds opposite views of the monetarists about the demand and supply of money and aggregate expenditure. But demand and supply of money is monetary

phenomena and highly interest elastic while aggregate expenditure is not. People want to hold a certain portion of their income and wealth in liquid form so that it can be ready to use as a means of payment of buying goods and services. The demand for money, also called liquidity preference, is desire to hold cash. There are three motives to hold cash i.e. transaction, precautionary and speculative demand for money. Money held for transaction and precautionary motives is increasing function of income and represented by (M_1). Money held for speculative motive is decreasing function of rate of interest and represented by (M_2).

Thus, $M_d = M_1 + M_2$ (M_d = Money demand)

$M_1 = L_1(Y)$.....(1)

$M_2 = L_2(r)$.....(2)

Where L_1, L_2 represent demand function, Y = Income, r = Interest rate.

Since $Md = L_1(Y) + L_2(r)$

To the Keynesians it is the expectation about changes in bond prices or in the market rate of interest which determines the speculative demand for money. The speculative demand for money is decreasing function of rate of interest. The higher the rate of interest the lower the speculative demand for money and vice verse. But at very low rate of interest speculative demand for money is perfectly elastic and people want to keep money in cash rather than invest in bonds asset.

In order to explain the relation between demand for money and interest rate Keynes assumes two asset economies.

- Money is the form of currency and demand deposit in the banks which earn no interest.
- Long term bonds where rate of interest and bond prices are inversely related. When rate of interest goes up the price of bond and securities decreases and vice verse. The demand for money by the people depends upon how they decide to balance their portfolio between money and bonds. This decision is influenced by two factors. The higher the level of income people hold the more money remains in their portfolio balance and the higher the rate of interest the lower the

demand for money for speculative motives. Because higher interest rate means higher opportunity cost for holding money.

7.4.1 Effect of Money Supply - Keynesian View

Keynes believes in the existence of an economy below full employment equilibrium. This implies that an increase in money supply can bring about increase in level of output. The ultimate influence of money supply on the price level depends upon its influences on aggregate demand and the elasticity of supply of aggregate output. Thus if the rate of interest is reduced as a result of increase in money supply, the rate of investment increases and thereby increases income with activation of multiplier. If this happens there will be an increase in aggregate expenditure and aggregate demand and as a result real national income (aggregate output) increases. The relation between increase in money supply and rate of interest and effect on investment can be explained in fig. 7.4 and 7.5

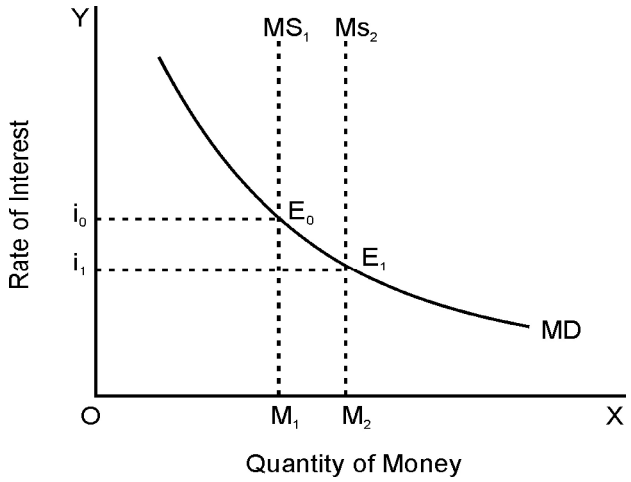


Fig. 7.4: Increase in money Supply and rate of Interest

Rate of interest according to Keynes is a purely monetary phenomenon. Demand for money to hold depends on the level of income and rate of interest. At the lower rate of interest demand for money is high and vice verse. Therefore, money demand curve (MD) slopes downward as shown in fig. 7.4. The rate of interest Oi_0 is determined according to point E_0 at the initial stage by equality between

demand and supply of money. The OM_1 money supply is fixed by monetary authority.Therefore MS_1curve is vertical. Now if central bank increases money supply by purchasing government securities from the market money supply curve will shift to MS_2 and new equilibrium will be reached at point E_1 and rate of interest will decrease to Oi_1. Decrease of interest rate to Oi_1 encourages investment demand in the market and as a result investment increases from OI_o to OI_1 as shown in fig. 7.5.

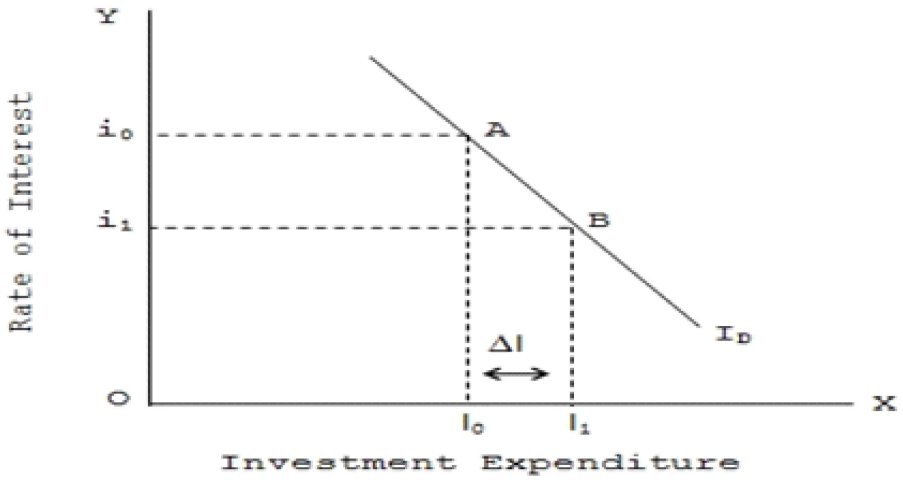


Fig.7.5: Rate of Interest and Investment

The second phase of change of rate of interest as a result of changes of money supply affects on investment of the economy. According to Keynes, investment of an economy depends on the rate of interest on one hand and marginal efficiency of investment (MEI) on the other hand. The marginal efficiency of investment depends on the expectations of entrepreneurs. It is worth mentioning that the increase in investment as a result of change in the rate of interest depends on the responsiveness (that is elasticity) of investment demand to the change in the rate of interest. The higher the elasticity of investment expenditure to the changes in the rate of interest, the greater will be the increase in investment for a given fall in the rate of interest.

The third phase of effect of money supply on the national income and price level with impact of increase in investment and aggregate

demand. The aggregate demand (AD) is determined by the sum of private consumption expenditure (C), private investment expenditure (I), government expenditure on goods and services (G) and Net exports (NX).

Thus AD = C + I + G + NX

When, the rate of interest is reduced money supply increases causing investment to increase and thereby increase in national income in the economy which can be explained by fig. 7.6.

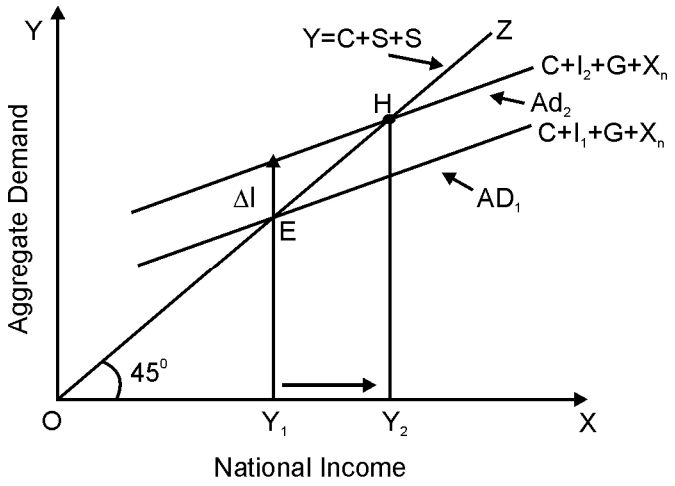


Fig.7.6: Aggregate Demand and National Income

In the fig. 7.6 the investment demand curve C + I_1 + G + Xn (AD) and aggregate supply curve OZ intersect each other and determine equilibrium at point at E where OY_1 national income is determined. If government adopts expansionary monetary policy interest rate will decrease and aggregate demand curve (AD) will shift upward to C + I_2 + G + Xn. The new aggregate demand curve equates with aggregate supply curve at point H and tends to increase income to OY_2.

Finally, the effect of increase in investment and aggregate demand on real national income (GNP) depends on the size of the multiplier. The size of multiplier depends on the marginal propensity to consume (MPC) of the community. The higher the MPC the higher the size of multiplier (Multiplier (K) = 1/1 – MPC) and the higher the level of income as a result of given investment.

7.4.2 Ineffectiveness of Monetary Policy: Keynesian View

It is to be noted that Keynesians were not very optimistic about the success of expansionary monetary policy in lifting the economy out of depression. They point out that there is chain causation in the process of increase in money supply leading to the rise in aggregate demand. When the economy is in great depression the rate of interest already prevails at low level.Therefore interest rate is not expected to fall further. According to Keynes the demand for money is perfectly elastic at very low rate of interest and gets liquidity trap. In this situation expansionary monetary policy becomes ineffective because there is no possibility of further fall in the rate of interest to encourage investment. The ineffectiveness of monetary policy can be explained in fig. 7.7.

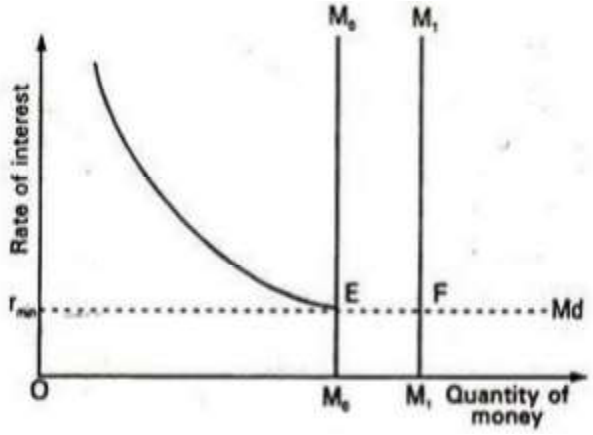


Fig. 7.7: Ineffectiveness of Monetary Policy

In fig. 7.7 the money demand curve M_d is horizontal at very low rate of interest OI (Liquidity trap) and there is no possibility of further fall in the rate of interest. Now if the government increases its money supply there will be no impact on further investment, income, employment or any economic activities in the economy as the economy is operating in the range of liquidity trap. Thus under these circumstances Keynes and his followers concluded that expansionary monetary policy cannot help the economy to recover from depression.

7.4.3 Money Supply and Price: Keynesian View

Keynes considers an economy in depression and that the economy is operating less than full employment. In such a situation aggregate demand increased by any economic policy (either fiscal or monetary) increases national output without affecting price till up to the economy reaches full employment and after that any further increase in aggregate demand leads to increase in price. The relation between expansionary money supply and price can be explained by fig. 7.8.

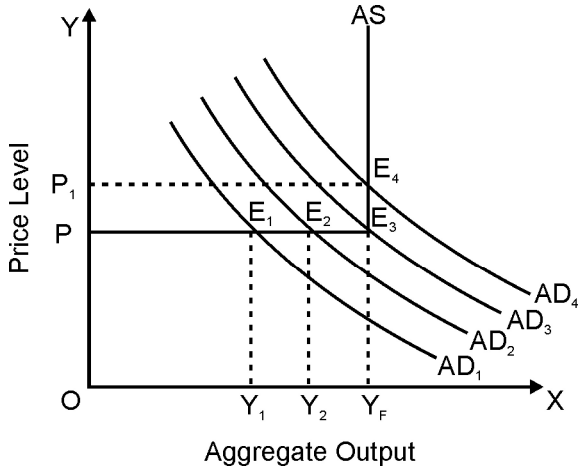


Fig.7.8: Money Supply Aggregate Demand and Price

In the fig. 7.8 AS is aggregate supply curve which shows the various levels of aggregate supply at which producers in the economy are willing to produce and sale in the market at various levels of prices. As the economy is in the state of depression there are lots of unused resources. Initially the aggregate demand is AD_1which intersects AS curve at $E_{1;}$ as result OP price and OY_1 income is determined. Now, if expansion of money supply succeeds in rising aggregate demand to AD_2 and intersect AS curve at $E_{2,}$ there will be no change in price but increase in income to OY_2as there is unused resources in the economy. But after reaching full employment of resources at point E_3 and income level Y_F any further increase of AD curve will increase price. In the fig 7.08 it is observed that the shift of aggregate demand from AD_3 to AD_4 increases price from OP to OP_1. Thus when full employment is

prevailed an increase in aggregate demand brought about by increase in money supply leads only to higher price but not to higher output.



CHECK YOUR PROGRESS

Q.3: What is the relation explained by Keynes between interest rate and bond prices? (Answer in about 50 words)..

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Q.4: What is Keynesian view about money supply? (Answer in about 50 words)..

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7.5 POLICY IMPLICATION OF MONETARISM AND KEYNESIANISM

7.5.1 Keynesianism

- In depression all the economic activities are at low level and money market is in the grip of liquidity trap. The Government intervention can stimulate aggregate demand and real output can be increased through government spending. Therefore, Keynesians advocate for fiscal policy in a recession.
- Keynesians reject the crowding out effect presented by Monetarists. Keynesians said that if there is a sharp rise in private sector saving (and fall in spending), government spending can offset this decline in private sector spending.

- Paradox of thrift is the key element in Keynesian theory. It is the idea of a 'glut' of savings. Keynes argued that in a time of recession, people respond to the threat of unemployment by increasing saving and reducing their spending. This is a rational choice, but it contributes to an even bigger decline in AD and GDP. This is why government intervention may be needed.
- In recession there is a degree of wage rigidity. The wages might be sticky downward as unions resist nominal wage cuts, and this can lead to real wage unemployment.
- In a recession, when an economy has spare capacity, increasing aggregate demand (AD) will have an impact on real output and only minimal or no effect on the price level.
- Keynesians believe there is often a multiplier effect. This means an initial investment in the circular flow can lead to a bigger increase in real GDP based on marginal propensity to consume (MPC).
- Keynesians are more likely to stress the importance of reducing unemployment rather than inflation.
- Keynesians reject real business cycle theories (an idea that the government can have no influence over the economic cycle)

7.5.2 Monetarism

- Monetarists are more critical of the ability of fiscal policy to stimulate economic growth.
- Monetarists/classical economists believe wages are more flexible and likely to adjust downwards to prevent real wage unemployment.
- Monetarists stress the importance of controlling the money supply to keep inflation low.
- Monetarists more likely place emphasis on reducing inflation than keeping the unemployment level low.
- Monetarists stress on the role of the natural rate of unemployment. (Supply side unemployment)

7.6 POLICY DIFFERENCES OF KEYNESIANISM AND MONETARISM

7.6.1 Policy of Keynesianism

According to Keynesians monetary policy relatively less effective as aggregate expenditure is relatively inelastic to interest rate. To illustrate it, let Govt. consider expansionary monetary policy by purchase of securities from open market. As a result price of bond and securities increases and rate of interest decrease. People will therefore demand more money as money demand is highly interest elastic and people want to hold cash at low rate of interest. Therefore, according to Keynes the monetary policy is less effective than fiscal policy. The expansionary fiscal policy tends to shift aggregate expenditure curve to right and lead to further increase in income, output and employment. Increase in Govt. expenditure further increases demand for money for transaction purpose and it tends to increase rate of interest. The effect of expansionary fiscal policy can be explained in fig. 7.9.

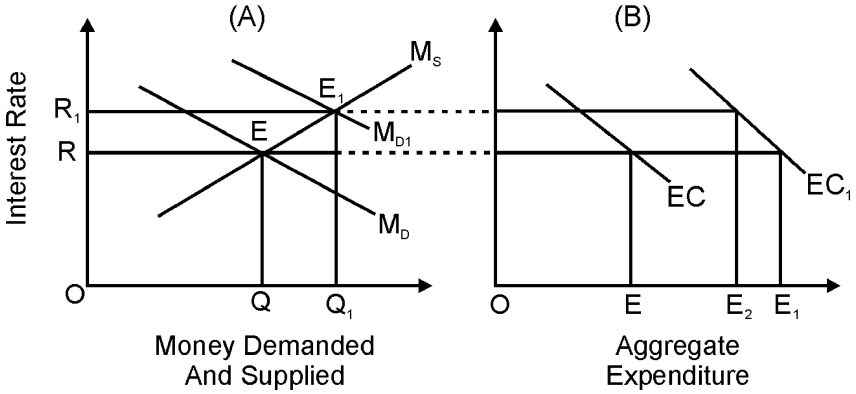


Fig. 7.9: Effect of expansionary Fiscal Policy

In the fig. 7.9 due to expansionary fiscal policy the aggregate expenditure EC curve shifts to EC_1 in panel (B) which tends to increase money demand from OQ to OQ_1 as money demand curve M_D shifts to M_{D1} and interest rate increases from OR to OR_1in panel (A). With this

increase in interest rate and with high income, people demanded more money for transaction purpose and sell their securities and borrowed more money from financial institutions. But this small increase in rate of interest (RR_1) has very small effect in reducing private investment equal to EE_2 in panel (B) because aggregate expenditure is relatively interest inelastic in Keynesian system. Thus the expansionary fiscal policy resulted in a net increase in aggregate expenditure EE_2. Keynesians therefore regard fiscal policy as more effective than monetary policy.

7.6.2 Policy of Monetarism

According to monetarists, money supply has a direct influence on aggregate expenditure and thus on income. Let the Govt. adopt expansionary monetary policy by purchasing securities in the open market. It will increase the price of securities and lower the rate of interest and people sale their securities and hold more money. With this excess money balances people start spending on financial asset, durable consumer goods, equipment etc. and this will tend to increase aggregate expenditure and income. According to monetarism demand for money is relatively insensitive to rate of interest but aggregate expenditure is highly sensitive to any change of interest rate. Monetarist explanation about fiscal policy is that an increase in aggregate expenditure leads to expansion of the economy and shifts the aggregate expenditure upward. This will again lead to higher demand for money for transaction purpose and tend to increase the rate of interest. As demand for money is relatively less interest elastic a very high interest rate is required to equate demand and supply of money. But such large increase in rate of interest affects private investment resulting in crowd out from the market and finally, according to monetarist expansionary fiscal policy has less affect on aggregate expenditure in the economy. Fig. 7.10 shows the crowding out effect of fiscal policy.

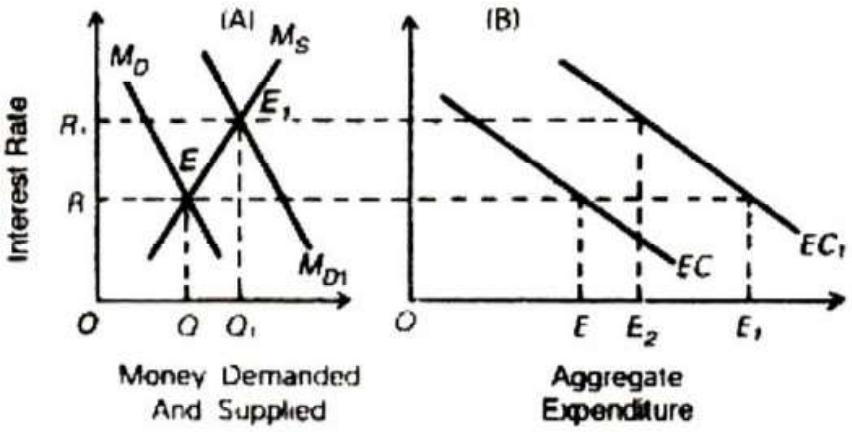


Fig. 7.10: Crowding out Effect of Fiscal Policy

In fig. 7.10 an increase in Govt. expenditure leads to expansion in the economy which shifts expenditure curve EC to EC_1 in panel (B) and national income also rises. This will lead higher demand for money in the market such that M_D curve shifts to M_{D1} and tends to increase rate of interest from OR to OR_1in panel (A). But monetarist view is that with higher rate of interest OR_1 private investment will be discouraged or aggregate expenditure will be equal to E_2E_1 (in panel B). Therefore, expansionary fiscal policy has a small effect equal to EE_2 in the economy.

Monetarist views that money supply has direct influence on aggregate expenditure and income can be explained in fig. 7.11.

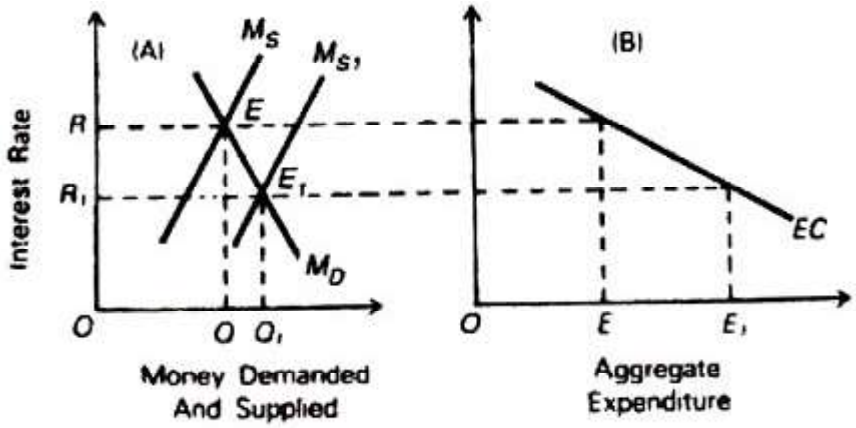


Fig. 7.11: Effect of expansionary Monetary Policy

Fig. 7.11 shows the direct influence of money supply on aggregate expenditure in the economy as demand and supply of money are interest inelastic. The initial equilibrium is at point E at OR interest rate with equality between demand and supply of money in panel (A). The expansionary monetary policy tends to shift money supply curve to Ms_1 which tends to decrease rate of interest to OR_1. But, aggregate expenditure is insensitive to rate of interest; so that aggregate expenditure increases from OE to OE_1 in panel (B).

7.7 CRISIS IN KEYNESIAN ECONOMICS AND REVIVAL OF MONETARISM

In the 1970s, when the managed exchange rate broke down, inflation rose and world economy stagnated, Keynesian demand management no longer seemed to work and Keynes' critics started to attract more attention. The economic ideas from Keynesian economics has been challenged by new school of thought called monetarists led by its leader Milton Friedman of Chicago University. A debate continues to exist between one group which provides major stress on fiscal policy as the primary engine of growth and economic stabilizer and a second group which feels that money and therefore monetary policy is the most important primary factor in growth of economic activity. This group gives a special emphasis on rate of interest and emphasizes that a change in money supply will affect cost and availability of credit. In this process of restoring equilibrium the excess balances due to money supply will be converted into real goods and services either directly or through financial institutions. The pressure of more demand for goods and services will stimulate output that has risen in proportion to the increase money supply.

The superiority of monetary policy over Keynesian model has not been demonstrated. However, monetary factors are not unimportant. There is no reason to reject the view that changes in the money supply will affect income either directly or indirectly. Advocates of monetary approach have not yet shown that the changes in money supply have a reliable and

predictable effect on expenditure and income. But it is obvious that one cannot deny that money supply and other financial factors are unimportant in determination of economic activity; rather it is to be understood that interest rate and supply of credit may have a considerable impact on economic activity. Prof. Friedman himself regards that there are considerable time lags of uncertain length between money supply and variable affected by such changes including price level.But it can be correctly predicted what effect a particular monetary action will have on price level and when it will have that effect. Friedman, therefore, advocated a monetary rule for increasing money supply between 3 to 5 per cent a year for smooth growth of economy while ignoring other types of disturbing economic events. However, the Keynesian economics has the following shortcomings.

- The monetarist viewed that in fiscal policy Govt. should play an active stabilising role not by varying taxes and expenditure but also taking such actions which will influence both private spending for consumption and investment paving the way for stabilisation. Given the stable demand function for money, the monetarist have strong belief that only such nominal variables as GNP and price are affected by money supply.Apart from that money alone controlled by Central bank became the appropriate policy instrument for affecting economic activity or to influence the fiscal measures i.e. changes in taxes or public expenditure in the economy.
- Monetarists argue that expansionary fiscal policy (higher budget deficit) is likely to cause crowding out i.e. higher government expenditure reduces private sector expenditure and higher government borrowing pushes up interest rate. Higher interest rate discourages private sector investment.
- Resources crowd out. If the government borrows to finance higher investment from the private sector tend to reduce fewer resources of private sector to investment.
- A problem of fiscal expansion is that it often comes to effect too late and there is time lag between investment and production of final output. Therefore, it causes inflation.

- Expansionary fiscal policy may lead to special interest groups pushing for spending which is not really helpful and then prove difficult to reduce when the recession is over. In contrast with fiscal policy monetary policy is set by Central bank and special interest or political influences get reduced.
- The monetary policy is quicker to implement. Interest rates can be set every month. A decision of government expenditure may take time to decide in which sector to spend money.
- From the break down of Philips curve trade off in the 1950s and 1960s and the period of stagflation in the 1970s (higher inflation and higher unemployment) it appeared to critics of Keynesian demand management that the policies to boost demand were only aggravating inflation and not reducing unemployment in the long term. The monetarist (Prof. Friedman) criticised the demand management policies and advocated supply side economics that tend to focus on supply side reforms to increase market efficiency and reduce imperfections in labour markets (such as minimum wage).

7.8 FISCAL AND MONETARY POLICY MIX AND GROWTH

The two important tools of macroeconomic policy are fiscal and monetary policy. According to Keynes, monetary policy was ineffective to lift the economy out of depression. However, in view of modern economists both fiscal and monetary policies play a useful role in stabilising the economy. The policy mix is the combination of fiscal and monetary policy. These two channels influence growth and employment generally determined by government and the Central bank respectively. The policy mix aims at maximizing growth and minimizing unemployment and inflation. The monetary policy is typically carried out to control interest rates and money supply to balance the outcomes for inflation and unemployment. The government influences labour markets, public investment and spending and discretionary fiscal policy.

The neo-Keynesian or post Keynesians like Walter Heller, Arther Okun, Samuelson etc. do not take extreme position and feel that both fiscal and monetary policies are important determinants of the level of output. In the current state of controversy few economists are labeled as being completely in the monetarist or the fiscals camps. The debate of two approaches is a sham dispute and question of choosing one is cost ignoring or the other is not. From economic situations one monetary policy is extremely helpful in the long run during inflation and the other fiscal policy is very helpful in the short run during depression.

Hence a judicious mix of the two - more monetarism and less Keynesianism during inflation and more Keynesianism and less monetarism during deflation - may help economic growth with stability in advanced capitalist countries. However, neither Keynesianism nor monetarism nor a mixture of the two is capable of initiating development process in developing countries because these policies emphasise on the regulation of supply and demand for monetary factors whereas, the real problem in developing countries is the generation and regulation of supply and demand for real physical factors in planned way.

The theoretical view point about the money supply on output and prices leads to divergent view. Monetarists believe that monetary policy can play a much more important role in stabilising the economy than Keynesian view. While Keynesian agrees that money also matters but monetary policy alone will be quite ineffective in lifting the economy out of depression. Keynesian argues that during depression money demand curve is quite flat so that expansion of money supply does not reduce market interest rate as it depends primarily on business expectation of profit making. This suggests that a slight fall in interest rate due to money supply will not lead much increase in investment and thereby aggregate demand. Hence expansionary monetary policy will be ineffective in curing recession. On the other hand monetary believes that demand for money is relatively insensitive to interest rate (money demand curve is steep).So small expansion of money supply causes a large reduction in interest rate. Besides monetarist believes that investment is very sensitive (investment demand curve is flat) to interest

rate so that a fall in interest rate causes a large increase in investment demand with a significant effect on output and employment. Therefore, monetarist argues monetary policy is very effective for economic stabilisation.

In contrast with monetarism, Keynesians strongly debate about the role of fiscal policy in stabilising the economy. According to them, in Keynesian model C +I + G + (X – M) = Y, investment spending is direct component of aggregate demand. Increase in government expenditure therefore directly influences aggregate demand in which multiplier effect pushes up the level of national income output and employment. In regard of fiscal measure taxation has also a significant effect on consumption and investment. Thus lower tax boosts up consumption and investment and hence aggregate demand. According to Keynesians, during inflation fiscal policy also plays an important role. At the time of inflationary pressure the government can reduce expenditure or increase tax rate to stabilise the economy.

Monetarist argues the fiscal policy has significant effect on aggregate demand and therefore does not serve as an important tool of stabilisation. They believe that fiscal policy is weak because of crowding out effect of government expenditure. With government expenditure pushing up market interest rate, high interest rate crowd out private investment from the market. Therefore, fiscal policy has less effect on investment and aggregate demand and consequently output and employment will remain unaffected.

It is being evident that neither monetary policy nor fiscal policy acting alone can deliver the desired goals. There the general conclusion is that one policy can be more effective than others in particular situations. The monetary policy is more effective in inflation and fiscal policy in deflation. However, in practical view point the policy makers have to take resort to both measures simultaneously or combination of appropriate mix of the policies to achieved the desired goals. As a result of Friedman's challenge to Keynesian thinking about fiscal and monetary policies, a vigorous debate between monetarist and Keynesians took place.But ultimately both fiscal and monetary policies are the important tools of economic stabilisation in macro economics.



CHECK YOUR PROGRESS

Q.5: What is the main ground on which the monetarists criticised Keynes? (Answer in about 50 words)..

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Q.6: Why does Keynes argue that monetary policy is ineffective to cure recession? (Answer in about 50 words).

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7.9 LET US SUM UP

- The key focuses of monetarism are Cash Reserve Ratio (CRR), Statutory Liquidity Ratio (SLR), money supply, exchange rate or the function of Central bank.
- According to monetarists, money supply is the only determinant factor of price level and output in the short run. But in the long run the affect of money supply is directly related with price level.
- Monetarist believes that demand for money holding depends on the real rate of interest, inflationary expectation and frequency of payments. The higher the rates of interest the lesser the amount of money people want to hold.
- Friedman holds that the demand for money is a stable function of income and money is the substitutes of all types of asset i.e. bond, securities, and all types of durable goods. Therefore, people want to hold certain fixed amount of their income.

- Monetarist argues that expansionary fiscal policy is likely to cause crowding out i.e. higher government expenditure reduces private sector expenditure and higher government borrowing pushes up interest rate. Higher interest rate discourages private sector investment.
- Keynesianism believes that "money does not matter" for economic stabilisation. The fiscal policies i.e. government intervention, investment, taxes, policies etc. are more powerful tool for economic stabilisation.
- The Keynesian economy is demand side economy which believes that the economy is best controlled by manipulating the demand for goods and services.
- Keynesianism believes that demand and supply of money is monetary phenomena and highly interest elastic while aggregate expenditure is not. People want to hold a certain portion of their income in liquid form and the demand for money also called liquidity preference.
- According to Keynes, investment of an economy depends on the rate of interest in one hand and marginal efficiency of investment (MEI) on the other.
- According to Keynes the demand for money is perfectly elastic at very low rate of interest and get liquidity trap. In this situation expansionary monetary policy became ineffective because there is no possibility of further fall in the rate of interest to encourage investment.



7.10 FURTHER READING

1) Ahuja, H.L. (2017). *Macro Economic Theory and Policy*. New Delhi: S. Chand Publishing and Company Ltd.

2) Jhingan, M.L. (1997). *Macro Economic Theory.* Delhi: Vrinda Publications (P) Ltd.

3) '*A Monetary Explanation of the Great Stagflation of the 1970s*', *NBER, February, 2000. "Monetarism", Econlib. "Milton Friedman," Econlib.*

4) *https://www.investopedia.com/ask/answers/012615/what-difference-between-keynesian-economics-and-monetarist-economics.asp*

5) *https://www.economicshelp.org/blog/1113/concepts/keynesianism-vs-monetarism/*

6) *http://www.economicsdiscussion.net/articles/monetarism-versus-keynesianism-explained/8421*

7) *https://www.fool.com/knowledge-center/differences-between-monetarist-theory-and-keynesia.aspx*

8) *https://www.britannica.com/topic/Bitter-Face-Off-Between-Keynesian-Economics-and-Monetarism-The-1905030*

9) *https://www.investopedia.com/ask/answers/100314/whats-difference-between-monetary-policy-and-fiscal-policy.asp.*

10) *https://www.economicshelp.org/blog/1850/economics/difference-between-monetary-and-fiscal-policy.*



7.11 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: Monetarism relates to money matter of a country and holds that monetary policy is a more potent instrument than fiscal policy in economic stabilisation. The key focuses of monetarism are Cash Reserve Ratio (CRR), Statutory Liquidity Ratio (SLR), money supply, exchange rate or the function of Central bank.

Ans to Q No 2: When money supply increases it will cause short run reduction of interest rate and people sell their securities and their holding of money increases. This situation is called Liquidity effect. When people start to spend their excess money balances due to liquidity effect production, income and employment increases in the economy, it is called output effect. The price expectation effect is the expectation of increase interest rate and price due to liquidity and output effect.

Ans to Q No 3: According to Keynes, rate of interest and bond prices are

inversely related. When rate of interest goes up bond and securities prices decrease and vice verse. The demand for money by the people depends upon how they decide to balance their portfolio between money and bonds. This decision is influenced by two factors. The higher the level of income,the higher the money people hold in their portfolio balance and the higher the rate of interest, the lower the demand for money for speculative motives.

Ans to Q No 4: Keynes believes in the existence of an economy below full employment equilibrium. This implies that an increase in money supply can bring about increase in level of output. The ultimate influence of money supply on the price level depends upon its influences on aggregate demand and the elasticity of supply of aggregate output. Thus if the rate of interest is reduced as a result of increase in money supply the rate of investment increases and thereby increases income and output with activation of multiplier.

Ans to Q No 5: Monetarist argues expansionary fiscal policy (higher budget deficit) is likely to cause crowding out i.e. higher government expenditure reduces private sector expenditure and higher government borrowing pushes up interest rate. Higher interest rate discourages private sector investment. At the same time higher interest rate crowds out resources. If the government borrows to finance higher investment from the private sector tend to reduce fewer resources of private sector to investment.

Ans to Q No 6: Keynesian argue that during depression money demand curve is quite flat and economy is in liquidity trap so that expansion of money supply does not reduce market interest rate as it depends primarily on business expectation of profit making. This suggests that a slight fall in interest rate due to money supply will not lead much increase in investment and thereby aggregate demand. Hence expansionary monetary policy will be ineffective in curing recession.



7.12 MODEL QUESTIONS

A) Short Questions (Answer each question in about 150 words)

Q 1: What is meant by monetarism?

Q 2: Briefly explain the policy differences of Keynesianism and Monetarism.

Q 3: Briefly explain the Monetarist View on increase Money Supply and Price.

Q 4: Briefly explain fiscal and monetary policy of economic stabilisation.

B. Long Questions (Answer each question in about 300-500 words)

Q 1: Compare monetarism with Keynesian theory of income price and output.

Q 2: Explain how Keynesians approach of money supply to economic activity differ from monetarist approach.

Q 3: Explain the main criticism of Keynesian Economics and revival of Monetarism and appropriate policy mix as a tool of economic stabilisation.

Q 4: Out of the fiscal and monetary policy of economic stabilisation, which policy is more effective to cure recession and depression of an economy? Give reasons.

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UNIT 8: MACRO ECONOMIC POLICY INSTRUMENTS

UNIT STRUCTURE

8.1 Learning Objectives

8.2 Introduction

8.3 Meaning of Macro Economic policy

8.4 Objectives of Macro Economic Policy Instruments

8.5 Macro Economic Policies for Attaining Economic Stability

8.6 Internal and External Balances

8.7 Control of Money Supply

8.8 Let Us Sum Up

8.9 Further Reading

8.10 Answers to Check Your Progress

8.11 Model Questions

8.1 LEARNING OBJECTIVES

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

- explain in details about the macro economic policy instruments
- understand the role of macro economic policies for attaining economic stability
- explain the concepts of full employment, economic growth and Price Stability
- know the concept of internal and external balances
- explain about the Control of money supply.

8.2 INTRODUCTION

The instruments that are used by the policy making authority to bring about changes in the macro economic variables of a country are called Macroeconomic policy instruments. These instruments can be divided into two subsets:

- Monetary policy instruments and
- Fiscal policy instruments.

Monetary policy is conducted by the Central bank of a country whereas Fiscal policy which deals with matters connected with the fiscal (government treasury)is conducted by the executive and legislative branches of the government.

8.3 MEANING OF MACRO ECONOMIC POLICY

Macroeconomics is that branch of economics which deals with the overall functioning of the economy. Macroeconomic policies include taxes, government spending and borrowing, exchange rate determinants, and monetary and credit rules. The primary goal of effective macroeconomic policies is to reduce uncertainty and risk in economic decision-making. These policies are critical in shaping the landscape within which factor markets and product markets operate. They have a critical influence on decisions by companies to produce, hire or fire workers, export and import goods, etc. They also determine household decisions to consume, save, and borrow, and government decisions to invest in infrastructure, education and many other aspects of development. A stable macroeconomic environment enhances prospects for growth and improved living standards.



CHECK YOUR PROGRESS

Q.1: State whether True(T) or False(F) :

A ..... macroeconomic environment enhances prospects for growth and improved living standards.

8.4 OBJECTIVES OF MACRO ECONOMIC POLICY INSTRUMENTS

The objectives of macroeconomic policy instruments are as follows-

- Full employment

- Price stability
- Economic growth
- Balance of payments equilibrium and exchange rate stability
- Social objectives.

- **Full employment:** Full employment is the situation when the available human resources are used efficiently and in an optimum manner. Unemployment of labour is closely related to the economy's aggregate output. Higher the unemployment rate, greater the divergence between actual aggregate output and potential out-put. So, one of the objectives of macroeconomic policy is to ensure full employment. Full employment,however, does not mean that nobody is unemployed. Even if 1 or 2 percentage of the labour force remain unemployed, the country is said to be fully employed if that is what is feasible. Full employment, though theoretically conceivable, is difficult to attain in a market-driven economy. In view of this, full employment objective is often translated into 'high employment' objective.

- **Price stability:** In macroeconomics the goal of price stability is of utmost importance. There should be price stability i.e. there should not be excessive fluctuations. By price stability we must not mean an unchanging price level over time. Price fluctuations of a larger degree are always unfavourable.

  It is difficult to define the reasonable rate of inflation. But sustained increase in price level as well as a falling price level produces destabilising effects on the economy. Therefore, one of the objectives of macroeconomic policy is to ensure (relative) price level stability by pursuing a targeted range of price change. This goal not only prevents economic fluctuations but also helps in the attainment of a steady growth of an economy.

- **Economic growth:** One of the important benchmarks to measure the performance of an economy is the rate of increase in output over a period of time. Economic growth typically refers to the rate of increase in the aggregate output of an economy per unit of time. It is measured

as a rate percent per unit of time. For example, if the Gross Domestic Product (GDP) of our country increases from US$2.7 trillion to US$2.97 trillion in one year then our growth rate is said to be 10% per annum {(2.97-2.70/2.7)X100}.There are three major sources of economic growth- the growth of the labour force, capital formation and technological progress. A country seeks to achieve higher economic growth over a long period so that the standards of living or the quality of life of people, on an average, improve. It may be noted here that while talking about higher economic growth, we take into account general, social and environmental factors so that the needs of people of both present generations and future generations can be met.

- **Balance of Payments equilibrium and Exchange Rate stability:** The balance of payments (BOP) is a statement of all transactions made between entities in one country and the rest of the world over a specified period of time. Equilibrium is that state of the balance of payments over the relevant time period which makes it possible to sustain an open economy without severe unemployment on a continuing basis. A country's balance of payments is said to be in equilibrium position when its autonomous receipts (credits) are equal to its autonomous payments (debits). This is a sign of the soundness of a country's economy. But disequilibrium may arise either for short or long periods. A continued disequilibrium indicates that the country is heading towards economic and financial bankruptcy. Every country, therefore, must try to maintain balance of payments in equilibrium.Any change in a country's balance of payments can cause fluctuations in the exchange rate between its currency and foreign currencies. The reverse is also true when a fluctuation in relative currency strength can alter the balance of payments. BOP equilibrium and exchange rate stability are two sides of the same coin.
- **Social objectives:** Macroeconomic policy is used to achieve some social welfare. This means that income distribution needs to be fair and equitable. In a capitalist market-based society some people get more than others. Policymakers use macroeconomic policy

instruments in order to ensure social justice. Irrespective of the economic status or social status of an individual, they have the right to take economic decisions.

8.5 MACRO ECONOMIC POLICIES FOR ATTAINING ECONOMIC STABILITY

Three main types of macroeconomic policies are as follows:

- Fiscal Policy
- Monetary Policy
- Supply-side Policies
- **Fiscal Policy:** Fiscal policy implies changes in government expenditure and taxation. Government expenditure, also called public expenditure, and taxation occur at national and local levels. Governments spend money on a variety of items including benefits (for the retired, unemployed and disabled), education, health care, transport, defense and interest on national debt.

  A government sets out the amount it plans to spend and raise in tax revenue in a budget statement. A budget deficit is when the government's expenditure is higher than its revenue. In this case, the government will have to borrow to finance some of its expenditure.

  In contrast, a budget surplus occurs when government revenue is greater than government expenditure. A balanced budget, which occurs less frequently, is when government expenditure and revenue are equal. A government may deliberately alter its expenditure or tax revenue to influence economic activity.

  If a government wants to raise aggregate demand in order to increase economic growth and employment, it will increase its expenditure and/or cut taxation by lowering tax rates, reducing the items taxed or raising tax thresholds. For example, a government may cut income tax rates.

  This will raise people's disposable income, which will enable them to spend more. Higher consumption is also likely to raise investment.

Fig. 8.1 shows the effect of a reflationary fiscal policy (also called an expansionary fiscal policy).

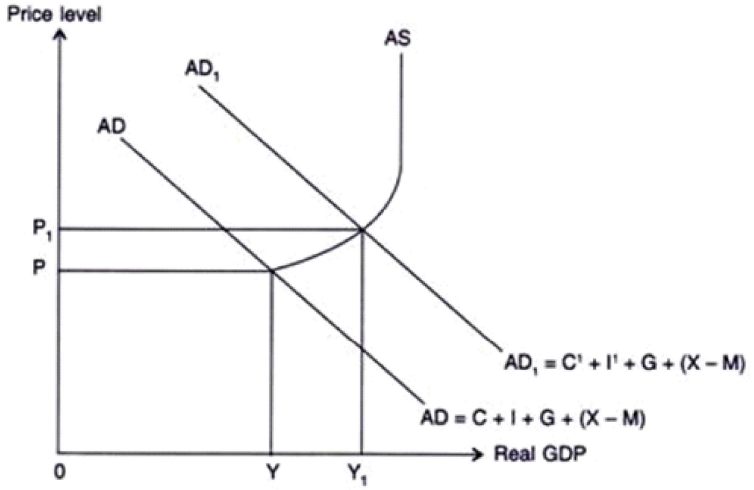


Fig. 8.1 The effect of a reflationary fiscal policy

A government may implement a deflationary fiscal policy (also called a contractionary fiscal policy) to reduce inflationary pressure. A cut in government expenditure on, for instance, education would reduce aggregate demand. Such a reduction may lower the rise in the general price level.

Fiscal policy aims at influencing aggregate demand by altering tax- expenditure-debt programme of the government. The credit for using this kind of fiscal policy in the 1930s goes to J.M. Keynes who discredited the monetary policy as a means of attaining some of the macroeconomic goals - such as the goal of full employment.

As fiscal policy has come into scrutiny in terms of its effectiveness in achieving the desired macroeconomic objectives, the same is true about the monetary policy. One can see several rounds of ups and downs in the effectiveness of both these policy instruments consequent upon criticisms and counter- criticisms in their theoretical foundations.

- **Monetary Policy:** Monetary policy includes changes in the money supply, the rate of interest and the exchange rate, although some economists treat changes in the exchange rate as a separate policy. The main monetary policy measure, currently used in most countries, is changes in the rate of interest.

A rise in the rate of interest helps implement a deflationary monetary policy. It will be likely to reduce aggregate demand by lowering consumption and investment. Households will spend less due to availability of less discretionary income, expensive borrowing and greater incentive to save.

Firms will invest less as they will expect consumption to be lower. Also the opportunity cost of investment will have risen and borrowing will have become expensive. A higher interest rate may also reduce aggregate demand by lowering net exports.

Changes in the money supply, as with changes in interest rates, are implemented by Central Banks. If the money supply is increased by the Bank printing more money, buying back government bonds or encouraging commercial banks to lend more, the aggregate demand increases. On the other hand, a decrease in the money supply reduces aggregate demand.

Monetary policy attempts to stabilise aggregate demand in the economy by influencing the availability or price of money, i.e., the rate of interest in an economy.

Monetary policy may be defined as a policy employing the central bank's control of the supply of money as an instrument for achieving the macroeconomic goals.

- **Supply-side Policies:** Supply-side policies are policies designed to increase aggregate supply and hence increase productive potential. Such policies seek to increase the quantity and quality of resources and raise the efficiency of markets. These include improving education and training, cutting direct taxes and benefits, reforming trade unions and privatization. Improving education and training is designed to raise labour productivity.

  The intention behind cutting direct taxes and benefits is to make work more attractive, relative to living on benefits. If successful, this will make the unemployed search for work more actively and will raise the labour force by encouraging more people (including for instance

married women and the disabled) to seek employment. Reforming labour market may make labour more productive and privatization may increase productive capacity, if private sector firms invest more and work more efficiently than state owned enterprises.



CHECK YOUR PROGRESS

Q.2: Fill in the blanks:

(i)..... are designed to increase aggregate supply and hence increase productive potential.

(ii) A government may implement a ..... fiscal policy to reduce inflationary pressure.

(iii) Aggregate economic growth is measured in terms of Gross National Product (GNP) or .....

8.6 INTERNAL AND EXTERNAL BALANCE

Internal balance is the situation in which real output is at or close to its potential or capacity level. The inflation rate is low and non-accelerating. Low inflation combined with slow or negative growth, or rapid growth combined with high inflation is not considered as a situation of Internal Balance.

External balance is defined as a current account position that can be sustained by capital flows on terms compatible with the growth prospects of the economy without resorting to restrictions on trade and payments, so that the level of international reserves is adequate and relatively stable. External balance does not necessarily correspond to a zero current account balance or a zero overall balance of the balance of payments, but for simplicity both notions, although not equivalent, can be used.

Both internal balance and external balance depend on two fundamental variables— the level of real domestic demand and the real exchange rate— which, in turn, reflect underlying economic conditions and macroeconomic policies. For example, a current account deficit occurs if the real exchange

rate is overly appreciated, excess real domestic demand exists, or both. The opposite situation results in a current account surplus. Likewise, an overly depreciated real exchange rate or excess real domestic demand creates inflationary pressure, and the opposite situation results in depressed output. A country with a balance of payments concern usually also has one other policy objective: to correct either the rate of growth or inflation.

Internal balance and external balance can each be achieved through different combinations of the real exchange rate and the real domestic demand. However, policy authorities generally strive to achieve internal and external balance simultaneously, which requires a particular combination of the real exchange rate and real domestic demand.

8.7 CONTROL OF MONEY SUPPLY

The Quantitative Instruments are also known as the general tools of monetary policy which are related to the quantity or volume of the money. They are designed to regulate or control the total volume of bank credit in the economy. These tools are indirect in nature and are employed for influencing the quantity of credit in the country. These tools include Bank Rate Policy, Open Market Operations, Variation in Reserve Ratio, etc. This method is used by the central bank to influence the total volume of credit in the banking system, without any regard for the use to which it is put to.

The Qualitative Instruments are also known as the Selective Tools of monetary policy that are used for discriminating between different uses of credit. These tools are not directed towards the quality of credit or the use of the credit. This can have influence over the lender and borrower of the credit. These instruments include Marginal requirements, Consumer Credit Regulation, Direct Action, Credit Rationing, Moral Suasion, etc.These methods are used by the central bank to regulate the flows of credit into particular directions of the economy.

Unlike the quantitative methods, which affect the total volume of credit, the qualitative methods affect the types of credit, extended by the commercial banks; they affect the composition rather than the size of credit in the economy.

Both micro and macroeconomic trends are affected by the quantity of money circulating in an economy. At the micro level, a large supply of free and money means more personal spending. At the macroeconomic level, the amount of money circulating in an economy affects things like gross domestic product, overall growth, interest rates, and unemployment rates. The central banks tend to control the quantity of money in circulation to achieve economic objectives and affect monetary policy.



CHECK YOUR PROGRESS

Q.5: Fill in the blanks:

(i) Both internal balance and external balance depend on two fundamental variables — the level of real domestic demand and the .....

(ii) The ..... tend to control the quantity of money in circulation to achieve economic objectives and affect monetary policy.



8.8 LET US SUM UP

- Macroeconomics is that branch of economics that deals with the overall functioning of the economy. Macroeconomic policies include taxes, government spending and borrowing, exchange rate determinants, and monetary and credit rules. The primary goal of effective macroeconomic policies is to reduce uncertainty and risk in economic decision-making.
- Macroeconomic quantities which can be directly controlled by an economic policy maker are called Macroeconomic policy instruments.
- The objectives of macroeconomic policy instruments are full employment, price stability, economic growth,balance of payments equilibrium and exchange rate stability, social objectives.
- Three main types of government macroeconomic policies are Fiscal Policy, Monetary Policy and Supply-side Policies
- Full employment is an economic situation in which all available labour

resources are being used in the most effective and efficient manner

- Price stability implies avoiding both long term inflation and deflation.
- Internal balance is the situation in which real output is at or close to its potential or capacity level. External balance is defined as a current account position that can be sustained by capital flows on terms compatible with the growth prospects of the economy without resort to restrictions on trade and payments, so that the level of international reserves is adequate and relatively stable.
- The central banks tend to control the quantity of money in circulation to achieve economic objectives and affect monetary policy.



8.9 FURTHER READING

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3) Dwivedi, D.N. (2018). *Macro Economics Theory and Policy*. Noida: Mc Graw Hill Education (India) Private Limited.
4) Paul, R.R. (2005). *Monetary Economics*. New Delhi: Kalyani Publishers.



8.10 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q. No. 1: Stable.

Ans to Q. No. 2: (i) Supply-side policies.(ii) Deblationary, (iii) Gross Domestic Product (GDP)

Ans to Q. No. 3: (i) Real exchange rate, (ii) Central Bank



8.11 MODEL QUESTIONS

A) Short Questions (Answer each question in about 150 words)

Q 1: Briefly explain Macro Economic Policy Instruments.

Q 2: Briefly explain Macro Economic Policy.

Q 3: Briefly explain the meaning of Full Employment.

Q 4: Briefly explain the meaning of Price Stability.

Q 5: Write short notes on the following-

a) Monetary Policy

b) Fiscal Policy

c) Economic growth

B) Long Questions (Answer each question in about 300-500 words)

Q 1: Discuss the Internal and External Balance.

Q 2: Explain about control of money supply.

Q 3: Discuss in details the Macro Economic Policy instruments for attaining economic stability.

Q 4: Explain in brief the objectives of Macro Economic Policy Instruments.

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UNIT 9: MONETARY POLICY FORMULATION IN INDIA – I

UNIT STRUCTURE

9.1 Learning Objectives

9.2 Introduction

9.3 The Reserve Bank of India

9.4 Monetary Policy of India and Its Elements

9.5 Monetary Policy Formulations prior to Economic Reform Period

9.6 Let Us Sum Up

9.7 Further Reading

9.8 Answers to Check Your Progress

9.9 Model Questions

9.1 LEARNING OBJECTIVES

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

- know about the Reserve Bank of India and its functions
- explain the Monetary Policy of India and its various elements
- understand the Monetary Policy formulations prior to economic reform period.

9.2 INTRODUCTION

The Monetary Policy regulates the supply of money and the cost and availability of credit in an economy. The Monetary Policy aims to maintain price stability, full employment and economic growth. It is different from Fiscal Policy as the former brings about a change in the economy by changing money supply and interest rate, whereas fiscal policy is a broader tool with the government. The Fiscal Policy refers to the government's choices regarding the overall level of government purchases or taxes. Fiscal policy influences saving, investment, and growth in the long run. In the short run, fiscal policy primarily affects the aggregate demand. It refers to the revenue and expenditure policy of the Government which is generally

used to cure recession and maintain economic stability in the country. Hence the financial sector and the economy of a country are affected by both the monetary and fiscal policies. They can help to make the overall economic situation and business prospects bright or check an unwarranted boom or unhealthy demand explosion. They can encourage investment and production in certain priority sectors and discourage them in the non-priority sectors. They are also capable of influencing technological choice and investment and production patterns. In short, the fiscal and monetary policies can influence the aggregate supply and demand and the associated level of employment, wages, interest, rent, prices and profit. The Government and the Central Bank (i.e. the Reserve Bank, in India) make use of various fiscal and monetary weapons respectively to achieve stability and growth by influencing and regulating the behaviour of the various classes of spenders, savers, consumers and investors.

9.3 THE RESERVE BANK OF INDIA

The Reserve Bank of India (RBI) is India's Central Bank, also known as the banker's bank. The RBI controls monetary and other banking policies. The Reserve Bank of India (RBI) was established on April 1, 1935, in accordance with the Reserve Bank of India Act, 1934. The head office of the Reserve Bank is permanently situated in Mumbai from 1937. The primary objectives of RBI are to supervise and undertake initiatives for the financial sector consisting of commercial banks, financial institutions and non-banking financial companies (NBFCs).

The following are the major functions normally performed by the Reserve Bank of India -

- **Note Issue :** The Reserve Bank has the monopoly for printing the currency notes in the country. It has the sole right to issue currency notes of various denominations except one rupee note (which is issued by the Ministry of Finance). The Reserve Bank has adopted the **Minimum Reserve System** for issuing/printing the currency notes. Since 1957, it has been maintaining gold and foreign exchange

reserves of Rs. 200 Cr. of which at least Rs. 115 Cr. should be in gold and the remaining in the foreign currencies.

- **Banker to the Government :** The RBI is also working as the banker of the Government and therefore all funds of both Central and State Government are kept with it. It acts as an agent of the Government and manages its public debt. RBI is also offering "ways and, means advance" to the Government for short periods.
- **Banker's Bank :** The RBI is also working as the banker of other banks working in our country. It regulates the whole banking system of the country, keep certain percentage of their deposits as minimum reserve, work as the lender of the last resort to its scheduled banks and operates clearing houses for all other banks.
- **Credit Control :** The RBI is entrusted with the sole authority to control credit created by the commercial banks by applying both the qualitative and quantitative credit control measures like variation in bank rate, open market operation selective credit controls etc.
- **Custodian of Foreign Exchange Reserves :** The RBI is entrusted with sole authority to determine the exchange rate between rupee and other foreign currencies and also to maintain the reserve of foreign currency earned by the Government. The RBI also maintains its relation with the International Monetary Fund (IMF).
- **Developmental Functions :** The RBI is also working as a developmental agency by developing various sister organisations like Agricultural Refinance Development Corporation, NABARD, Industrial Development Bank of India etc. for rendering agricultural credit and industrial credit in our country.



CHECK YOUR PROGRESS

Q.1: When was the Reserve Bank of India established?

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Q.2: Who has the right to issue one rupee note in our country? (Answer in about 20 words)

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Q.3: What is meant by Monetary Policy? (Answer in about 30 words)

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Q.4: What is meant by Fiscal Policy? (Answer in about 30 words)

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9.4 MONETARY POLICY OF INDIA AND ITS ELEMENTS

Monetary policy is concerned with the changes in the supply of money and credit. It refers to the policy measures undertaken by the central bank to influence the availability, cost and use of money and credit with the help of monetary instruments to achieve specific objectives.

Monetary Policy of India has been traditionally formulated and executed by the Reserve Bank of India to achieve specific objectives. It refers to that policy by which central bank of the country controls (i) the supply of money and (ii) cost of money or the rate of interest, with a view to achieve particular objectives. The objectives are to maintain price stability and ensure adequate flow of credit to the productive sectors of the economy. Stability for the national currency (after looking at prevailing economic conditions), growth in employment and income are also looked into. The monetary policy affects the real sector through long and variable periods, while the financial markets are also impacted through short-term implications.

Following are the main elements of the Monetary Policy of India:

- It regulates the stocks and the growth rate of money supply.
- It regulates the entire banking system of the economy.

- It provides incentives to promote savings and to raise the savings-income ratio.
- It ensures adequate availability of credit for growth and tries to achieve price stability.

9.5 MONETARY POLICY FORMULATIONS PRIOR TO ECONOMIC REFORM PERIOD

Indian monetary policy, as it was designed and implemented during the planning period of 1952 to 1991, with a heavy accent on government intervention, differed considerably from the normal concept of monetary policy in economic literature, which is identified with the regulation of quantity of money through indirect methods of changing the cost and availability of bank credit, rather than through direct methods of controlling its quantity. It was required to reconcile many objectives as embedded in India's first Five-Year Plan (1951–1956). The objectives were:

- Price stability should be maintained.
- Savings of the community should be mobilized, and its financial component (i.e., savings held in bank deposits, shares, etc.) should be steadily enlarged.
- Savings so mobilized should be allocated to the sectors in accordance with national economic goals as set out in the country's Five-Year Plans.
- The resource needs of the major sectors in the economy, that is, the public sector should be met as a priority.

MONETARY POLICY FRAMEWORK :

When economic reforms were initiated before 1991 the basic goal of monetary policy was to neutralize the impact of large fiscal deficits of the Government. To boost public sector investment for accelerating economic growth there was large increase in Government expenditure under various Five Year plans which was financed by borrowing by the Government and deficit financing (i.e., nonetisation of budget deficit).Thus, prior to economic reform monetary policy was formulated in a crude way by going through the

following procedure. To begin with, a desirable level of supply of money was estimated on certain assumptions based partly on historical experience and partly on expectations about the movement of future economic events such as output growth and trends in prices; demand for money was assumed to grow in proportion to income growth. The magnitude of quantity of money so projected to match the demand for it was considered to be non-inflationary. Working backward, using the balance sheet of the banking system, reserve money, that is, currency in circulation plus cash with banks and their deposits held with the RBI was calculated. It was the changes in the reserve money that the RBI targeted in order to ensure an appropriate level of bank credit both to the government and the private sector.

PHASES OF INDIAN MONETARY POLICY

The Indian Monetary Policy can be summarised in certain phases. The phases are briefly explained below:

- **Sterling Parity (1935-1949) :** In the early years of 1935-1949, the primary task of monetary policy was to maintain a fixed exchange rate in terms of a sterling-rupee parity. In order to manage the consequent changes in money supply, the RBI was equipped with three monetary tools: the bank rate, OMOs (open market operations) and the CRR (cash reserve ratio).The CRR was to be used in exigencies rather than as an active instrument of credit control. The RBI first announced its official policy rate, the bank rate, at 3.5 per cent in July 1935, which was the same rate as was maintained by its predecessor, the Imperial Bank of India. With the partition of the country in 1947, India lost a predominantly agrarian province, which had consequences for inflation and civil unrest stifled industry. Relief and rehabilitation measures strained the government budget. Deficit financing increased money supply. On the face of a supply shock, monetary policy was ineffective in controlling inflation. The focus of monetary policy was on regulating liquidity in the system through OMO—by buying and selling of government securities—so as to maintain exchange rate parity. During this period, annual inflation rate

showed considerable volatility in the range of (-) 18.4 per cent to 86.7 per cent. Inflation was particularly severe during 1941-1944 and again in 1947-1949.

- **Developmental Years (1949-1969) :** The year 1949 marked a paradigm shift in central banking in India. In line with the trend around the world, the government nationalised the RBI on 1st January, 1949. Another important development in 1949 was the enactment of the Banking Regulation Act for sound development of the banking sector. The Act also required banks to maintain SLR (statutory liquidity ratio) of 20 per cent of their NDTL (Net Demand and Time Liabilities) with the RBI in the form of cash, gold or approved securities. This provided a secured source for government borrowings besides an additional instrument of monetary and liquidity management to the RBI. Monetary policy had to move in sync with the national five-year plans to bridge the resource gap, though the inflation risk of deficit financing was always there. A number of steps were taken to reduce government expenditure and boost food supplies by giving greater emphasis on agriculture in the first five-year plan. The bank rate was raised in November 1951. These measures had a sobering effect and inflation was moderated during the first half of the 1950s. Starting from the second five-year plan, the need for supporting plan financing through accommodation of government deficit by the RBI began to significantly influence the conduct of monetary policy. The SLR (statutory liquidity ratio) was raised to 25 percent of the NDTL of banks in 1964. In the 1960s, inflation was considered to be structural and inflation volatility was primarily caused by agricultural failures.So there was greater reliance on selective credit controls. This led to the introduction of several quantitative control measures to contain inflationary pressures while ensuring credit to preferred sectors. The quota-slab system, which determined the cost of credit from RBI to commercial banks, was replaced by a measure of NLR (Net Liquidity Ratio). Besides selective credit control, a CAS (Credit Authorisation Scheme) aimed at aligning credit policy more closely with the requirement of the five-

year plans was introduced. Barring the period 1964-1968, inflation mostly remained moderate.

- **Credit Planning (1969-1985) :** Nationalisation of major banks in 1969 marked another phase in monetary and financial policy. The period 1969-1985 was characterised by greater 'social control' of credit and fiscal dominance. The focus of monetary policy was on credit planning. India fought a war with Pakistan in 1971, encountered two droughts in 1973 and 1979 coinciding with two oil price shocks. There was also breakdown of Bretton-Woods system of global exchange rate arrangements in 1973. These developments had severe inflationary consequences. Inflation mounted from 10 percent in 1972-73 to 20 percent in 1973-74 and 25 percent by 1974-75. The 1980s began with elevated inflation and a BoP crisis necessitating recourse to a loan of SDR 5 billion from the International Monetary Fund (IMF). The dominance of fiscal policy over monetary policy accentuated. The system of ad-hock treasury bills which had begun in 1956, for temporary financial accommodation to the government from the RBI, became the dominant instrument of automatic monetisation of budgetary deficit. Additionally, to raise resources from banks for the government, the SLR was progressively increased from the statutory minimum then of 25 percent of banks' NDTL in 1969 to 37 percent by July 1985. And to neutralise the inflationary impact of deficit financing, CRR was gradually raised from its statutory minimum then of 3 percent to 10 percent of NDTL during the period. The bank rate had also risen from 5 percent to 10 percent. Average inflation during this period rose sharply to 8.2 percent per annum.
- **Monetary Targeting (1985-Till economic reforms) :** The period 1985-1998 can be characterised as monetary targeting period where the focus shifted to inflation management through control of money supply. The monetary targeting framework was based on the recommendations of the Chakravarty Committee (1985). Under this framework, reserve money (M_0) was used as the operating target,

and broad money (M_3) as an intermediate target. However, it was not a strict form of constant rate of M_3 growth. Monetary targeting was flexible to accommodate changes in real GDP growth. In practice, it was an indicative monetary targeting framework with a feedback from real economic activity. Nevertheless, this framework provided a nominal anchor in terms of desired rate of growth of M_3 for the conduct of monetary policy. A number of money market instruments such as IBPCs (Inter-Bank Participation Certificates), CDs (Certificates of Deposit) and CP (Commercial Paper) were introduced based on the recommendations of the Vaghul Committee (1987). In 1985, the government set out a LTP (Long-Term Fiscal Policy). But fiscal dominance continued in terms of large government borrowings. The statutory pre-emption of bank resources through CRR and SLR had peaked to 53.5 per cent of banks' NDTL by 1990. The macro-balance had turned adversa, and the Gulf War of 1990 precipitated a BoP crisis. India had to turn to the IMF for financing. The exchange rate of the rupee was adjusted downwards by 18.7 per cent vis-a-vis the US dollar. Most importantly, the BoP crisis of 1991 triggered wide ranging reforms unshackling the Indian economy. As they say the rest is history. Structural reforms and financial liberalisation in the 1990s led to a shift in the financing paradigm for the government and commercial sectors with increasingly market-determined interest and exchange rate. Automatic monetisation of government budget deficit was eschewed in 1997. The CRR and SLR were brought down to 9.5 per cent and 25 per cent of banks' NDTL by 1997. By the second half of the 1990s, the RBI was able to move away from direct instruments to indirect market-based instruments in its liquidity management operations. During the monetary targeting period, inflation remained in single digit except for the period 1990-1993 and 1994-95. In the 13-years of monetary targeting during 1985-1998, the real GDP increased at the rate of 5.4 percent per annum, wholesale price inflation increased by 8.0 percent per annum and consumer price inflation increased by 9.1 percent per annum.



CHECK YOUR PROGRESS

Q.5: What is the main goal of Monetary Policy of India? (Answer in about 30 words)

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Q.6: Discuss briefly about the objectives of Monetary Policy of India. (Answer in about 50 words)

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9.6 LET US SUM UP

- The Reserve Bank of India is India's central bank. It is also known as the banker's bank. The primary objectives of RBI are to supervise and undertake initiatives for the financial sector consisting of commercial banks, financial institutions and non-banking financial companies (NBFCs).
- Monetary Policy of India is formulated and executed by the Reserve Bank of India to achieve certain specific objectives.
- The Monetary Policy regulates the supply of money and the cost and availability of credit in the economy.
- Various objectives of Indian monetary policy were required to reconcile during India's first Five-Year Plan (1951–1956).
- Prior to economic reform monetary policy was formulated in a crude way where a desirable level of supply of money was estimated on certain assumptions based partly on historical experience and partly on expectations about the movement of future economic events such as output growth and trends in prices.



9.7 FURTHER READING

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3) http://www.yourarticlelibrary.com/economics/indian-economy/monetary-policy-of-india-main-elements-and-objectives/39553.

4) https://en.wikipedia.org/wiki/Monetary_policy_of_India.



9.8 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q. No. 1: The Reserve Bank of India (RBI) was established on 1st April, 1935, in accordance with the Reserve Bank of India Act, 1934.

Ans to Q. No. 2: The Ministry of Finance has the sole right to issue currency of one rupee note.

Ans to Q. No. 3: Monetary policy refers to the policy of the Reserve Bank of India in matters of interest rates, money supply and availability of credit. It is through the monetary policy that RBI controls inflation in the country.

Ans to Q. No. 4: Fiscal Policy refers to the government's choices regarding the overall level of government purchases or taxes. Fiscal policy influences saving, investment, and growth in the long run. In the short run, fiscal policy primarily affects the aggregate demand.

Ans to Q. No. 5: The primary objective of monetary policy is to maintain price stability while keeping in mind the objective of growth. Price stability is a necessary precondition for sustainable growth. To maintain price stability, inflation needs to be controlled.

Ans to Q. No. 6: The objectives monetary policy of India is to maintain price stability and ensure adequate flow of credit to the productive sectors of the economy. Stability for the national currency, growth in employment and income are also looked into. The monetary policy affects the real sector through long and variable periods while the financial markets are also impacted through short-term implications.



9.9 MODEL QUESTIONS

A) Short Questions (Answer each question in about 150 words)

Q 1: Write a brief note on the Monetary Policy of India.

Q 2: Explain the role of RBI as 'Banker to the Government'.

Q 3: Write a brief note on elements of Monetary Policy.

Long Questions (Answer each question in about 300-500 words)

Q 1: Discuss the major functions performed by the Reserve Bank of India.

Q 2: Write a note on monetary policy formulations prior to economic reforms of 1991.

Q 3: Briefly describe about the Monetary Policy Framework.

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UNIT 10: MONETARY POLICY FORMULATION IN INDIA – II

UNIT STRUCTURE

10.1 Learning Objectives

10.2 Introduction

10.3 Objectives of Monetary Policy

10.4 Role of RBI in Monetary Policy Formulation

10.5 Various instruments of Monetary Policy

10.6 Monetary Policy Formulations in the Post Economic Reform Period

10.7 Let Us Sum Up

10.8 Further Reading

10.9 Answers to Check Your Progress

10.10 Model Questions

10.1 LEARNING OBJECTIVES

After going through this unit, you will be able to

- know about the role of RBI in Monetary Policy Formulation
- understand the various instruments of Monetary Policy of India
- explain the Monetary Policy formulations in the post Economic Reform Period.

10.2 INTRODUCTION

Monetary policy is the macroeconomic policy laid down by the Reserve Bank of India. It is the process by which the management of money supply and interest rates takes place. The central bank tweaks interest rates to achieve macroeconomic objectives such as liquidity, consumption and inflation. In a bid to keep inflation under specified level, the government in 2016 had decided to set up Monetary Policy Committee headed by RBI Governor entrusted with the task of fixing the benchmark policy rate (repo rate). The six-member panel, which had its first meeting in October 2016,

was given the mandate to maintain annual inflation at 4 percent until March 31, 2021 with an upper tolerance of 6 percent and a lower tolerance of 2 percent.

10.3 OBJECTIVES OF MONETARY POLICY

Monetary policy of India refers to that policy which is concerned with the measures taken to regulate the volume of credit created by the banks. The main objectives of monetary policy are to achieve price stability, financial stability and adequate availability of credit for growth.

1) Inflation - Monetary policies can target inflation levels. A low level of inflation is considered to be healthy for the economy. If inflation is high, a contractionary policy can address this issue.

2) Unemployment - Monetary policies can influence the level of unemployment in the economy. For example, an expansionary monetary policy generally decreases unemployment because the higher money supply stimulates business activities that lead to the expansion of the job market.

3) Currency exchange rates - Using its fiscal authority, a central bank can regulate the exchange rates between domestic and foreign currencies. For example, the central bank may increase the money supply by issuing more currency. In such a case, the domestic currency becomes cheaper relative to its foreign counterparts.

4) Price Stability - Another major objective of monetary policy in India is to maintain price stability in the country. It implies Control over inflation. Price level, is affected by money supply. Monetary policy regulates money supply to maintain price stability.

5) Promote Economic Growth - An important objective of monetary policy is to make available necessary supply of money and credit for the economic growth of the country. Those sectors which are quite significant for the economic growth are provided with adequate availability of credit.

6) Promote Savings and Investment – By regulating the rate of interest and checking inflation, monetary policy promotes saving and investment. Higher rates of interest promote saving and investment.

10.4 ROLE OF RBI IN MONETARY POLICY FORMULATION

The Central Bank, the RBI formulates, implements and monitors the monetary policy. In fact, the monetary policy and the fiscal policy are the two tools of macroeconomic policy. The monetary policy mainly ensures that there is price stability coupled with economic growth. The key areas that these policy targets are the interest rates, bank credits and money supply.

The RBI also uses some tools to regulate the monetary policy. These include Open Market operations, Bank Rate, Cash Reserve Ratio (CRR), Statutory Liquidity Ratio (SLR), Repo rate, Reversa Repo rate etc. There are also some Qualitative instruments that the RBI uses which impact the money supply indirectly.

A few key terms are explained below:

- **Bank Rate -** It is the interest rate at which RBI lends money to domestic banks, often in the form of very short-term loans. Managing the bank rate is a method by which central banks affect economic activity.
- **Cash Reserve Ratio (CRR) –** It refers to the proportion of deposits the commercial bank is required to keep in the form of cash with the RBI.
- **Statutory Liquidity Ratio (SRR) -** It refers to the proportion of deposits the commercial bank is required to maintain with them in the form of designated securities in addition to the cash reserve ratio.
- **Repo Rate -** It is the interest rate at which RBI lends money to commercial banks in the event of any shortfall of funds**.**
- **Reverse Repo Rate -** The interest rate at which RBI borrows from commercial banks is called the reverse repo rate.

MONETARY POLICY COMMITTEE

The Reserve Bank of India Act, 1934 (RBI Act) was amended by the Finance Act, 2016, to provide for a statutory and institutionalized framework for a Monetary Policy Committee, for maintaining price stability, while keeping in mind the objective of growth. The Monetary Policy Committee is entrusted with the task of fixing the benchmark policy rate (repo rate) required to contain inflation within the specified target level. As per the provisions of the RBI Act, three of the six members of the Monetary Policy Committee will be from the RBI and the other three members will be appointed by the Central Government. The Government of India, in consultation with RBI, notified the 'Inflation Target' in the Gazette of India Extraordinary dated 5 August 2016 for the period beginning from the date of publication of the notification and ending on the March 31, 2021 as 4%. At the same time, lower and upper tolerance levels were notified to be 2% and 6% respectively.



CHECK YOUR PROGRESS

Q.1: When was the Reserve Bank of India (RBI) vested with the responsibility of conducting monetary policy? (Answer in about 20 words).

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Q.2: What measure does RBI use to reduce inflation? (Answer in about 20 words).

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Q.3: How many members are there in the Monetary Policy Committee? (Answer in about 10 words).

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10.5 VARIOUS INSTRUMENTS OF MONETARY POLICY

There are several direct and indirect instruments that are used for implementing monetary policy.Now let us take a look at the various instruments of monetary policy that the RBI has at its disposal.

- **Repo Rate:** The (fixed) interest rate at which the Reserve Bank provides overnight liquidity to banks against the collateral of government and other approved securities under the liquidity adjustment facility (LAF).
- **Reverse Repo Rate:** The (fixed) interest rate at which the Reserve Bank absorbs liquidity, on an overnight basis, from banks against the collateral of eligible government securities under the LAF.
- **Liquidity Adjustment Facility (LAF):** The LAF consists of overnight as well as term repo auctions. Progressively, the Reserve Bank has increased the proportion of liquidity injected under fine-tuning variable rate repo auctions of a range of tenors. The aim of term repo is to help develop the inter-bank term money market, which in turn can set market-based benchmarks for pricing of loans and deposits, and hence improve the transmission of monetary policy. The Reserve Bank also conducts variable interest rate reversa repo auctions, as necessitated under the market conditions.
- **Marginal Standing Facility (MSF):** A facility under which scheduled commercial banks can borrow an additional amount of overnight money from the Reserve Bank by dipping into their Statutory Liquidity Ratio (SLR) portfolio up to a limit at a penal rate of interest. This provides a safety valve against unanticipated liquidity shocks to the banking system.
- **Corridor:** The MSF rate and reverse repo rate determine the corridor for the daily movement in the weighted average call money rate.
- **Bank Rate:** It is the rate at which the Reserve Bank is ready to buy or re-discount bills of exchange or other commercial papers. The

Bank Rate is published under Section 49 of the Reserve Bank of India Act, 1934. This rate has been aligned to the MSF rate and, therefore, changes automatically as and when the MSF rate changes alongside the changes of policy repo rate.

- **Cash Reserve Ratio (CRR):** The average daily balance that a bank is required to maintain with the Reserve Bank as a share of such percent of its net demand and time liabilities (NDTL) that the Reserve Bank may notify from time to time in the Gazette of India.
- **Statutory Liquidity Ratio (SLR):** The share of NDTL that a bank is required to maintain in safe and liquid assets, such as unencumbered government securities, cash and gold etc. Changes in SLR often influence the availability of resources in the banking system for lending to the private sector.
- **Open Market Operations (OMOs):** These include both, outright purchase and sale of government securities, for injection and absorption of durable liquidity, respectively.
- **Market Stabilisation Scheme (MSS):** This instrument for monetary management was introduced in 2004. Surplus liquidity of a more enduring nature arising from large capital inflows is absorbed through the sale of short-dated government securities and treasury bills. The cash so mobilized is held in a separate government account with the Reserve Bank.

10.6 MONETARY POLICY FORMULATIONS IN THE POST ECONOMIC REFORM PERIOD

The Monetary Policy of the RBI has undergone massive changes during the economic reform.Under the reform period an emphasis was given to stable the macroeconomic situation and low inflation policy. The major changes in the Indian Monetary policy during the decade of 1990 are briefly discussed below:

- **Reduced Reserve Requirements:** The Cash Reserve Ratio (CRR) and Statutory Liquidity Ratio (SLR) are gradually reduced during

the economic reforms period in India. It is reduced from the earlier high level of 15% plus incremental CRR of 10.5% to current 6% level.The SLR is also reduced from early 30.5% to current minimum of 24% level. This has left more loan-able funds with commercial banks.

- **Increased Micro Finance:** In order to strengthen the rural finance the RBI has focused more on the Self Help Group (SHG). It comprises small and marginal farmers, agriculture and non-agriculture labour, artisans and rural sections of the society. However still only 30% of the target population has been benefited.
- **Fiscal Monetary Separation:** In 1994, the Government and the RBI signed an agreement through which the RBI has stopped financing the deficit in the government budget. Thus it has separated the monetary policy from the fiscal policy.
- **Changed Interest Rate Structure:** During the 1990s, the interest rate structure was changed from its earlier administrated rates to the market oriented or liberal rate of interest. Interest rate slabs are now reduced up to 2% and minimum lending rates are abolished. Similarly, lending rates above Rs. 2,00,000 are freed.
- **Introduction of CRAR:** Capital to risk weighted assets ratio (CRAR) was started in 1992. Almost all the banks in India have reached the capital adequacy ratio (CAR) above the statutory level of 9%.
- **Diversification of Banking:** The Indian Banking sector was well-diversified during the economic reforms period. Many of the banks have started new services and new products. Some banks have established subsidiaries in Merchant Banking, mutual funds, insurance, venture capital etc.
- **New Generation Banks:** During the reforms many new generations banks have successfully emerged on the financial horizon. Bank such as ICICI Bank, UTI Bank have given a big challenge to the Public Sector Banks leading to a greater degree of competition.

- **Improved Profitability and Efficiency:** During the reform period, the productivity and efficiency of many commercial banks has improved. It has happened due to reduced, non-performing loans, use of technology, use of computers and some other relevant measures adopted by the govt.
- **Changes in Accordance to the External Reforms:** During the 1990s, the external sector has undergone major changes. They comprise of lifting various controls on imports, reduced tariffs, etc. The Monetary policy has shown the impact of liberal inflow of the foreign capital and its implication on domestic money supply.

EVALUATION OF MONETARY POLICY IN INDIA

During the reforms though the monetary policy has achieved higher success in its implementation but it is not free from limitations or demerits. It needs to be evaluated on a proper scale.

- **Failed in Tackling Budgetary Deficit:** The higher level of the budget deficit has made the monetary policy ineffective. The automatic monetisation of the deficit has led to high monetary expansion since **monetised deficit** is the extent to which the RBI helps the central government in its borrowing programme. In other words, monetised deficit means the increase in the net RBI credit to the central government, such that the monetary needs of the government could be met easily.
- **Limited Coverage:** The Monetary policy covers only commercial banking system leaving other non-bank institutions untouched. It limits the effectiveness of the Monetary Policy in India as it covers only the commercial banking system.
- **Unorganized Money Market:** In our country there is a huge size of the unorganized money market. It does not come under the control of the RBI. Thus any tool of the monetary policy does not affect the unorganized money market making monetary policy less effective.
- **Predominance of Cash Transaction:** In India still there is huge dominance of the cash in total money supply. It is one of the main

obstacles in the effective implementation of the monetary policy. Because monetary policy operates on the bank credit rather on cash.

- **Increase Volatility:** As the Monetary policy has adopted changes in accordance to the changes in the external sector in India, it could lead to a high amount of the volatility. It was established that the nominal interest rate, output growth, and inflation fall in reaction to an increase in the volatility of monetary policy.



CHECK YOUR PROGRESS

Q.4: What are CRR and SRR? (Answer in about 50 words).

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Q.5: What is meant by Repo Rate and Reversa Repo Rate? (Answer in about 30 words).

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10.7 LET US SUM UP

- The Reserve Bank of India (RBI) is vested with the responsibility of conducting monetary policy. This responsibility is explicitly mandated under the Reserve Bank of India Act, 1934.
- The Reserve Bank of India, through the Monetary Policy control, the interest rates, money supply and availability of credit with a view to achieve the ultimate objectives of economic policy.

- The Reserve Bank of India uses contractionary monetary policy to reduce inflation and expansionary monetary policy to lower unemployment and avoid recession.
- A Monetary Policy Committee was constituted comprising of 6 members for maintaining price stability, while keeping in mind the objective of growth.
- There are a number of direct and indirect instruments that are used for implementing monetary policy such as Open Market operations, Bank Rate, Cash Reserve Ratio (CRR), Statutory Liquidity Ratio (SLR), Repo rate, Reversa Repo Rate etc.
- The Monetary Policy of the RBI has undergone massive changes after 1991. In the post reform period an emphasis was given to stabilise the macroeconomic situation and low inflation policy.
- The monetary policy has achieved higher success in its implementation though it is not free from limitations or demerits. It needs to be evaluated on a proper scale.



10.8 FURTHER READING

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3) Reddy, V.Y. "Monetary policy operating procedures in India" . https://www.bis.org/publ/plcy05e.pdf.
4) https://www.toppr.com/guides/economics/money-and-banking/instruments-of-monetary-policy-and-the-reserve-bank-of-india/
5) https://www.clearias.com/monetary-policy/.
6) https://en.wikipedia.org/wiki/Monetary_policy_of_India

10.9 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q. No. 1: The Reserve Bank of India (RBI) is vested with the responsibility of conducting monetary policy. This responsibility is explicitly mandated under the Reserve Bank of India Act, 1934.

Ans to Q. No. 2: The Reserve Bank of India uses contractionary monetary policy to reduce inflation. They reduce the money supply by restricting the amount of money banks can lend.

Ans to Q. No. 3: The Monetary Policy Committee is a six-member committee constituted by the Central Government.

Ans to Q. No. 4: Cash Reserve Ratio (CRR) is the average daily balance that a bank is required to maintain with the Reserve Bank as a share of such percent of its net demand and time liabilities (NDTL) that the Reserve Bank may notify from time to time in the Gazette of India whereas Statutory Liquidity Ratio (SLR) refers to the proportion of deposits the commercial bank is required to maintain with them in the form of liquid assets in addition to the cash reserve ratio.

Ans to Q. No. 5: Repo rate is the interest rate at which RBI lends money to commercial banks in the event of any shortfall of funds and Reverse Repo Rate is the interest rate at which RBI borrows from commercial banks.

10.10 MODEL QUESTIONS

A) Short Questions (Answer each question in about 150 words)

Q 1: State the objectives of Monetary Policy of India.

Q 2: State is the role of RBI in Monetary Policy formulation.

Q 3: Write a brief note about the Monetary Policy Committee.

B) Long Questions (Answer each question in about 300-500 words)

Q 1: What are the various instruments of the Monetary Policy of India?

Q 2: Briefly discuss the various objectives of Monetary Policy of India.

Q 3: Write a note about the monetary policy formulations in the post economic reforms period of 1991.

Q 4: Discuss briefly about the limitations of the Monetary Policy of India.

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UNIT 11: MACROECONOMIC THEORY OF THE OPEN ECONOMY

UNIT STRUCTURE

11.1 Learning Objectives

11.2 Introduction

11.3 Supply and Demand for Loanable Funds and for Foreign Currency Exchange

11.4 Equilibrium in the Open Economy

11.5 Macroeconomic Policies in an Open Economy for Government Budget Deficits, trade policy

11.6 Let us Sum Up

11.7 Further Reading

11.8 Answers to Check Your Progress

11.9 Model Questions

11.1 LEARNING OBJECTIVES

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

- know how loanable fund and foreign exchange market achieve equilibrium in open economy
- explain how budget deficit and trade policy affect the open economy equilibrium
- understand the role of macroeconomic policies in an Open Economy.

11.2 INTRODUCTION

An open economy is one that interacts with the other economies of the world through international trade and finance. The openness of an economy provides the opportunity to the citizens of a country to choose goods and services from a much variety of items and also gives the opportunity to invest their savings outside the country. Along with such benefits, the openness of the economy also exposes the economy to certain unavoidable risk. In case

of an open economy a country's spending in any given year need not equal to its output of goods and services. Sometimes a country can spend more than it produces by borrowing from abroad, or sometimes it can spend less than it produces and lend the difference to foreigners. If we look at the closed economy model, (i.e.; Y= C+ I + G), it is seen that all output is sold domestically and expenditure has three components: consumption(C), investment (I) and government expenditure (G). But in case of open economy the model becomes (Y = C+ I+ G+ NX); where NX is the net export (i.e.; the difference between export and import). Due to presence of net export (NX), the discussion regarding macroeconomic theory of open economy is different from the closed economy analysis. Therefore, this unit is an attempt to discuss how an open economy works to achieve the equilibrium position. In other words, this unit examines what determines the price of domestic goods relative to foreign goods, the rate at which the domestic currency trades for foreign currencies and how protectionist trade policies influence the amount of international trade and the exchange rate.

11.3 SUPPLY AND DEMAND FOR LOANABLE FUNDS AND FOR FOREIGN CURRENCY EXCHANGE

In the context of an open economy, it is seen that among all other factors the rate of interest mostly affect the decision of the investors whether to invest domestically or abroad. Such as if the rate of interest is higher in the domestic country then foreign investment is less attractive for domestic investors and vice-versa. Similar decision is also taken by the foreign investors. Thus, due to this behaviour of the investors the net flow of capital to other countries is negatively related to the domestic real interest rate (r). Symbolically, CF = f (r); where CF indicates net flow of capital and r is the domestic real interest rate. A higher domestic interest rate discourages domestic investors from lending abroad and encourages foreign investors to lend here.

The market for loanable funds (where the interest rate is determined) and the market for foreign exchange (where the exchange rate is determined) are under consideration to understand how the large open economy works.

- **The market for Loanable funds:** In order to see how the supply and demand of loanable funds work, let us consider

$$S = I + CF$$

As we know that an open economy's saving (S) is used to finance domestic investment (I) and to finance the net capital outflows. National saving is fixed by the level of output, fiscal policy and the consumption function. Investment and net capital outflow both depend on the domestic real interest rate. Therefore,

$$\bar{S} = I(r) + CF(r)$$

The fig. 11.1 shows the market for loanable funds. The national savings $(\bar{S})$ is the supply curve of loanable funds and the *I(r)+CF(r)* curve is the demand curve for loanable funds. The interest rate adjusts to bring supply and demand to equilibrium. At the equilibrium interest rate (r'), the supply of loanable funds from saving balances the demand for loanable funds from domestic investment and capital investment abroad.

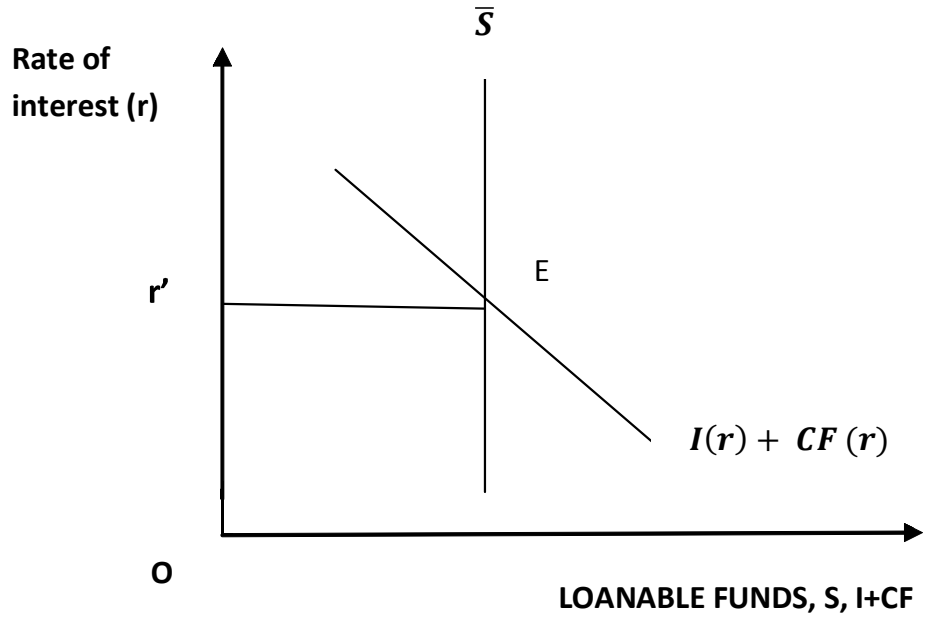


Fig.11.1: Market for loanable funds

- **The market for Foreign exchange:** In foreign exchange market the exchange rate helps the countries to trade with each other.

There are two types of exchange rates - nominal exchange rate and real exchange rate. The nominal exchange rate indicates the rate at which

domestic currency is exchanged for foreign currency. On the other hand, the real exchange rate is the rate at which goods are traded among the countries. The real exchange rate is sometimes called the terms of trade.

In order to understand the foreign exchange market, let us use the national income identities such as

$$NX = S - I = CF$$

Where, NX is the trade balance or net export, CF is net capital outflow and S and I is the saving and investment respectively. As the NX is the function of real exchange rate (ε), so we can write

$$NX(\varepsilon) = CF$$

Thus, the real exchange rate is the price that equilibrates the trade balance and the net capital outflow. If (S – I) > 0 and NX > 0, then the economy is in trade surplus. In this case, we are exporting more goods than we are importing and we are net lenders in world financial markets. In case of trade deficits {i.e.; NX <0 & (S – I) < 0}, we are net borrower in world financial markets and importing more than we are exporting. And, we are in balanced trade when NX = 0 and (S – I) = 0

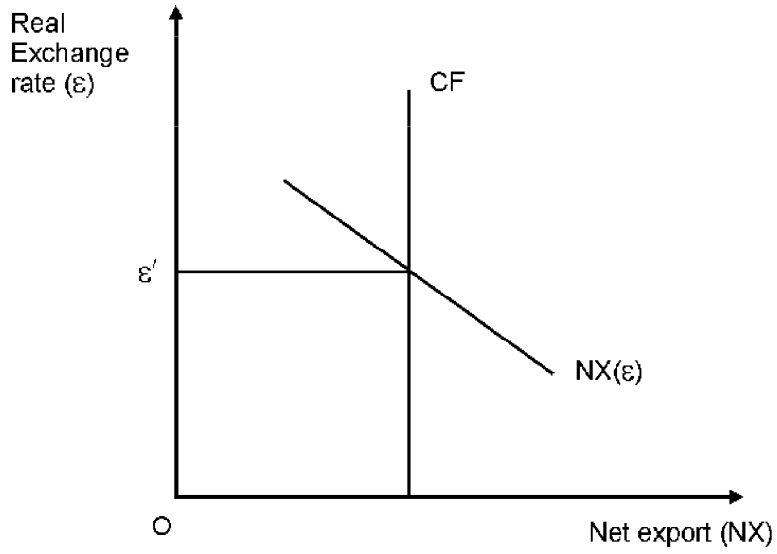


Fig.11.2 : Determination of real exchange rate

In fig.11.2, real exchange rate is determined. At the equilibrium exchange rate (ε'), the supply of domestic currency from the net capital outflow (CF) balances the demand for domestic currency from our net exports of goods and services (NX).



CHECK YOUR PROGRESS

Q.1: Define open economy. (Answer in about 30 words)

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Q.2: Define a foreign exchange market. (Answer in about 30 words)

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11.4 EQUILIBRIUM IN THE OPEN ECONOMY

The net capital outflow links both the loanable fund market and foreign exchange market. The supply and demand for loanable funds determine a total quantity of loanable funds or the real interest rate which in turn affects net capital outflows. On the other hand, the supply and demand of domestic currency determine the real exchange rate, which also affects the net capital outflows.

In order to understand how net capital outflows links both the loanable fund market and foreign exchange market let us take help of a three panel diagram.

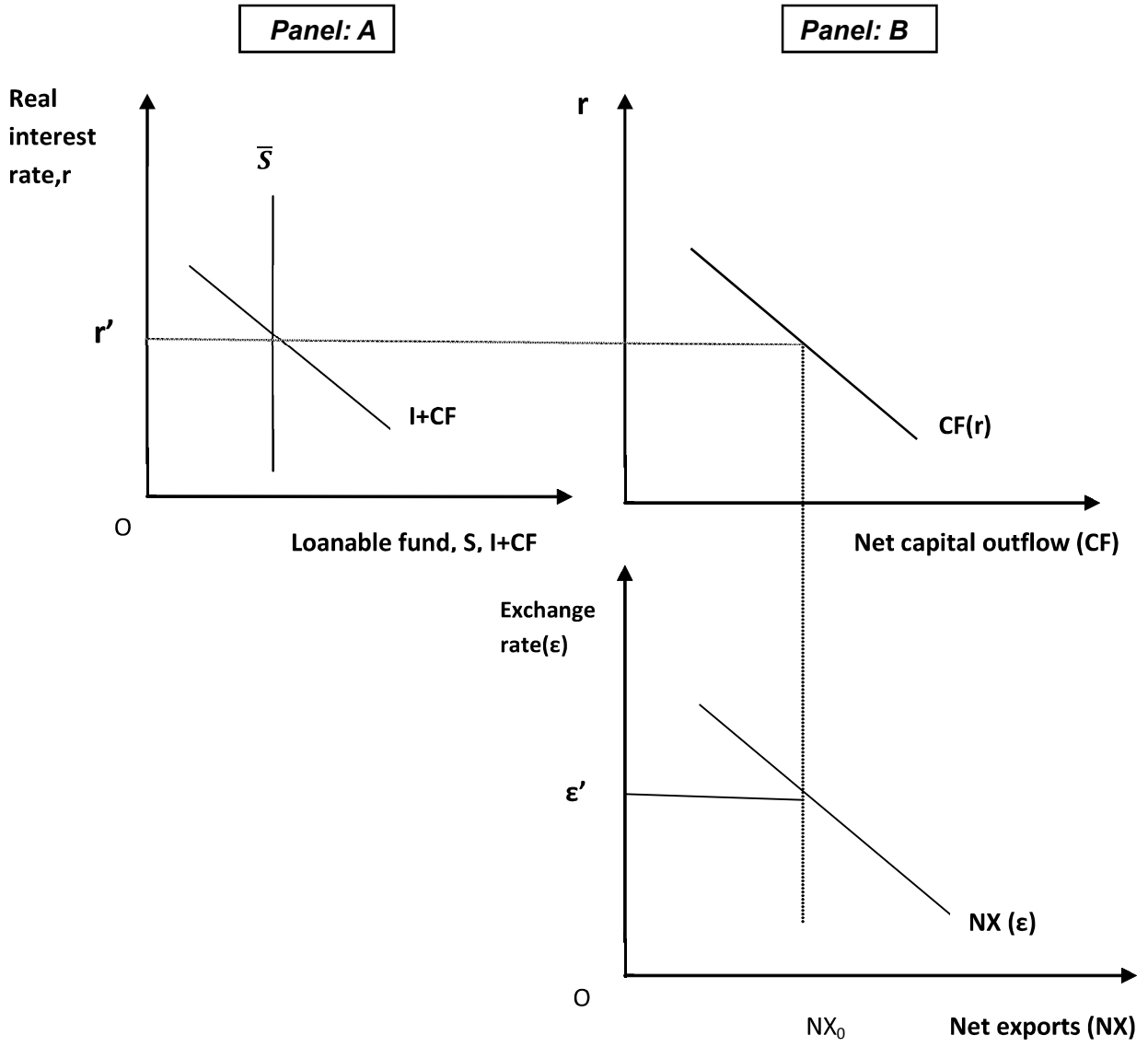


Fig.11.3: Equilibrium in the open economy

The panel (A) of Fig.11.3 shows the equilibrium in the market for loanable funds. The S curve and (I+CF) curve intersects each other and determines the real rate of interest r'. Panel (B) shows the relationship between equilibrium interest rate and the net capital outflow which in turn determines the supply of domestic currency to be exchanged into foreign currency. And panel (C) represents the foreign exchange market equilibrium position. At ε' exchange rate the amount of net export is NX_0. Here the real exchange rate adjusts to balance this supply of domestic currency with the demand coming from net exports.



CHECK YOUR PROGRESS

Q.3: Define net export. (in about 30 words)

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Q.4: Distinguish between depreciation and appreciation of currency. (Answer in about 50 words)

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11.5 MACROECONOMIC POLICIES IN AN OPEN ECONOMY FOR GOVERNMENT BUDGET DEFICITS, TRADE POLICY

Government budget deficit: Now, to analyse how economic policies works in an open economy let us consider the expansionary fiscal policy. The expansionary fiscal policy reduces the national saving. Needless to say when a government runs a budget deficit, it results the negative national saving. Therefore, both the cases shift the saving curve to the left.

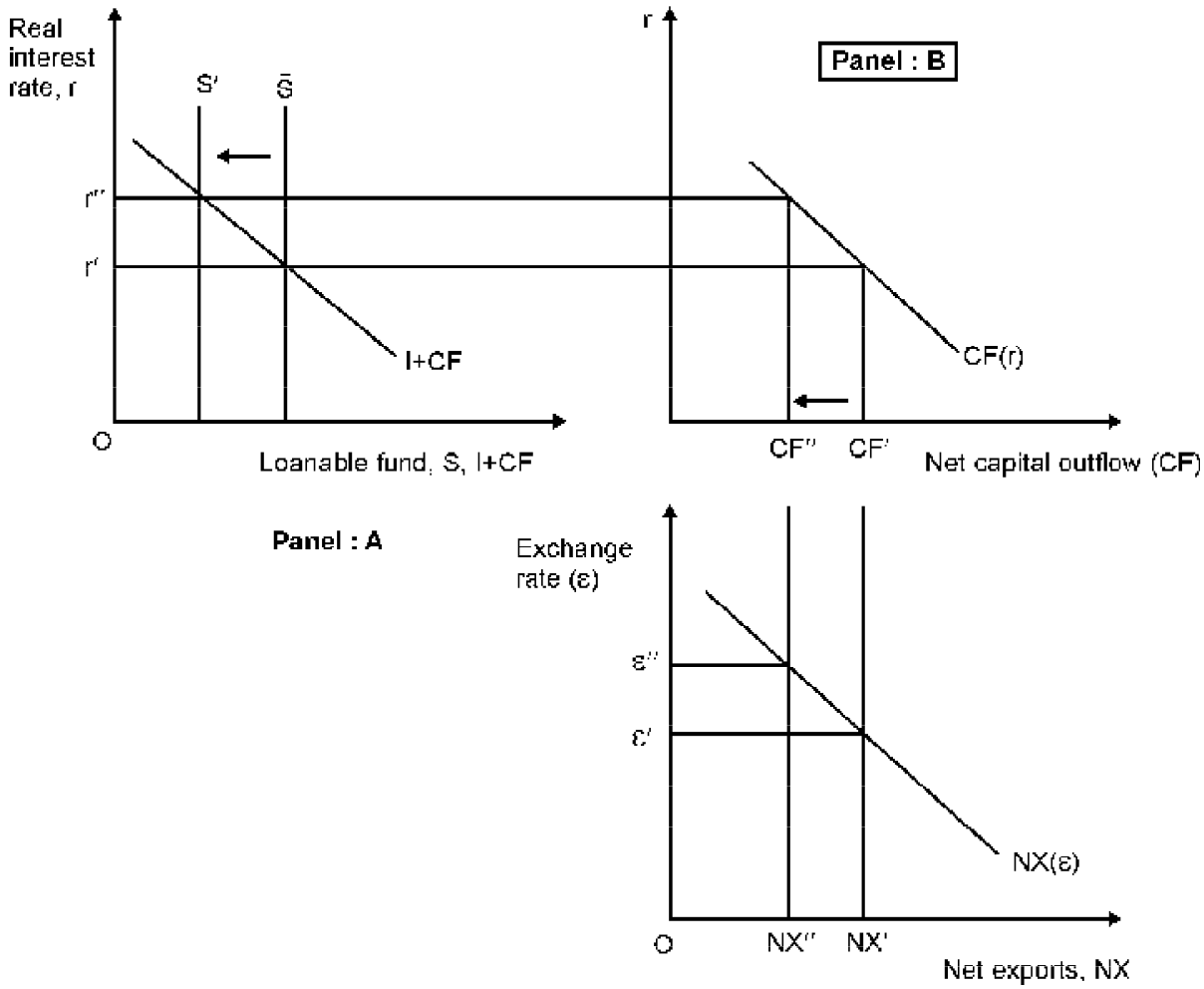


Fig.11.4 Effects of fiscal policy in open economy equilibrium

In panel (A) of fig, 11.4, the supply of loanable funds, $\bar{S}$ curve shifts to S' which increases the real rate of interest to r". This increase in the real interest rate reduces the net capital outflow to CF" (shown in B).The fall in the net capital outflow reduces the supply of domestic currency to be exchanged into foreign currency. As a result the exchange rate appreciates and the net exports fall. In the panel (C), the real exchange rate increases to ε" from ε' due to reduction of net exports from NX' to NX".

Trade policy: A trade policy is also known as commercial policy which defines standards of goals, rules and regulations that pertain to trade relations between countries. These policies are specific to each nation and are formulated by its public officials. Through trade policy every nation aims

to boost their respective international trade. Normally, a country's trade policy focuses on to impose best policy related to tariffs and quotas to ensure security and safety of domestic economic agents in international trade.

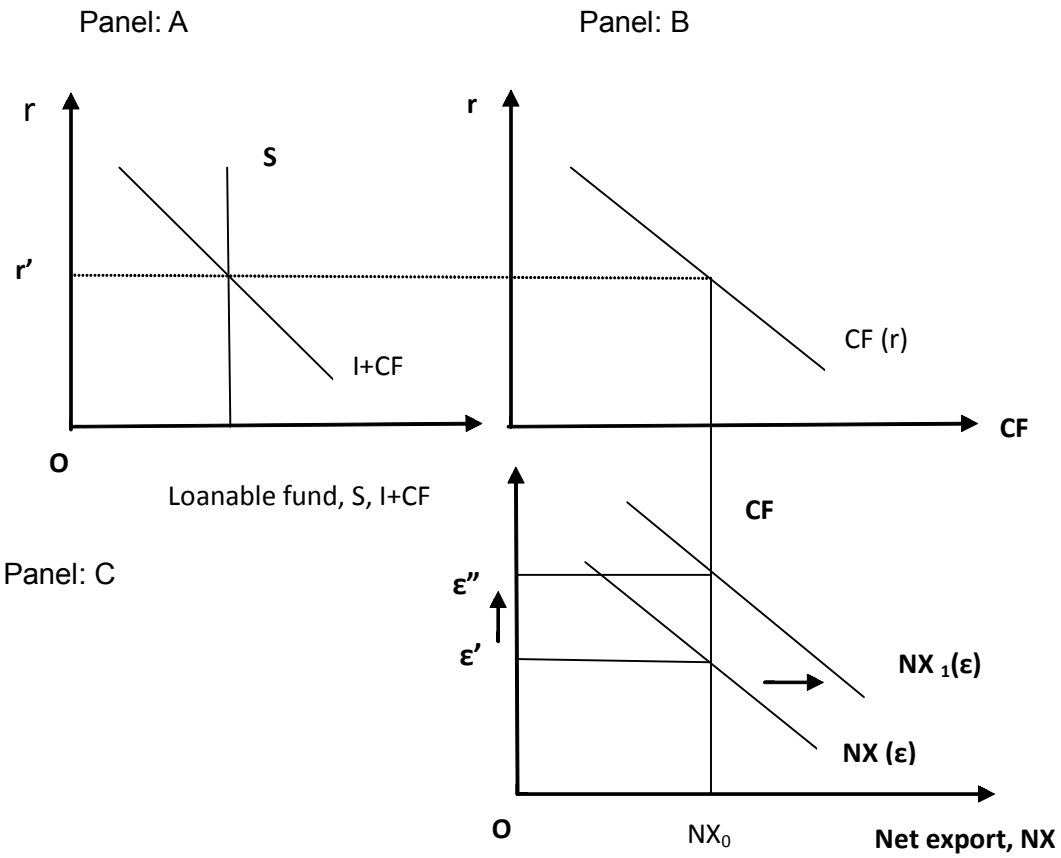


Fig. 11.5: Effects of trade restriction in open economy

It is known to us that the trade restrictions (such as import quota) reduces the imports at any real exchange rate and increases the net exports. The imposition of import quota doesn't affect the loanable fund market and net capital outflow, but it shifts the demand for net exports in the foreign exchange market which helps to appreciate the exchange rate. The rise in the exchange rate makes the domestic goods expensive relative to foreign goods, which depresses exports and stimulates the imports.

In panel (C) of fig. 11.5, it is seen that due to protectionist policy (such as imposition of import quota) the net export curve (NX) shifts to (NX1) which raises the exchange rate to ε" and leave the net exports unchanged. But in panel A and B no change is seen.



CHECK YOUR PROGRESS

Q.5: What is meant by expansionary fiscal policy? (Answer in about 50 words)

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Q.6: What is trade policy? (Answer in about 50 words)

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11.6 LET US SUM UP

- An open economy is one that interacts with the other economies of the world through international trade and finance.
- Although open economy has various positive signs but it has negative signs too.
- The open economy model is Y = C+ I+ G+ NX; where Y is total output, C is consumption, I is investment, G is government expenditure and NX is the net export.
- In an open economy, the rate of interest mostly affects the decision of the investors whether to invest domestically or abroad. If the rate of interest is higher in the domestic country then foreign investment is less attractive for domestic investors and vice-versa.
- The loanable fund market determines the rate of interest whereas the foreign exchange market determines the exchange rate.
- The net capital outflow links both the loanable fund market and foreign exchange market.
- The expansionary fiscal policy and government budget deficit reduces the national saving.

- A trade policy defines standards of goals, rules and regulations that pertain to trade relations between countries.
- Trade policy aims to boost nation's international trade.
- Trade restrictions reduce the imports at any real exchange rate and increase the net exports.
- The imposition of import quota doesn't affect the loanable fund market and net capital outflow, but it shifts the demand for net exports in the foreign exchange market which helps to appreciate the exchange rate.



11.7 FURTHER READING

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3) Rana, K. C & Verma, K. N. (2011). *International Economics*. Vishal Publishing Co.



11.8 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q. No. 1: An open economy is one that interacts with the other economies of the world through international trade and finance. The open economy model is (Y = C+ I+ G+ NX) where C is consumption, I is investment, G is government expenditure and NX is net export.

Ans to Q. No. 2: Foreign exchange market refers to the market in which national currencies are traded for one another. The commercial banks, foreign exchange brokers, authorized dealers and the monetary authorities are the major participants in foreign exchange market.

Ans to Q. No. 3: Net exports are the difference between a country's total value of exports and total value of imports (i.e., Total export- total

import = net export). It is also known as a trade balance.

Ans to Q. No. 4: Depreciation of a currency implies a fall in the external value of a currency under flexible exchange rate system. On the other hand, the term appreciation is opposite to depreciation. Appreciation means rise in the external value of a currency.

Ans to Q. No. 5: The government of an economy can use expansionary fiscal policy by increasing the government expenditure and also by reducing the tax rate. The increase in government expenditure directly affects the aggregate demand and on the other hand, the reduction of tax rate increases the purchasing power of the consumers which also affect the aggregate demand.

Ans to Q. No. 6: A trade policy is some standards of goals, rules and regulations that pertain to trade relations between countries. These policies are formulated by public officials of a nation to boost their international trade.



11.9 MODEL QUESTIONS

A) Short Questions (Answer each question in about 150 words)

Q 1: What is real exchange rate?

Q 2: Distinguish between an open economy and closed economy.

Q 3: Explain the significance of interest rate in determining exchange rate.

Q 4: Distinguish between fiscal policy and monetary policy.

Long Questions (Answer each question in about 300- 500 words)

Q 1: Explain how net capital outflow helps to determine the equilibrium position in the open economy.

Q 2: Discuss briefly about supply and demand for loanable funds and for foreign currency exchange.

Q 3: Discuss how deficit budget affects the foreign exchange market.

Q 4: Explain the role of protectionist trade policy in the foreign exchange market.

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UNIT 12: INTRODUCTION TO GROWTH THEORY

UNIT STRUCTURE

12.1 Learning objectives

12.2 Introduction

12.3 Harrod-Domar Growth Model and Instability of Equilibrium

12.4 Solow's Neo-Classical Growth Models

12.5 Kaldor's Model of Growth

12.6 Let Us Sum Up

12.7 Further Reading

12.8 Answer to Check Your Progress

12.9 Model Questions

12.1 LEARNING OBJECTIVES

After going through this unit, you will able to

- understand the meaning of growth
- discuss Harrod-Domar Growth model
- explain the Solow's Neo-classical growth models
- discuss Cambridge criticism of neo-classical analysis of growth
- understand the Kaldor's Model of growth.

12.2 INTRODUCTION

Economic growth is considered as an important branch of economic theory. Without growth economic development is not possible. Generally people use these two terms 'economic growth' and 'economic development' in the same sense but economists distinguish between the two. "Economic growth is supposed to be a natural or normal process requiring no special efforts on the part of the community. Economic development, on the other hand, involves structural changes without which the inertia of social system cannot be overcome and decisive break with the past achieved". For example, economic advancement of USA in the 19th century can be called as economic growth while the economic

advancement of former Russia and also the Asian and African countries are regarded as economic development because it is the result of their conscious efforts.

There are quite a few theories of growth in economic literature. Here we are discussing three important growth models of Harrod-Domar, Solow and Kaldor.

12.3 HARROD-DOMAR GROWTH MODEL AND INSTABILITY OF EQUILIBRIUM

Two prominent Economists, Harrod and Domar have made a notable contribution to the theory of economic growth. Harrod gave his model in his article,"An essay on dynamic theory" published in Economic Journal (U.K) in 1939 and Domar developed his growth model in his book, "Essay in the Theory of Economic Growth" in 1946. Since both have given similar results the two models constitute one single growth model and is called Harrod-Domar (H-D) model of growth. The main points of this model are-

- Investment is the basic cause of steady growth
- Output and employment of the economy increase by increased capacity depending on the pattern of income.
- Full employment to be maintained over time
- Equilibrium growth rate depends on the propensity to save
- Chronic inflation and deflation occur in economy when actual growth rate is greater than and less than warranted growth rate respectively.

Thus the important character of this model is that it considers both demand and supply side of investment process. So H-D model states that to maintain full employment equilibrium level of output, investment and growth of income must be equal.

Assumptions: H-D growth model is based on the following assumptions

- H-D model assumes that full employment level of income exists in the economy
- There is absence of government interference and foreign trade.

- There are no lags in adjustment
- The average and marginal propensity to save are equal
- It assumes that the propensity to save and the capital coefficient (K/ Y) are constant.

Domar Model: In the Domar model, Domar tries to establish an equation where increase in productive capacity is in one hand and income is on other hand. The solution of this equation will yield the required rate of growth. According to Domar,

$s = \Delta Y \div \Delta K$

$= 1/\Delta K/\Delta Y$

WhereY = increase in real income

K= increase in Capital

Y= Marginal capital coefficient or c-o ratio or Accelerator Coefficient.

It should be remembered that now all the new capital invested goes to increase the productive capacity. A part of it may go to replace the existing capital. The difference between s and δ is the increase in productive capacity per dollar of capital invested only in new plants and the productive capacity of the whole economy. Accordingly, $\delta < s$.

Now I times δ is the total net increase in output that the economy can produce for each unit of investment. It ($I\delta$) represents the aggregate supply side of the economy. The demand side of the system also depends upon I which appears on the supply side of the system. Investment (I) creates income via multiplier. Let Investment increase at an absolute annual rate of ΔI, and let the absolute increase in income be denoted by ΔY, and the propensity to save by α. Then the increase in income will equal the multiplier ($1/\alpha$) times the increase in investment. Thus,

$\Delta Y = 1/\alpha\ (\Delta I)$……(1) (Demand side of Investment)

Since, in equilibrium, $Y = \delta$…… (by assumption)

Thus, $\Delta Y = I\ \delta$ (National income and productive capacity should increase at the same rate so that full employment is maintained)

Equation (2) is the fundamental equation of the model.

Or $1/\alpha(\Delta I) = I\delta$ ……(2) from (1)

Demand side of investment = Supply side of investment

(Annual increase in income) = (Annual increase in productive capacity)

$$\frac{\Delta I}{I} = \alpha\delta \quad \text{……(3) (Fundamental equation)}$$

Where, $\frac{\Delta I}{I}$ = Absolute annual increase in investment divided by the volume of investment itself = Annual percentage rate of growth of investment

Again from (1), $\Delta Y = 1/\alpha(\Delta I)$ …..(i)

$Y = 1/\alpha$ (By integration) …..(ii)

Dividing (i) by(ii) $\Rightarrow$ $\Delta Y = 1/\alpha(\Delta I)/1/\alpha I$

Or $\Delta Y / Y = \Delta I / I$ ……(4)

Now from (2) and (3) we get $\Delta Y / Y = \Delta I / I = \alpha\delta$ ……(5)

Therefore full employment requires that investment and income should go at the annual percentage rate of $\alpha\delta$.

The Harrod Model: Harrod's model of economic growth is a dynamic model based on the Keynesian analysis. His analysis is based on the two basic assumptions

- During a particular period of time, net saving of the community is a constant proportion of income
- Desired level of investment depends on the rate of increase in output in the previous years

Income behavior as a response to entrepreneurial decision relating to investment is derived depending on the above two assumptions.

When income is increasing, correspondingly the entrepreneur's will also be satisfied with actual investment because saving or investment form a fixed proportion of income and increase in investment depends on the rate of increase in income. The rate of growth of income can be called 'warranted rate of growth'. The main problem of Harrod model is to find out the factors of this rate of growth of income.

According to Harrod there are three types of growth rates-

- Actual growth rate (G)
- Warranted growth rate (Gw)
- Natural growth rate (Gn)

Harrod starts with the basic equation-

Gc = S…….(1)

Where, G = rate of growth of income; C =increase in capital during the period divided by the increase in output during the period; S= saving expressed a proportion of income.

$$\Rightarrow \Delta Y / Y \; .I / \Delta Y = S / Y$$

$$\Rightarrow \frac{1}{Y} = S / Y$$

The second basic equation is $G_w C_r$=S……(2)

Equation (2) represents equilibrium condition for a steady growth rate.

Here, G_w = warrented growth rate

C_r = Capital requirement or capital coefficient required sustaining the warranted rate of growth .

S= Marginal propensity to save

Equation (2) implies that if full capacity utilization is to be maintained, income must grow at the annual rate of S/C_r. It is the equilibrium condition for a steady growth rate, which is shown in the following diagram.

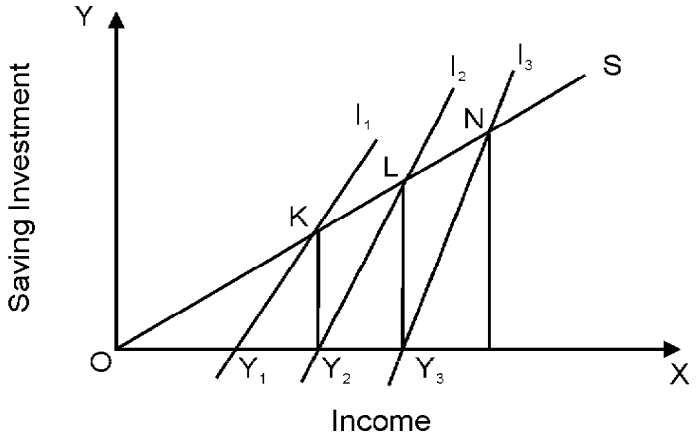


Fig. 12.1 : Equilibrium condition for a steady growth rate

In the above diagram, ox represents income and oy represents saving and investment. os is the saving function. At oy_2 level of income saving investment equality is maintained where current income level is greater than previous by y_1y_2.Thus warranted rate of growth rate will be y_1y_2/oy_2. Similarly new investment line intersects at L M respectively. As a result economy will grow at higher saving investment level and income level increases.

The National Growth Rate: National growth rate is the rate of advance which allow the increase in population and technological improvement. It is the maximum feasible rate of growth according to Mrs. Robinson. The Equation of this growth rate is

$$GnCr=S$$

If Gn greater than Gw then G can also exceed Gw. When G exceeds Gw there will be a tendency for a boom to develop and if it falls below Gw cyclical depression is likely to occur, thus saving is beneficial so long as Gw is less than Gn. Therefore the following equation must be fulfilled to maintain full employment.

$$Gn=Gw=G$$

Divergence among G, GW and Gn : To achieve full employment in the economy all three growth rates i.e., Actual (G), Warranted (Gw) and Natural (Gn) growth rate must be equal to each other. This is known as 'Knife Edge' or 'Razor's Edge' problem of Harrod-Domar model. But it is very difficult to establish. If there arises any divergence among G, Gw and Gn then economy will suffer inflation or secular stagnation. If G > Gw, investment will increase faster than saving and growth rate of income will be faster than Gw. On the other hand, if G < Gw, saving will increase faster than investment and growth rate of income will be lesser than Gw. According to Harrod, if warranted growth rate is greater than natural growth rate i.e., Gw > Gn then secular stagnation will develop in the economy. On the contrary, if Gw < Gn then it implies that Gw also is less than G. As a result secular inflation will arise in the economy. Under these circumstances, there is a shortage of capital while labour will be abundant. Profit of businessman will be high as desired investment is more than realised investment.



CHECK YOUR PROGRESS

Q.1: Mention the three growth rates of Harrod. (Answer in about 20 words)

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Q.2: Mention the main assumption of Harrod. (Answer in about 40 words)

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12.4 SOLOW'S NEO-CLASSICAL GROWTH MODELS

Nobel laureate economist Robert Solow has introduced a growth model in neo classical framework which is the basis for the modern theory of economic growth. He has improved upon Harrod Domar model by considering the possibilities of factor substitution and diminishing return.

Thus Solow developed a long run growth model without the assumption of fixed proportion of factors of proportion

Assumption: Solow model of growth is based on the following assumptions-

- It assumes a linear homogenous production function of first degree such as Y=F(K,L) where, Y= output; K= capital; L= labour.
- It assumes that saving is the constant fractions of the level of output. Solow assumes that investment is in direct and rigid proportion to income i.e I=dk/dt=sY where s= propensity to save ; k = capital stock.
- The growth rate of labour force is exogenously determined. It grows at an exponential rate. Which is given as $L=L_0e^{nt}$, where L= supply of labour.
- Only two factors capital and labours are assumed and they are paid according to marginal rate of productivity and they are also substitutable.

- Full employment of resources in the economy.
- Output is in the form of one single composite commodity.
- It assumes flexible price and wages.
- Output is assumed as net output after deducting depreciation.
- Technical progress does not influence the productivity and efficiency of labour
- Capital stock is fully utilized.

On the basis of these assumptions Solow tries to explain his model of growth in the following way-

The Model: Solow considers that rate of production is Y(t) which implies the real income of the society.

Sy(t)= rate of saving

K(t)= capital stock

dK/dt= rate of increase in capital

In eqilbrium,

Saving= investment

We have the identity, K= SY…… (1)

Since output is produced by L, K, therefore the production function is given by

Y=F(K, L)……(2)

Putting (2) in (1) => K = SF (K,L)……(3)

Where L= total employment

F= functional relationship

Equation (3) implies the supply side of the system. Now we are to include demand side. As a result, L is assumed to grow at a constant rate relative to n

Thus $L(t)= L_o e^{nt}$……(4)

Where L = Available supply of labour

Putting L in equation (3) we get

$K=sF(k, L_o e^{nt})$……(5)

Equation (4) implies supply curve for labour or rate of growth of labour from period 0-1

Solow observes that 'the exponentially growing labour force is offered for employment in perfectly inelastic manner. The labour supply is a vertical line which shifts to the right in time as the labour force grows. Then real wage rate adjusts so that all available labour is employed and the marginal productivity equilibrium determines the wage rate which will actually rule. The equality between wage rate and marginal productivity can be expressed as W=dF(k,L)/dL.

By putting equation (4) in (3) we get the basic equation $k=sF(K, L_0e^{nt})$. Prof Solow sums up his model as, 'At any moment of time the available labour supply is given by equation (4) and the available stock of capital is also a datum. Since the real return to factors will adjust to bring about full employment of labour and capital,we can use the production function of equation (2) to find the current rate of output. Then the propensity to save tells how much of net output will be saved and invested. Hence we know the net accumulation of capital during the current period. Added to the already accumulated stock, this gives us the capital available for the next period and the whole process can be repeated.'

Possibilities of Growth: Solow has tried to find out the possibilities of growth on the basis of his model. To find out the steady growth rate he introduced the following fundamental equation-

$$R= SF(r,I)^1- nr\ldots\ldots\ldots\ldots\ldots\ldots(6)$$

Where, r = rate of change of capital labour ratio

SF(r,I) = increment of capital

nr = increment of labour

n= relative rate of change of the labour force.

F(r,I)= Output per worker as a function of capital per worker.

In other words equation (6) implies total product curve as varying amounts r of capital are employed with one unit of labour.

Solow has explained his growth path based on equation (6) with the help of the following figure-

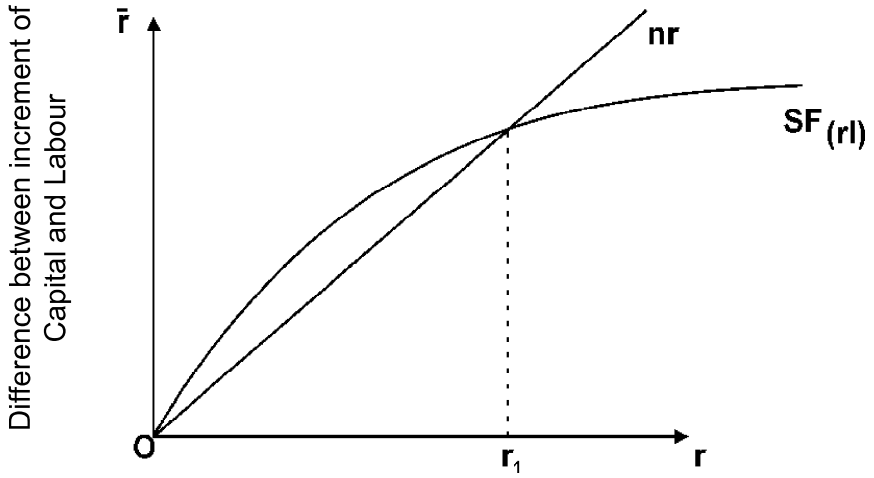


Fig. 12.2 : Growth Path

In the above figure, nr is the line passing through origin. The total productivity curve is the function of SF(r,I) and this is convex upwards. It implies diminishing marginal productivity of capital exists. At nr=SF(r,I) and $\bar{r} = 0$, then $r = \bar{r}$. When $\bar{r} = 0$, the capital labour ratio corresponding to point $\bar{r}$ is established.

Since in Solow's model, constant returns to scale is assumed, real output will grow at the same rate of n and output per head of labour, force will remain constant.

Path of Divergence:

If there is any divergence between r and $\bar{r}$ then it implies

- When r > $\bar{r}$
- When r < $\bar{r}$

If r > $\bar{r}$ then from equation (6) it is seen that r will be decreased to $\bar{r}$. On the other hand if r < $\bar{r}$ then r will increase towards $\bar{r}$. Thus equilibrium will be established at pt E and sustained growth will be achieved and equilibrium value of $\bar{r}$ is stable.

But this stability will depend on the shape of productivity curve SF(r,I) which is shown in the following figure-

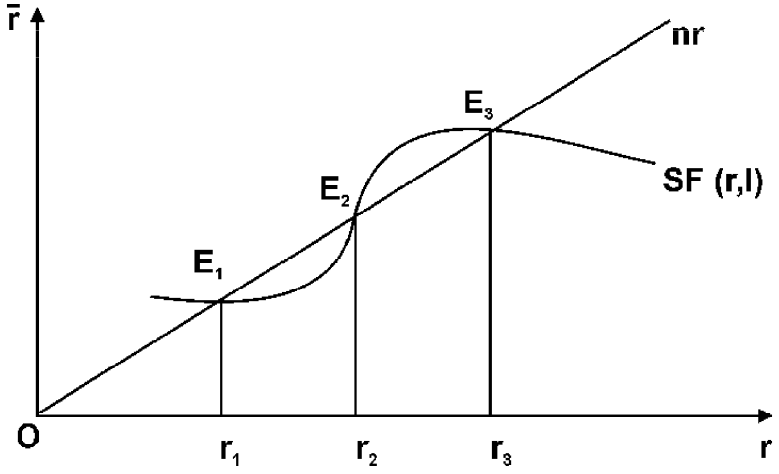


Fig. 12.3 : Stability of Growth Path

The productivity curve SF(r,1) intersects at E_1, E_2, E_3 points respectively. The corresponding capital labour ratio is r_1, r_2, r_3 respectively. r_3 is a stable point whereas r_2 is not stable. Considering to r_1, first if we move slightly towards right nr>SF(r,1) and r is –ve, then it implies that r decreases.

Thus it has a tendency to ship back to r_1. Now if we move towards to left i.e., nr< SF(r,1) and r is +ve, then it indicates that r increases and there is a tendency to move up to point r_1. Therefore, a slight movement away from r_1 creates a condition that forces a movement towards showing that r_1 is stable equilibrium point. Similarly, r_3 is also stable equilibrium if we move slightly towards the right of r_2, SF(r, 1)nr and r is +ve and there is a tendency to move away from r_2. On the other hand, if we move towards left of r_2 nr>SF(r,1) and r is –ve and it has a downward tendency toward r_1. Then depending upon initial capital labour ratio, the system will develop to balance growth at capital labour ratio r_1 and r_3. If the initial ratio is between O and r_2, the equilibrium is at r_1 and if the ratio is higher than r_2 then equilibrium is at r_3.

Solow concludes his model in the following way-

When production takes place under neo-classical condition of variable proportions and constant returns to scale, no simple opposition between

natural and warranted rates of growth is possible; there may not be any knowledge. The system can adjust to any gain rate of growth of labour force and eventually approach a state of steady proportional expansion. i.e,

$$\Delta K/K = \Delta L/L = \Delta Y/Y$$

Criticism of neo-classical analysis of growth

- This analysis emphasis with balance between Harrod's warranted and natural growth rate i.e. Gw and Gn but it simply ignores the problem of balance between G and Gw.
- In Solow's model, to operate the adjustment mechanism satisfactorily, perfect flexibility of factor prices is essential. If factor prices are rigid then it will face the same problem of Harron-Domer.
- Again, if the investment function is introduced in the Solow model then, Harrodian problem of intensity will immediately appear in the model.
- It totally ignores the problem of capital stock and assumes capital as a homogeneous factor which is an unrealistic assumption.
- This analysis assumes unrealistic assumption of homogeneous capital. But in reality capital goods are highly heterogeneous. It is not easy to generate a conclusion of steady growth where there are varieties of capital goods.



CHECK YOUR PROGRESS

Q.3: State the fundamental condition of Solow's growth theory. (Answer in about 50 words)

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Q.4: Mention the two main assumption of Solow's growth theory. (Answer in about 50 words).

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12.5 KALDOR'S MODEL OF GROWTH

Kaldor's model of economic growth was first published in a research paper during the mid 1950s. His model of economic growth is based on the basis of Harrodian dynamic approach and the Keynesian analysis. Kaldor's model of distribution is mainly concerned with the application of Keynesian theory to the problem of distribution.

According to Kaldor, "The purpose of a theory of economic growth is to show the nature of the non-economic variables which ultimately determine the rate at which the general level of production of an economy is growing, and thereby contribute to an understanding of the question of why some societies grow so faster than other". Following are the main assumptions of Kaldor's model-

- There are two factors of production - capital and labour (K and L) and thus only two types of income - profits and wages (P and W). All profits are saved and all wages are consumed.
- There are constant returns to scale and production function remain unchanged over time. Capital and labour are complementary.
- There is perfect competition as such the rates of wages and profits are same over different places.
- The marginal products of workers are greater than that of capitalists.
- There is a state of full employment so that total output or income (Y) is given.

- There is an unlimited supply of labour at a constant wage in terms of wage goods.

The Model: By assumption we get $Y= w + p$

$I=S$

$S=s_w+s_p$, Where $\mathbf{s_w}$ = Aggregate saving out of wage

s_p = Aggregate saving out of profit

$I= s_w + s_p$

$I=s_w w + s_p p$ (since investment is considered as given and assume simple proportional saving function $s_{w=} s_w w$; $s_{p =} s_p p$)

$I= S_p P + S_w W$

$I= S_p P+S_w(Y-P)$ ……$(Y=W+P)$

$I= S_p P+ S_w Y- S_w P$

$I=P(S_p -S_w)+ S_w Y$

$I/Y=P(S_p -S_w)/Y + S_w$ (Dividing both side by Y)

$I/Y-S_w=P(S_p -S_w)/Y$

$P(S_p -S_w)//Y= I/Y-S_w$……(1)

$P/Y=I/Y(S_p -S_w)- S_w/(S_p-S_w)$ ……..(2)

Therefore it is clear from (2) that given the marginal propensities of labours and capitalist, the share of profits in income depends simply on the ratio of investment to output. The basic underlying economic rationale for Kaldors's theorem is that the share of profit in the total income (P/Y) is a function of the investment-income ratio (I/Y). Under full employment condition, an increase in investment must in real terms, bring about an increase in both the ratio of investment to income (I/Y) and also an increase in the savings income ratio. This is necessary if equilibrium at a higher-level of real investment is to be obtained.

If the saving-income ratio did not rise, the result would be a continuous upward movement of the general price level. According to Kaldor, the shift in the distribution of income is essential to bring about the higher saving income ratio, which is the necessary condition for continued full employment equilibrium with a higher absolute level of investment in real terms.

Stability Conditions:

This model operates when

$S_p = S_w$ and $S_p > S_w$

The stability condition of the model is $S_p > S_w$

This is because if S_p is less than S_w, a fall in prices would cause a fall in demand which will result in a further price reduction. Similarly, a rise in prices will be cumulative. According to Kaldor the degree of stability will depend on the difference of marginal propensities i.e. on $(1/S_p - S_w)$. This is called the coefficient of sensitivity of income distribution because it indicates the change in the share of profits in income which follows a change in the share of investment in output.

If the difference between S_p and S_w is small, then the coefficient will be large, and small changes in I/Y will cause relatively large changes in income distribution P/Y and vice versa. If marginal propensity to save out of wage is zero (Sw=o), the employment of profit will be equal to the sum of investment and capitalist consumption: P=1/SP/I. Where I/SP= capitalist consumption

Limitation: Kaldor model shows that P/Y, P/VY, and W/L are functions of I/Y which are independently determined by P/Y or W/L. But it is not true due to following reasons-

- P/Y can only attain its indicated value if the real wage is greater than minimum wage i.e $w^{/}$, since the real wage cannot fall below a certain minimum subsistence level. Thus this model is subjected to the restriction $W>W^1$
- The indicated share of profits cannot remain below the level which yields minimum rate of profit necessary to induce capitalists to invest their capital. This is called risk Premium rate, M or r. Hence Kaldor theory is subjected to another restriction P/VY>r
- Due to the presence of perfect competition or collusive arguments among traders, another restriction arises out of the fact that besides minimum profit rate on capital there may be a certain minimum profit.

- One additional restriction is that capital output ratio (v), should not itself be influenced by the profit rate. Otherwise the investment/output ratio will itself become dependent on the rate of profit.
- Kaldors model assumes a period function which does not allow any possibilities of substitute.
- Kaldors period function also neglects the monetary and price phenomenon and thus presents an unrealistic picture of economic growth.
- This theory assumes an unrealistic association that it attributes all profits to the capitalists which means that worker's savings are transferred to the capitalists as gift.



CHECK YOUR PROGRESS

Q.5: Mention two limitations of Kaldor growth theory. (Answer in about 50 words)

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Q.6: What are the two main assumptions of Kaldor growth theory? (Answer in about 50 words)

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12.6 LET US SUM UP

- Economic growth is considered as an important branch of economic theory.

- Economic growth is supposed to be a natural or normal process requiring no special efforts on the part of the community.
- Economists introduce numbers of growth theory for development of economic growth. Among them we have discussed three important growth models of Harrod-Domar, Solow and Kaldor.
- In the Domar model, Domar tries to establish an equation keeping increase in productive capacity in one hand and income in other hand. The solution of this equation will yield the required rate of growth.
- Harrod's model of economic growth is a dynamic model based on the Keynesian analysis.
- According to Harrod there are three types of growth rates - Actual growth rate (G),Warranted growth rate (Gw), Natural growth rate (Gn).
- Neoclassical economist Robert Solow introduced a growth model based on Keynesian Harrod-Domar model which is the basis for the modern theory of economic growth.
- He has improved upon Harrod-Domar model by considering the possibilities of factor substitution and diminishing return.
- Thus Solow developed a long run growth model without the assumption of fixed proportion of factors of proportion.
- Kaldor's model of economic growth was first published in a research paper during the mid 1950.
- Kaldor's model of distribution is mainly concerned with the application of Keynesian theory to the problem of distribution.
- According to Kaldor, The purpose of a theory of economic growth is to show the nature of the non-economic variables which ultimately determine the rate at which the general level of production of an economy is growing, and thereby contribute to an understanding of the question of why some societies grow faster than others.



12.7 FURTHER READING

1) Goel, R.L. (1986-87). *Economics of Growth and Planning*. Meerut: Meenakshi Prakashan.

2) Somashekar, N.T. (2003). *Development and Environmental Economics*. New Delhi: New Age International Publisher.

12.8 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q. No. 1: According to Harrod there are three types of growth rates-

- Actual growth rate (G)
- Warranted growth rate (Gw)
- Natural growth rate (Gn)

Ans to Q. No. 2: The main assumptions of Harrod are -

- During a particular period of time, net saving of the community is a constant proportion of income.
- Desired level of investment depends on the rate of increase in output in the previous years.

Ans to Q. No. 3: The fundamental equation is

$$R = SF(r,I) - nr$$

Where, r = rate of change of capital labour ratio

SF (r,I) = increment of capital

nr = increment of labour

n = relative rate of change of the labour force.

F(r,I) = Output per worker as a function of capital per worker.

Ans to Q. No. 4: The two main assumptions of Solow's growth model are:

- It assumes a linear homogeneous production function of first degree such as Y=F(K,L) where, Y= output; K= capital; L=labour
- It assumes that saving is the constant fractions of the level of output. Solow adopts that investment is in direct and rigid proportion to income i.e., I=dk/dt=sY where s= propensity to save; k= capital stock

Ans to Q. No. 5: Two limitations of Kaldor's growth model are:

- Due to the presence of perfect competition or collusive arguments among traders, another restriction arises out of the fact that

besides minimum profit rate on capital there may be a certain minimum profit.

- One additional restriction is that capital output ratio (v), should not itself be influenced by the profit rate. Otherwise the investment/output ratio will itself become dependent on the rate of profit.

Ans to Q. No. 6: Two assumptions of Kaldor's growth model are:

- There are two factors of production - capital and labour (K and L) and thus only two types of income - profits and wages (P and W). All profits are saved and all wages are consumed.
- There are constant returns to scale and production function remains unchanged over time. Capital and labour are complementary.



12.9 MODEL QUESTIONS

A) Short Questions (Answer each question in about 150 words)

Q 1: Differentiate between Economic growth and Economic Development.

Q.2 Distinguish between actual growth rate (G) and warranted growth rate (Gw).

Q.3 State the fundamental equation as introduced by Solow to find out the steady growth rate.

Long Questions (Answer each question in about 300-500 words)

Q 1: Critically explain the Harrod-Domar theory of economic Growth.

Q 2: Critically explain Solow's theory of economic Growth.

Q 3: Critically explain Kaldor theory of economic Growth.

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UNIT 13: SELECT EMERGING MACROECONOMIC ISSUES

UNIT STRUCTURE

13.1 Learning Objectives

13.2 Introduction

13.3 Globalisation and the Changing Environment of the World Economy

13.4 Global Financial Crisis of 2009

13.4.1 Global Financial Crisis of 2009: Lessons Learnt

13.5 Demonetisation and Digitalisation of the National Economy

13.5.1 Demonetisation and Digitalisation of the National Economy: Relevant Issues

13.6 Let Us Sum Up

13.7 Further Reading

13.8 Answers to Check Your Progress

13.9 Model Questions

13.1 LEARNING OBJECTIVES

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

- understand the globalization and the changing environment of the world economy
- know the global financial crisis of 2008 and the lessons learnt from it
- discuss the demonetisation and digitalisation of the national economy and the relevant issues.

13.2 INTRODUCTION

Globalisation is the process of economic integration of domestic economy with the world economy. It pertains to the opening of the economies to the market forces of the outside world. Globalisation pertains to increased interdependency among the economies of the world. It is also regarded as

the driving force for economic development. It enables the economies to expand across globe and build mutually beneficial relationships. Globalisation facilitates exchange of resources, ideas and interaction of people across geographical and political boundaries of the nations.

The phenomena of 'globalisation' became popular in the 1990s and by now is a historical fact. The advancement of science and technology resulted in reduction in cost of transportation and communication which in turn gave a further boost to the process of globalisation. Wittmann defines globalisation as a "common term for the social, political, economic and cultural coalescence of the world. It stands as a collective term for numerous and complex processes in society, economy, politics and culture". According to Srinivasan, globalization is a "benevolent force that creates opportunities for rapid growth and faster poverty alleviation, namely in the economies that are ready for it, that is, in those economies in which domestic economic, political and social environment is conducive to underpinning the globalization processes".

13.3 GLOBALISATION AND THE CHANGING ENVIRONMENT OF THE WORLD ECONOMY

Globalisation refers to the process of increasing interaction and integration of people across nations. When this happens in the arena of economic activities, it is called economic globalisation. In the last three decades or so we have been witnessing unprecedented interdependence and trade and economic relations among the countries of the world. As on date, the world economy appears to be the only closed economy we can think of. This has brought about certain important changes to all the economies of the world. We are briefly outlining some of the important ones in this section.

- **Economic Reforms**: Economic reforms are vital for globalisation. Public policies have been crucial on the character and pace of globalisation process. Globalisation needs reforms in the domestic economy and internal markets. The closed economies in the transition process to become global economy are often urged to shift from

inward-looking economic policies to open-type market policies. Privatisation is one of the key elements of globalisation process. Many of the functions which used to be in the hands of governments are being disaggregated and privatised. The economies are adopting *laissez-faire* approach in the process of globalisation allowing the foreign companies to venture into domestic market. The reforms have been easier in mixed economies like India compared to former centrally planned economies like Russia.

- **Greater Competition:** Globalisation creates greater competitive environment for sharing of resources across borders. It contributes in reducing the cost of investment and boosts domestic production and enhances economic growth.
- **Greater Efficiency of Resource Use:** Increased competition in global product and service markets induces the corporate to reduce costs by bringing greater efficiency in the production process. They can even take advantage of economies of scale as they have to satisfy the demands of consumers internationally. The big companies can even afford to make higher investment in research and development leading to best use of economic resources at lowest possible cost. Globalisation is a process which also enables putting an end to drain on natural resources as the same level of economic output can be produced using fewer resources in an open economy compared to a closed economy. Thus, freer trade in a global world will reduce resource use per unit of output. Increased economic integration has also facilitated decline in costs of transportation and communication, which ultimately results in lower costs of goods, services, and factors of production. Because of increased demand and supply conditions in a globalised world and better specialisation, the use of resources is more productive.
- **Increased trade and international investment flows:** Globalisation is characterised by increased world trade as a percentage of world GDP and rise foreign capital flows. Increased trade and international investment flows promotes economic growth and financial development. It aims at removal of barriers to trade and investment and

unprecedented international mobility of capital.Globalisation facilitates better international capital mobility. It ensures global resource allocation and channels world savings to its most productive uses. The changing environment of world economy in the process of globalisation has resulted in liberalisation in terms of trade and investment. Further, to facilitate smooth process of globalisation, the economic policy reforms have been focusing on 'deregulation' which has enhanced the flows of capital, goods and services. Globalization is a process which involves international integration of markets, increased international trade, enhanced foreign direct investment, development and growth of activities of transnational companies, more international financial flows and higher and better information-communication technology (ICT).

- **Growth of multinational corporations:** Globalisation facilitates the companies to raise more funds from foreign investors. It enables them to increase their scale of operations. They get access to more markets and customers.
- **Global employment opportunities:** It allows the masses to benefit from global employment opportunities which come up with increased presence of multinational corporations (MNCs) across borders. It also provides them an opportunity to familiarise themselves with latest technology from other countries through MNCs.



CHECK YOUR PROGRESS

Q.1: What is meant by globalization? (Answer in about 30 words)

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Q.2: Can advancement of science and technology be regarded as a contributor towards the process of globalisation? (Answer in about 30 words)

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Q.3: How does globalization facilitate growth of multinational corporations? (Answer in about 30 words)

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13.4 GLOBAL FINANCIAL CRISIS OF 2009

During the global financial crisis of 2009, the financial systems of the world were in meltdown. This crisis affected each and every economy directly or indirectly and resulted in considerable slowdown in most of the developed countries. The root cause of the global financial crisis was the sub-prime mortgage crisis in US. Under sub-prime mortgage the non-credit-worthy borrowers and defaulters in past could also secure loan and eventually they went bad as the consumer demand plummeted. The loans were of a temporary nature intended to be granted to borrowers who were expected to sell their property early or enhance their income just after the purchase. However, as the home bubble burst and the property prices witnessed a sharp decline and loan defaults increased, the huge number and amount of defaults resulted in significant depreciation in the securities mortgaged.

The global crisis came into limelight for the first time with the collapse of Lehman Brothers on September 15, 2008 which was followed by failure of many other institutions like Lehman Brothers, Merrill Lynch, Goldman Sachs etc. which ultimately resulted in the global financial crisis.

Causes of global financial crisis-

- **Deregulation:** Light regulation of commercial banks, even weaker regulation of investment banks and almost no regulation of the 'shadow banking system' - hedge and private equity funds and bank-created Special Investment Vehicles (SIVs) was one of the important reason of failure of most of the institutions.
- **Creation of excessive risk:** The US economy witnessed a paradigm and policy shift from tight to light financial market regulation in the early 1980s.This shift was pushed by financial institutions and justified

by efficient financial market theory. Profit linked perks in this deregulated economy often induced the key managerial personnel of various financial institutions to take excessive risk when financial markets were buoyant. One of the prime reasons for the sub-prime crisis was the over enthusiasm and lack of self discipline of the parties involved. The parties involved in these growing mortgage securitisation were — banks and mortgage brokers who sold the loans, investment bankers who packaged the loans into securities, banks and specialist institutions who serviced the securities and rating agencies who gave them their seal of approval. The creation of excessive risk to gain higher returns led to the failure of the financial institutions and the global financial crisis. This high risk emerged due to the strategy of banks and other financial institutions to augment housing loans to non- credit-worthy customers with relatively low income levels and with high risk of default.

- **Financial innovation and complex financial products:** Innovative financial products were designed to achieve growth in the saturated US market. To increase the market share and enhance customer base the banking industry created complex and non-transparent financial products and securities. The worth of these securities could not be determined correctly and their prices crashed. They could not be sold on markets and were illiquid when the housing boom ended and defaults increased.
- **Hiding of risky assets off balance sheet:** Since there were no norms to maintain provisions against off balance sheet asset, banks were induced to hold these risky and toxic financial securities off balance sheet with no capital required to support them. Thus, loopholes in the Basel capital adequacy rules and the collapse in the prices of these complex financial products were the major causes of massive bank losses that resulted in the global financial crisis.

13.4.1 Global Financial Crisis of 2009 : Lessons Learnt

- **Crisis management strategy:** During the boom period none of the parties involved in the sub-prime lending including bankers,

borrowers, regulators or general public was prepared to witness the depression. For survival and growth, an organisation should be ready to adapt to changes. Changes may occur due to internal or external reasons. Hence, any organisation must have a crisis management strategy in place to prevent, manage and recover from crises.

- **Early warning signals:** The organisation should have early warning/ scanning strategies in place. It should be able to diagnose internal and external threats affecting the organisation. They should have emergency response system to tackle the crisis in the early stage. The organisation scanners should be able to identify and reflect the deviations in the planned corporate strategy and actual situation. For instance failure at Lehman Brothers to act upon the incidents of defaults in many of the third tier sub-prime mortgages in the beginning led to its collapse subsequently.
- **Diversification of risk:** The crisis hovers around the individual mortgages created by advancing housing loan to borrowers with no or low credit worthiness. These mortgaged securities were bundled and then sold again. As the home bubble burst, all the underlying securities under sub-prime derivatives witnessed a sharp decline in their values. Thus, lack of a well-diversified portfolio resulted in the crisis which reinforces the age old saying that "Do not put all your eggs in one basket." There is a need to devise a methodology to examine the risk associated with different types of asset-backed securities and the underlying mortgages.
- **Risk and return analysis:** Another factor leading to crisis was poor analysis of return and associated risk in the sub-prime lending. As loans were given to less than perfect borrowers, the higher risk on these sub-prime lending outbalanced the returns. Hence, proper risk and return analysis by the lenders is of prime importance.
- **Principles of sound lending:** In the traditional banking system, the creditworthiness of borrowers is personally scrutinised by

the lenders. It was not the case in sub-prime lending whereby most bankers were more interested in collateral than character. Profit linked perks induced most of the bankers to compromise with principles of sound lending. A sense of corporate responsibility and accountability must be infused at all level in the organisation. The management and staff must be encouraged to take ownership of their actions. The top management must be sensitive to the situation and must take active part in the affairs of the company to avoid crisis like situation.



CHECK YOUR PROGRESS

Q.4: Mention any three causes of global financial crisis. (Answer in about 20 words).

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Q.5: When did the global crisis come into limelight for the first time? (Answer in about 20 words).

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Q.6: Name two emerging economies which were severely affected by the global financial crisis of 2008. (Answer in about 20 words).

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Q.7: Why an organisation should have a crisis management strategy? (Answer in about 50 words).

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ACTIVITY 13.1

Visit the website https://data.wto.org/ and analyse.

- The effect of globalisation in India on International trade context post liberalisation i.e. 1991.
- The effect of global financial crisis on the economies of US, Japan, Korea, India and China based on the data of International Trade from the year 2007-2012.

13.5 DEMONETISATION AND DIGITALISATION OF THE NATIONAL ECONOMY

Meaning of demonetisation: It is a mechanism to declare currencies of certain denominations non legal tender. It is followed by withdrawal of these currencies from circulation.

History of demonetization: The recent demonetisation was announced in November 2016. However, this was not for the first time that currencies were demonetised in India. For the first time, the currency notes of Rs.1,000 and Rs.10,000 were demonetised in 1946. As the notes were of high denomination, it did not have much impact on the lives of common people. However, it affected severely the functioning of stock market and State Bank of India. In the second instance of demonetisation in 1978, Rs.1000, Rs.5000 and Rs. 10,000 notes were demonetized.The impact on the general public was limited as the demonetised currencies formed a small portion of total money supply. In the third instance of demonetisation on November 8, 2016, 86 percent of the currency was demonetised by demonetising Rs.500 and Rs. 1000 notes. The amount of currency in circulation was Rs.16,415 billion. The notes of Rs.1,000 denomination accounted for 38.6 per cent (Rs. 6,326 billion) and Rs.500 accounted for 47.8 per cent (Rs. 7,854 billion) and it had a huge impact on the lives of the common people.

Meaning of digitalisation: Digitalisation refers to increased use of plastic cards, e-wallets, mobile payments, Net banking, Aadhaar based payment system etc.

Objectives of demonetisation and digitalisation: Demonetisation and digitalisation is believed to bring crucial changes in national economy. It is expected to eliminate corruption, black money, fake currency, money laundering activities, militancy and terrorism funding. One of the most important objectives of demonetisation in 2016 was to promote digitalisation of the national economy.

13.5.1 Demonetisation and Digitalisation of the National Economy: Relevant Issues

After the recent demonetisation, the economy had to undergo huge cash crunch. The Government issued 2,000 rupees currency notes, but it was not enough as the banks were not prepared to handle the sudden cash crunch in the nation. Again, government notified a limit on cash withdrawal by citizens. Further, government announced incentives and reduced taxes to enhance cashless transactions. In these circumstances, the most viable option to counter the problem of scarcity of cash was to go cashless by using digital payment methods.The problem of cash scarcity pushed the masses to use this alternative mode of doing transactions and it acted as boost towards the government's move of greater digitalisation of the national economy. Demonetisation and digitalisation are important steps towards becoming a cashless economy. Digitalisation helps in cost cutting for banks and reduction in transaction time by customers. It is a secure mode for transactions. However, there are some issues associated with digitalised economy which is discussed in brief below:

- **Problem of innovation acceptance:** The digital payments methods are new and technology based. Use of digital payment methods needs some minimal knowledge and familiarity with the technology. The non-technical citizens face problems while doing cashless transactions. Thus, innovation acceptance by users becomes challenging.
- **Risk of data theft:** At the time of need, as was the case during the demonetisation period, often people (those who are

technologically illiterate) take the help of others which increased the risk of theft of crucial data.

- **Educating the masses**: Before and after the demonetisation period, the government had invested huge amount of resources for facilitating access to and usage of digital payment systems. The challenge pertains to educating the masses about the benefits of a cashless economy. Digitalisation and demonetisation will be successful only when the citizens of the country adopt and accept the digital methods of doing transactions.
- **Not a cashless economy:** Before the demonetisation in 2016, government launched Pradhan Mantri Jan Dhan Yojana in 2014.The aim was to provide access to banking system and enhancing use of digital methods of payment and go cashless. However, India has a history of not being a cashless economy. During the demonetisation period the unorganised and informal sector was hit the hardest. The unbanked section of the society particularly in rural areas faced difficulties until the arrival of new notes. At the time of 2016 demonetization, total currency in circulation in India was about 12% of the GDP which was much above the world average of 4%. Although post demonetization this has come down little bit, more sustained efforts would be necessary to make India less dependent on cash.



CHECK YOUR PROGRESS

Q.8: What is meant by digitalisation? (Answer in about 20 words).

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Q.9: When was the currency notes demonetised for the first time in India? (Answer in about 20 words).

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Q.10: What is meant by demonetisation? (Answer in about 20 words).

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Q.11: What are the objectives of demonetisation and digitalisation? (Answer in about 50 words).

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Q.12: What kind of changes can be expected due to demonetisation and digitalisation of the national economy? (Answer in about 60 words).

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13.6 LET US SUM UP

- Globalisation is the process of economic integration of domestic economy with the world economy. It pertains to the opening of the economies to the market forces of the outside world.
- The world economy witnesses certain changes before and after the process of globalisation begins. Economic reforms are vital for globalisation. Globalisation creates greater competitive environment for sharing of resources across borders. It also facilitates increased efficiency in resource use due to increased competition. Again, globalisation is characterised by increased trade and international

investment flows. It is the driving factor for growth of multinational corporations. It also creates global employment opportunities.

- During the global financial crisis of 2009, the financial systems of the world were in meltdown.
- The root cause of the global financial crisis was the sub-prime mortgage crisis in US. Under sub-prime mortgage the non-credit worthy borrowers and defaulters in past could also secure loan and eventually they went bad as the consumer demand plummeted.
- Other causes of global financial crisis include deregulation, creation of excessive risk, financial innovation and complex financial products, and hiding of risky assets off balance sheet.
- Global financial crisis of 2009 taught significant lessons to the various stakeholders of financial markets. It indicated the need for having strategies, devices and methods in place for 'crisis management' and getting 'early warning signals' about occurrence of any crisis. It reinforced the age old principle of 'diversification of risk' and highlighted the importance of 'risk and return analysis' and following the 'principles of sound lending'.
- Demonetisation is a mechanism to declare currencies of certain denominations illegal tender. It is followed by withdrawal of these currencies from circulation.
- Demonetisation has taken place three times in Indian economy. The demonetisation of 1946 and 1978 did not have much impact on the lives of common people as the notes were of high denomination and the demonetised currencies formed a small portion of total money supply. However, the demonetization of 2016 had a huge impact on the lives of the common people.
- Digitalisation refers to increased use of plastic cards, e-wallets, mobile payments, Net banking, Aadhaar based payment system etc.
- Demonetisation and digitalisation is believed to bring crucial changes in national economy.

- Some of the relevant issues relating to demonetisation and digitalisation of the national economy are-problem of innovation acceptance, risk of data theft, educating the masses about digital methods and history of not being a cashless economy.



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13.8 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q. No. 1: Globalisation is the process of economic integration of domestic economy with the world economy. It pertains to the opening of the economies to the market forces of the outside world.

Ans to Q. No. 2: Yes. The advancement of science and technology resulted in reduction in cost of transportation and communication which in turn gave a further boost to the process of globalisation.

Ans to Q. No. 3: Globalisation facilitates the companies to raise more funds from foreign investors. It enables them to increase their scale of operations. They get access to more markets and customers.

Ans to Q. No. 4: Creation of excessive risk, financial innovation and complex financial products; and hiding of risky assets off balance sheet.

Ans to Q. No. 5: The global crisis came into limelight for the first time with collapse of Lehman Brothers on September 15, 2008.

Ans to Q. No. 6: The emerging economies like Japan and Korea which had high international business ties were severely affected.

Ans to Q. No. 7: For survival and growth, an organisation should be ready to adapt to changes. Changes may occur due to internal or external reasons. Crises occur due to inability of an organisation to adapt to changes. Hence, any organisation must have a crisis management strategy in place to prevent, manage and recover from crises.

Ans to Q. No. 8: Digitalisation refers to increased use of plastic cards, e-wallets, mobile payments, Net banking, Aadhaar based payment system etc.

Ans to Q. No. 9: For the first time, the currency notes of Rs.1,000 and Rs.10,000 were demonetised in 1946.

Ans to Q. No. 10: Demonetisation is a mechanism to declare currencies of certain denominations illegal tender. It is followed by withdrawal of these currencies from circulation.

Ans to Q. No. 11: Objectives of demonetization and digitalisation are: Demonetisation and digitalisation is believed to bring crucial changes in national economy. It is expected to eliminate corruption, black money, fake currency, money laundering activities, militancy and terrorism funding. One of the most important objectives of demonetisation in 2016 was to promote digitalisation of the national economy.

Ans to Q. No. 12: Demonetisation and digitalisation is believed to bring crucial changes in national economy. It is expected to eliminate corruption, black money, fake currency, money laundering activities, militancy and terrorism funding. Demonetisation and digitalisation are important steps towards becoming a cashless

economy. Digitalisation helps in cost cutting for banks and reduction in transaction time by customers. It is a secure mode for transactions.



13.9 MODEL QUESTIONS

A) Short Questions (Answer each question in about 150 words)

Q 1: Why are economic reforms vital for globalisation?

Q 2: How does globalization facilitate greater efficiency of resource use?

Q 3: Explain in brief-'Globalisation facilitates better international capital mobility'.

Q 4: Why can creation of excessive risk be regarded as one of the prime causes of global financial crisis of 2009?

Q 5: Why is the sub-prime mortgage crisis in US regarded as the root cause of the global financial crisis?

Q 6: Why did the first and second instances of demonetisation of currencies not have much impact on the lives of common people whereby the recent instance had a huge impact?

Q 7: Write about the history of demonetisation in India.

Long Questions (Answer each question in about 300-500 words)

Q 1: Discuss the process of globalisation and the changing environment of the world economy.

Q 2: Explain the main causes of global financial crisis of 2009.

Q 3: Discuss the lessons learnt from the global financial crisis of 2009.

Q 4: Discuss the relevant issues associated with demonetisation and digitalisation of the national economy.

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UNIT 14: SELECT DEBATES OVER MACRO ECONMIC POLICY

UNIT STRUCTURE

14.1 Learning Objectives

14.2 Introduction

14.3 Stabilizing the Economy with the Help of Monetary and Fiscal Policies

14.4 Formation of Monetary Policies: By Rule or by Discretion

14.5 Role of Central Bank in Managing Zero Inflation

14.6 Government Need to Balance its Budget

14.7 Reformation of Tax Laws to Encourage Savings

14.8 Let Us Sum Up

14.9 Further Reading

14.10 Answers to Check Your Progress

14.11 Model Questions

14.1 LEARNING OBJECTIVES

After going through this unit you will be able to -

- learn the pros and cons of stabilizing the economy with the help of monetary and fiscal policies
- understand the formation of monetary policies
- explain how the central bank try to manage zero inflation
- learn the pros and cons of the need to balance budget by government
- explain whether tax laws should be reformed to encourage savings.

14.2 INTRODUCTION

Macro economics has occupied an important place in modern economics and it possesses both theoretical and practical aspects. It is useful for making policies which help to improve the welfare of the country.

There are various topics in macro economics which are still debatable and need to be addressed from different perspectives. The role of monetary and fiscal policy in stabilizing economy, use of rule or discretion in formation of monetary policy, maintaining zero inflation by central government, factors in favor and against the need to balance budget by government, encouraging savings through tax policy are few such topics that are being debated in different economic forums. In this unit we would attempt to put some light on the debate.

14.3 STABILIZING THE ECONOMY WITH THE HELP OF MONETARY AND FISCAL POLICIES

Meaning of Monetary and Fiscal policy:

Two important tools of macro-economic policy are monetary and fiscal policy. Monetary policy is concerned with the management of supply of money in a growing economy. It aims at price stability, full employment and economic growth. RBI formulates and implements the monetary policy in our country. Monetary policy increases liquidity to create economic growth and reduces liquidity to prevent inflation. Fiscal policy on the other hand is mainly concerned with the determination of state income and expenditure policy. With time, the importance of fiscal policy is increasing. An effective fiscal policy is composed of policy decisions relating to entire financial structure of the government including tax revenue, public expenditure, loans, transfer, debt management, budgetary deficit and so on.

The monetary policy is different from fiscal policy as the former brings about a change in the economy by changing money supply and interest rates. For instance, RBI buys government bonds to drive up bond yields and inject money into the market to increase money supply during deflation and during inflation RBI sells bonds to suck money out of the system. Fiscal policy, on the other hand, is a deliberate change in the government revenue and expenditure to influence the level of national output and price. For instance, at the time of recession the government can cut taxes in order to generate demand and raise taxes during inflationary times.

The question at hand is should policy makers try to stabilize economy through these macro-economic tools?

Economy in general keeps on fluctuating. In the downward phase when household and firms becomes pessimist, they cut back on spending and this reduces the aggregate demand for goods and services. This in turn reduces production. As production gets reduced firms lay off workers and unemployment rises. Such recession has no benefit for the society as it denotes a mere waste of resources. Thus policy makers can stabilize aggregate demand and, thereby production and employment. When aggregate demand is inadequate to ensure full employment, policymakers should boost government spending, cut taxes, and expand the money supply. When aggregate demand is excessive, risking higher inflation, policymakers should cut government spending, raise taxes, and reduce the money supply. Such policy actions put macroeconomic theory to its best use by leading to a more stable economy, which benefits everyone.

But the use of monetary and fiscal policy to stabilize economy is not as simple in reality as it seems to be in theory. There are various obstacles to the use of such policies in practice. One problem is that monetary and fiscal policy does not affect the economy immediately but instead work with a lag. Monetary policy affects aggregate demand by changing interest rates, which in turn affect spending, especially residential and business investment. But many households and firms set their spending plans in advance. As a result, it takes time for changes in interest rates to alter the aggregate demand for goods and services. Many studies indicate that changes in monetary policy have little effect on aggregate demand until about six months after the change is made. Fiscal policy works with a lag because of the long political process that governs changes in spending and taxes. Because of these long lags, policymakers who want to stabilize the economy need to look ahead to economic conditions that are likely to prevail when their actions will take effect. Unfortunately, economic forecasting is highly imprecise, in part because macroeconomics is such a primitive science and in part because the shocks that cause economic fluctuations are intrinsically unpredictable. Thus, when policymakers change monetary or fiscal policy, they must rely on educated guesses about future economic conditions.

In addition, the effect of fiscal stimulus is muted when the money put into the economy through tax savings or government spending is spent abroad through imports instead of keeping it in the local economy. These macro-economic tools are used in concert to help keep economic growth stable with low inflation, low unemployment, and stable prices. But it is not as simple as it seems to be because both sets of policy carry with them their own pros and cons. Used effectively however, the net benefit is positive to society, especially in stimulating demand following a crisis.



CHECK YOUR PROGRESS

Q.1: What is meant by monetary and fiscal policy? (Answer in about 30 words)

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Q.2: State the difference between monetary and fiscal policy. (Answer in about 70 words)

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Q.3: State any one reason in favor of the fact that policy makers should try to stabilize economy through monetary and fiscal policy? (Answer in about 70 words)

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14.4 FORMATION OF MONETARY POLICIES: BY RULE OR BY DISCRETION

Monetary policy influence economic growth by creating a favorable climate for saving as well as investment. Savings are encouraged by anti-inflationary measures and investments are stimulated while banks advances medium and long term finance for developmental activities on easy terms like at a low rate of interest. Success of monetary policy depends upon the overall effectiveness of monetary authority. Thus they are given discretionary power in their conduct of monetary policy.But the question arises here is whether such kind of power to the monetary authority is valid or whether such policies should be framed by rule.

Reasons in support of formation of monetary policy by rule:

Discretion in the formation of monetary policy has two major drawbacks. Firstly, since monetary authority has all kinds of power to regulate the economic scenario, it becomes crucial to set guidelines so that there is no abuse of power. For instance, police has all the power to maintain civic order but even then when they are sent to a community to maintain order they are given guidelines by government as allowing them to use their power in whatever way they want may be dangerous. Thus undisciplined discretion allowed to monetary policy makers may be dangerous. An example of abuse of power is the political business cycle. The term *political business cycle* is used mainly to describe the stimulation of the economy just prior to an election in order to improve prospects of the incumbent government getting reelected.

Secondly, discretionary monetary policy might lead to more inflation than desired. Central bankers, knowing that there is no long-run trade-off between inflation and unemployment, often announce that their goal is zero inflation. But even then they are not able to achieve price stability. Perhaps it is because, once the public forms expectations of inflation, policymakers face a short run trade-off between inflation and unemployment. They are tempted to renege on their announcement of price stability in order to achieve lower unemployment. This discrepancy between

announcements (what policymakers say they are going to do) and actions (what they subsequently do in reality) is called the time inconsistency of policy. Because policymakers are so often time inconsistent, people are skeptical about when central bankers announce their intentions to reduce the rate of inflation. As a result, people always expect more inflation than monetary policy makers claim they are trying to achieve. Higher expectations of inflation, in turn, shift the short-run Phillips curve upward, making the short-run trade-off between inflation and unemployment less favorable than it otherwise might be.

Thus in order to avoid such problems central bank should commit to policy rule which will eliminate abuse of power and incompetence.

Reasons in support of formation of monetary policy by discretion:

Although there are many drawbacks in discretion of monetary policy, such power helps policy makers to confront situations which can't be foreseen. The discretion power to policy makers helps them to respond to shocks in the economy like sudden decrease in the stock market or sudden increase in oil prices etc. The problems in discretion of power are more of hypothetical in nature. Thus the decision to replace discretion by rule involves the critical task of deciding on a precise rule. Despite much research examining the costs and benefits of alternative rules, economists have not reached a consensus about what a good rule would be. Until there is a consensus, society has little choice but to give central bankers discretion to conduct monetary policy as they see fit.



CHECK YOUR PROGRESS

Q.4: Why are policy makers given discretion in formation of monetary policy? (Answer in about 60 words)

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Q.4: Explain the term political business cycle. (Answer in about 30 words)

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Q.4: State one reason in support of formation of monetary policy by discretion. (Answer in about 20 words)

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14.5 ROLE OF CENTRAL BANK IN MANAGING ZERO INFLATION

In the words of *Pigou*, "inflation takes place when money income is expanding relatively to the output of work done by productive agents for which it makes payment". Inflation affects both production and distribution of income in a country. Inflationary rise in price do not affect adversely in the production at national level. All men and materials remain employed and stock of real wealth like land, building etc is not diminished and total real income or output available for distribution between different sections of people remain same. Thus inflation has no adverse effect on national income or level of employment. But when inflation go beyond a certain specified limit it causes reduction in production and increase in unemployment. This may be due to various factors like – agriculturalist may decline to sell surplus stock in the hope of higher prices, production may be interrupted by labour strikes, firms may find it to hoard rather than produce etc. After certain time because of surplus stock thus accumulated profit reduces, production reduces and unemployment comes into existence. The query regarding how much inflation the central bank should be willing to tolerate is always debatable. And whether zero should be the targeted inflation rate is also a critical one.

Reasons in support of central bank aiming zero inflation:

Although in underdeveloped countries inflation helps to some extent in overall growth, but at the same time, it is also true that inflation hinders economic growth. The cost of inflation is summed up in the following points:

- A major impact of inflation is on people who have fixed income with no scope to increase their pay like pensioners.
- Inflation aggravates income inequality; often the rich become richer while the poor become poorer. The social costs of disinflation is vast as the fall in income is not proportionate. The lost income is not spread equitably over the population, hence much of the cost of reducing inflation is borne by those who can least afford to pay.
- Inflation badly affects balance of payment position both in current as well as capital account.
- Uncertain inflation leads to hindrances in rational planning of consumption as well as investment expenditure both in private and public sector.
- If inflation continues it might take the shape of hyper inflation which will result in chaos in economic as well as social life.

Because of these reasons some economists feel that a central bank should adopt as primary policy reducing inflation at least next to zero, other economists suggest that Parliament should enact a law to make it mandatory for government to keep prices low. Inflation is disliked by the public in general. Rise in inflation is treated as one of the nation's leading problem.

But combating inflation is a costly affair. The government in order to reduce inflation raises interest rates on credit and reduces the flow of money in the economy. But because of such measures firms stop borrowing working capital from the commercial banks, and they stop expanding production. This trend leads to recession which in turn results in inflation.

Economists who say that a central bank should aim at reducing inflation to zero or near zero point out that the costs of disinflation are temporary, while the benefits are more permanent. They exhort to accept short-term unemployment for the perceived long-term benefit.

Supporters of zero inflation cite examples from United States economic history. In the early 1980s Paul Velcker, the chairman of the Federal Reserve system of the United States tightened monetary policy and reduced inflation from about 10 percent in 1980 to about 4 percent in 1983. Though in 1982 unemployment reached its highest level since the Great Depression of the 1930s, the economy eventually recovered from the recession. The recession had cost President Jimmy Carter a second term as the Ronald Reagan administration over a healthy economy, a result of Paul Velcker's monetary policy.

Reasons in support of central bank not aiming zero inflation:

The reasons for which Central Bank should not aim for zero inflation are as follows:

- Low inflation indicates low growth in the economy. A normal period of economic growth would typically indicate a moderate rate of inflation at around 2%. Zero inflation indicates that there is an intense pressure to encourage savings and recovery is very fragile.
- Economy aiming at zero inflation generally faces issues like delay in purchase habits by consumer. Falling prices encourage people to wait for the price to fall further in case of luxury goods.
- Another potential problem of zero inflation is that it becomes harder for firms to adjust wages and prices. When inflation is 2% it is easier for relative prices and wages to adjust because firms can freeze prices and wages, and effectively it is a cut in real terms of 2%. However if inflation is zero then a firm would have to cut nominal wages by 2%, which is harder for people to accept psychologically.

Thus central bank can aim at zero inflation only if it can be done with no cost. But in reality it's hard to carry out such practice. When inflation is reduced, economy faces a period of high unemployment and low output. It is risky to believe that the central bank could achieve credibility so quickly as to make disinflation painless.

Therefore the aim should be to maintain a low level of inflation rather than zero inflation.



CHECK YOUR PROGRESS

Q.7: Define the term inflation. (Answer in about 30 words)

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Q.8: Describe any two factors in support of zero inflation. (Answer in about 50 words)

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Q.9: Explain one demerit of reaching zero inflation. (Answer in about 30 words)

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Q.10: What kind of changes can be expected due to demonetisation and digitalisation of the national economy? (Answer in about 60 words).

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14.6 GOVERNMENT NEED TO BALANCE ITS BUDGET

The term budget has been derived from the French word *'Bougette'* which means a small leather bag or a wallet i.e money bag or purse. Budget

constitutes of two main components:

- Budget Receipts
- Budget Expenditure

Budget receipts refer to estimated money receipts of a government from all sources during a fiscal year. It comprises of Revenue Receipt and Capital Receipt.

Budget Expenditure refers to anticipated expenditure which is spent for normal functioning during a fiscal year. It is divided into two heads- Revenue expenditure and Capital expenditure.

Whenever the government spends more than it collects in tax revenue, it covers this budget deficit by issuing government debt. The question at hand is should policy maker focus on balancing government budget?

Reasons in support of government to balance budget:

The deficit in the budget is balanced by issuing government debt. The most direct impact of government debt is the burden placed on future generation of tax payers. The accumulated debt and interest leaves a difficult task for tax payers. Either they have to pay higher taxes, enjoy less government spending, or both, in order to make resources available to pay-off the debt and accumulated interest or they can delay the day of reckoning and put the government into even deeper debt by borrowing once again to pay-off the old debt and interest. Thus in short, deficit budget basically lowers the standard of living of the future generation.

Apart from this there are various other macro-economic effects of budget deficit. Budget deficits represent negative public saving. They lower national saving (the sum of private and public saving). Reduced national saving causes real interest rates to rise and investment to fall. Reduced investment leads over time to a smaller stock of capital. A lower capital stock reduces labor productivity, real wages, and the economy's production of goods and services. Thus, when the government increases its debt, future generations are born into an economy with lower incomes as well as higher taxes.

There are situations in which budget deficit is justified like in case of war which causes increased government debt. If not debt, then such high expenditure during war would have to be financed by tax payers. This is not a favorable scenario as high tax rates would be unfair to the current generations of taxpayers who already have to make the sacrifice by fighting the war.

Similarly, it is reasonable to allow a budget deficit during a temporary down-turn in economic activity. When the economy goes into a recession, tax revenue falls automatically, because the income tax and the payroll tax are levied on measures of income. If the government tried to balance its budget during a recession, it would have to raise taxes or cut spending at a time of high unemployment. Such a policy would tend to depress aggregate demand precisely at the time it needed to be stimulated and, therefore, would tend to increase the magnitude of economic fluctuations.

Reasons not favoring the government need to balance budget:

The problem of government debt is often exaggerated. Although government debt is a burden on future generation yet it is not as large as compared to the average person's lifetime income. It is not correct to see the effects of budget deficit in isolation. The deficit budget is one large picture of how the government spends and raise money. In making these decisions over fiscal policy, policymakers affect different generations of taxpayers in many ways. The government's budget deficit or surplus should be considered together with these other policies.

Suppose the government reduces the budget deficit by cutting spending on public investments, such as education. But such decision will not help the young generation. The government debt will be smaller when they enter the labor force, which means a smaller tax burden. Yet if they are less well educated than they could be, their productivity and income will be lower. Reducing the budget deficit rather than funding more education spending could, all things considered, make future generations worse off.

The issue of budget deficit should not be looked through a single perspective as it would be dangerous. It will take away attention from various

other policies that redistribute income across generations. For example, in the 1960s and 1970s, the U.S. federal government raised Social Security benefits for the elderly. It financed this higher spending by increasing the payroll tax on the working-age population. This policy redistributed income away from younger generations toward older generations, even though it did not affect the government debt. Thus, the budget deficit is only a small part of the larger issue of how government policy affects the welfare of different generations.

To some extent, the adverse effects of government debt can be reversed by forward-looking parents. Suppose a parent is worried about the impact of the government debt on his children. The parent can offset the impact simply by saving and leaving a larger bequest. Critics of budget deficits sometimes assert that the government debt cannot continue to rise forever, but in fact it can. Just as a bank evaluating a loan application would compare a person's debts to his income, we should judge the burden of the government debt relative to the size of the nation's income.



CHECK YOUR PROGRESS

Q.10: What are the two main components of budget? (Answer in about 60 words)

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Q.11: State one reasons favoring the government need to balance budget. (Answer in about 50 words)

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14.7 REFORMATION OF TAX LAWS TO ENCOURAGE SAVINGS

A major dilemma for policy maker is to decide whether to form tax policies to encourage savings or not.

Reasons in support of reforming tax policies to encourage savings:

The national saving is a key determinant of a nation's long run economic prosperity. If saving rate is high, more resources are available for investment in new plant and equipment. With the increased investment in plants and equipment the labour productivity, wages, and income also rise. Thus there is a strong co-relation between national saving and economic well-being. If laws are made more attractive people would like to save more which will lead to a prosperous future. But if tax policies are framed to discourage saving people will not be encouraged to save. Tax system will discourage saving if it tax the return on saving quite heavily. For example, consider a 25-year-old worker who saves $1,000 of her income to have a more comfortable retirement at the age of 70. If she buys a bond that pays an interest rate of 10 percent, the $1,000 will accumulate at the end of 45 years to $72,900 in the absence of taxes on interest. But suppose she faces a marginal tax rate on interest income of 40 percent, which is typical of many workers once federal and state income taxes are added together. In this case, her after-tax interest rate is only 6 percent, and the $1,000 will accumulate at the end of 45 years to only $13,800. That is, accumulated over this long span of time, the tax rate on interest income reduces the benefit of saving $1,000 from $72,900 to $13,800-or by about 80 percent.

At times certain types of capital income are taxed twice. Suppose a person uses some of his saving to buy stock in a corporation. When the corporation earns a profit from its capital investments, it first pays tax on this profit in the form of the corporate income tax. If the corporation pays out the rest of the profit to the stockholder in the form of dividends, the stockholder pays tax on this income a second time in the form of the individual income tax. This double taxation substantially reduces the return

to the stockholder, thereby reducing the incentive to save. Even if parents would like to save a good amount for their children rather than spending it themselves tax policies discourage them to do so. Tax policies like inheritance tax discourage such savings.

Thus policy makers should consider reforming tax policies to encourage more savings for the better economic growth.

Reasons in support of not reforming tax policies to encourage savings:

Although saving is desirable it is not the only purpose for which tax policies are framed. A major task of policy maker is to distribute tax burden fairly. If incentives to save are increased they increase the tax burden on those who can least afford it. High-income households generally save more than lower income households. As a result, any tax change that favors people who save will also tend to favour people with high income. Policies such as tax-advantaged retirement accounts may seem appealing, but they lead to a less egalitarian society. By reducing the tax burden on the wealthy who can take advantage of these accounts, they force the government to raise the tax burden on the poor.

Moreover studies have found that saving is not sensitive to the rate of return on saving. Thus tax provisions that raise the effective return by reducing the taxation of capital income will further enrich the wealthy without inducing them to save more than they otherwise would.

There is no economic theory that gives clear prediction on the fact whether a higher rate of return would increase saving. The outcome depends on the relative size of two conflicting effects, called the substitution effect and the income effect. On one hand, a higher rate of return raises the benefit of saving, each dollar saved today produces more consumption in the future. This substitution effect tends to raise saving. On the other hand, a higher rate of return lowers the need for saving, a household has to save less to achieve any target level of consumption in the future. This income effect tends to reduce saving. Both these theories cancel each other hence it can be said that saving will not change when lower taxation of capital income raises the rate of

return.

Moreover national saving is not just dependent on tax policies. National saving is the sum of private and public saving. Instead of trying to alter the tax code to encourage greater private saving, policymakers can simply raise public saving by reducing the budget deficit, perhaps by raising taxes on the wealthy. This offers a direct way of raising national saving and increasing prosperity for future generations.

CHECK YOUR PROGRESS



Q.12: How do saving impact economic well-being? (Answer in about 50 words)

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Q.13: State one reason in support of not reforming tax policies to encourage savings. (Answer in about 20 words)

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14.8 LET US SUM UP

- Recession has no benefit for the society as it denotes a mere waste of resources. Thus policy makers can stabilize aggregate demand and, thereby production and employment. When aggregate demand is inadequate to ensure full employment, policymakers should boost government spending, cut taxes, and expand the money supply. When aggregate demand is excessive, risking higher inflation, policymakers should cut government spending, raise taxes, and reduce the money supply. Such policy actions put macroeconomic theory to its best use by leading to a more stable economy, which benefits everyone.

- Monetary and fiscal policy do not affect the economy immediately but instead work with a long lag. Monetary policy affects aggregate demand by changing interest rates, which in turn affect spending, especially residential and business investment.
- Discretion in the formation of monetary policy has two major drawbacks. Firstly, since monetary authority has all kinds of power to regulate the economic scenario thus it becomes crucial to set guidelines so that there is no abuse of power. Secondly, discretionary monetary policy might lead to more inflation that desired. Central bankers, knowing that there is no long-run trade-off between inflation and unemployment, often announce that their goal is zero inflation.
- Although there are many drawbacks in discretion of monetary policy but such power helps policy makers to confront to situations which can't be foreseen. The discretion power to policy makers helps them to respond to shocks in the economy like sudden decrease in the stock market or sudden increase in oil prices etc.
- The benefits of zero inflation have to be weighed against the costs of achieving it. Thus central bank can aim at zero inflation only if it can be done with no cost. But in reality it's hard to carry out such practice. When inflation is reduced, economy faces a period of high unemployment and low output. It is risky to believe that the central bank could achieve credibility so quickly as to make disinflation painless. Therefore the aim should be to maintain a low level of inflation rather than zero inflation.
- Price stability may be desirable but the benefits of zero inflation compared to moderate inflation are small, whereas the costs of reaching zero inflation are large. Estimates of the sacrifice ratio suggest that reducing inflation by 1 percent-age point requires giving up about 5 percent of one year's output. Thus central bank can aim at zero inflation only if it can be done with no cost. But in reality it's hard to carry out such practice.
- The reasons in support of government to balance budget is that the deficit in the budget is balanced by issuing government debt. The most direct impact of government debt is the burden placed on future generation of tax payers.

- The reasons not favoring the government need to balance budget is that the problem of government debt is often exaggerated. Although government debt is a burden on future generation yet it is not as large as compared to the average person's lifetime income. It is not correct to see the effects of budget deficit in isolation. The deficit budget is one large picture of how the government spends and raises money. In making these decisions over fiscal policy, policymakers affect different generations of taxpayers in many ways. The government's budget deficit or surplus should be considered together with these other policies.
- The national saving is a key determinant of a nation's long run economic prosperity. Tax system will discourage saving if it tax the return on saving quite heavily.
- Saving is desirable but it is not the only purpose for which tax policies are framed. A major task of policy maker is to distribute tax burden fairly. If incentives to save are increased they increase the tax burden on those who can least afford it.



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14.10 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q. No. 1: Monetary policy is concerned with the management of supply of money in a growing economy. It aims at price stability,

full employment and economic growth. Fiscal policy on the other hand is mainly concerned with the determination of state income and expenditure policy.

Ans to Q. No. 2: The monetary policy is different from fiscal policy as the former bring about a change in the economy by changing money supply and interest rates. For instance, RBI buys government bonds to drive up bond yields and inject money into the market to increase money supply during deflation and during inflation RBI sells bonds to suck money out of the system. Fiscal policy, on the other hand, is a deliberate change in the government revenue and expenditure to influence the level of national output and price. For instance, at the time of recession the government can cut taxes in order to generate demand and raise taxes during inflationary times.

Ans to Q. No. 3: Economy in general keeps on fluctuating. In the economic phase when household and firms becomes pessimist, they cut back on spending and this reduces the aggregate demand for goods and services. This in turn reduces production. As production gets reduced firms lay off workers and unemployment rises. Such recession has no benefit for the society as it denotes a mere waste of resources. Thus policy makers can stabilize aggregate demand through monetary and fiscal policy and thereby increase production and employment.

Ans to Q. No. 4: Monetary policy influence economic growth by creating a favorable climate for saving as well as investment. Savings are encouraged by anti-inflationary measures and investments are stimulated while banks advances medium and long term finance for developmental activities on easy terms like at a low rate of interest. Success of monetary policy depends upon the overall effectiveness of monetary authority. Thus they are given discretionary power in their conduct of monetary policy

Ans to Q. No. 5: The term *political business cycle* is used mainly to describe the stimulation of the economy just prior to an election in order

to improve prospects of the incumbent government getting reelected.

Ans to Q. No. 6: The discretion power to policy makers helps them to respond to shocks in the economy like sudden decrease in the stock market or sudden increase in oil prices etc.

Ans to Q. No. 7: In the words of *Pigou*, "inflation takes place when money income is expanding relatively to the output of work done by productive agents for which it makes payment".

Ans to Q. No. 8: Two factors in support of zero inflation are:

i. Inflation aggravates income inequality; often the rich become richer while the poor become poorer. The social costs of disinflation is vast as the fall in income is not proportionate. The lost income is not spread equitably over the population, hence much of the cost of reducing inflation is borne by those who can least afford to pay.

ii. Uncertain inflation leads to hindrances in rational planning of consumption as well as investment expenditure both in private and public sector.

Ans to Q. No. 9: The costs of reaching zero inflation are large. Estimates of the sacrifice ratio suggest that reducing inflation by 1 percentage point requires giving up about 5 percent of one year's output. Thus if inflation has to be reduced by 4% people will have to face a loss of 20% of a years output.

Ans to Q. No. 10: Budget constitutes of two main components:

a. Budget Receipts
b. Budget Expenditure

Ans to Q. No. 11: The deficit in the budget is balanced by issuing government debt. The most direct impact of government debt is the burden placed on future generation of tax payers. The accumulated debt and interest leaves a difficult task for tax payers. Either they have to pay higher taxes, enjoy less government spending, or both, in order to make resources

available to pay-off the debt and accumulated interest or they can delay the day of reckoning and put the government into even deeper debt by borrowing once again to pay-off the old debt and interest. Thus in short, balancing budget basically lowers the standard of living of the future generation.

Ans to Q. No. 12: The national saving is a key determinant of economic well-being. If saving rate is high, more resources are available for investment in new plant and equipment. With the increased investment in plants and equipment the labour productivity, wages, and income also rise. Thus there is a strong co-relation between national saving and economic well-being.

Ans to Q. No. 13: A major task of policy maker is to distribute tax burden fairly. If incentives to save are increased it increases the tax burden on those who can least afford it.



14.11 MODEL QUESTIONS

A) Short Questions (Answer each question in about 150 words)

Q 1: State the reasons why policy makers should not try to stabilize economy through monetary and fiscal policy.

Q 2: Mention the reasons in support of formation of monetary policy by rule.

Q 3: Why should tax policies not be reformed to encourage saving?

B) Long Questions (Answer each question in about 300-500 words)

Q 1: Explain the pros and cons of the need of government to balance budget?

Q 2: State the impact of saving in the economic well-being. Why should policy makers reform tax laws to encourage savings?

Q 3: What is meant by inflation? Mention the pros and cons of zero inflation.

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