PGEC S2 02
Exam Code: MAC2

Macro Economics- II

SEMESTER-II

ECONOMICS

BLOCK : 1



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March, 2020

ISBN : 978-93-89955-49-1

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Printed and published by Registrar on behalf of the Krishna Kanta Handiqui State Open University.

The University acknowledges with thanks the financial support provided by the **Distance Education Bureau, UGC**, for the preparation of this study material.

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COURSE INTRODUCTION

Macro Economics II is the second course of second semester of the M.A. in Economics programme of this University. This is the second course dealing with Macro Economics as we have already studied Macro Economics in first semester of this programme as Macro Economics I. 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 and has been divided into two blocks. Both the blocks comprise of seven units each.

BLOCK INTRODUCTION

This is the first block of the course and it comprises of seven 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.

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.

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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)

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.....

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.

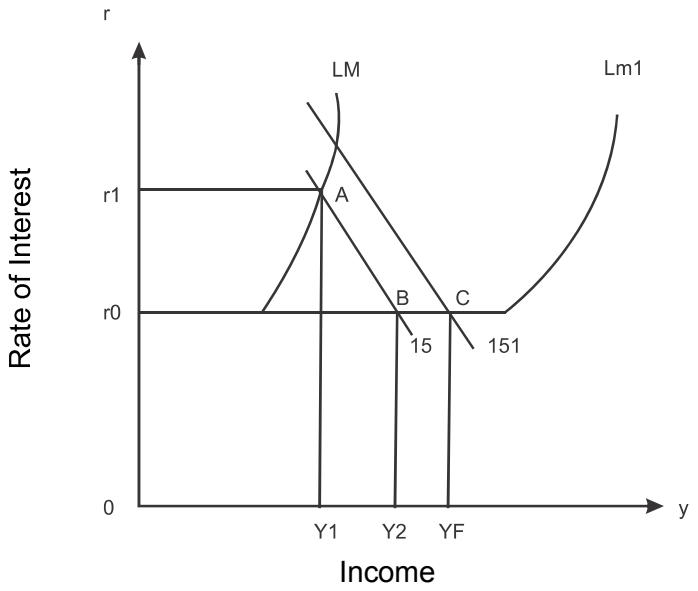


Fig.1: IS LM model for real balance effect

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.

.....

.....

.....



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.

*** ***** ***

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.

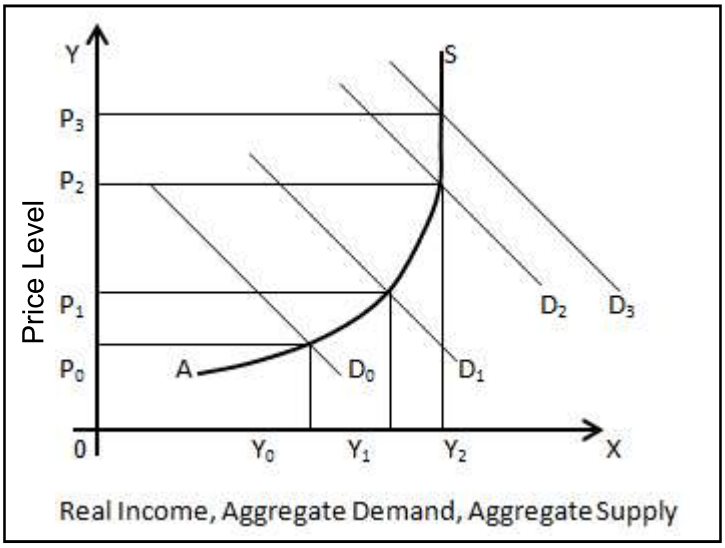
Demand – Pull Inflation

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

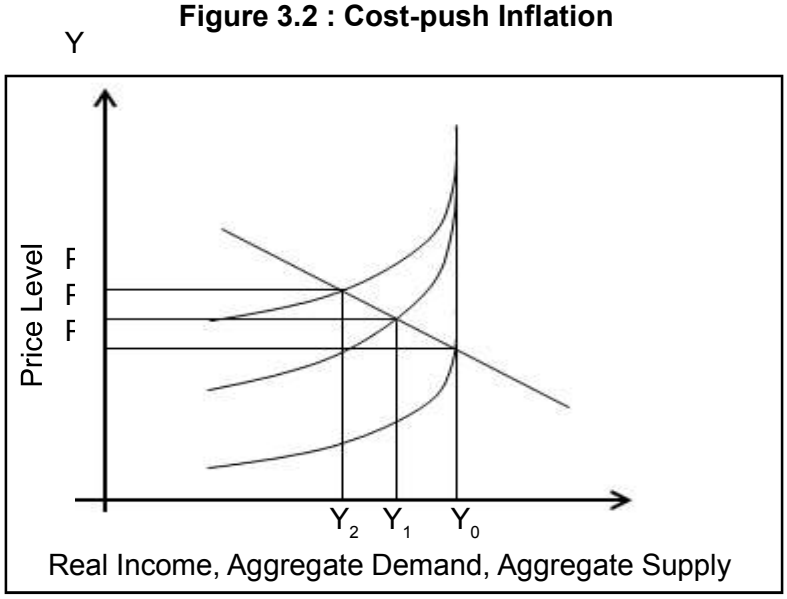
According to the cost–push inflation approach, inflation is induced by rising costs. This approach to inflation became popular during and

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.

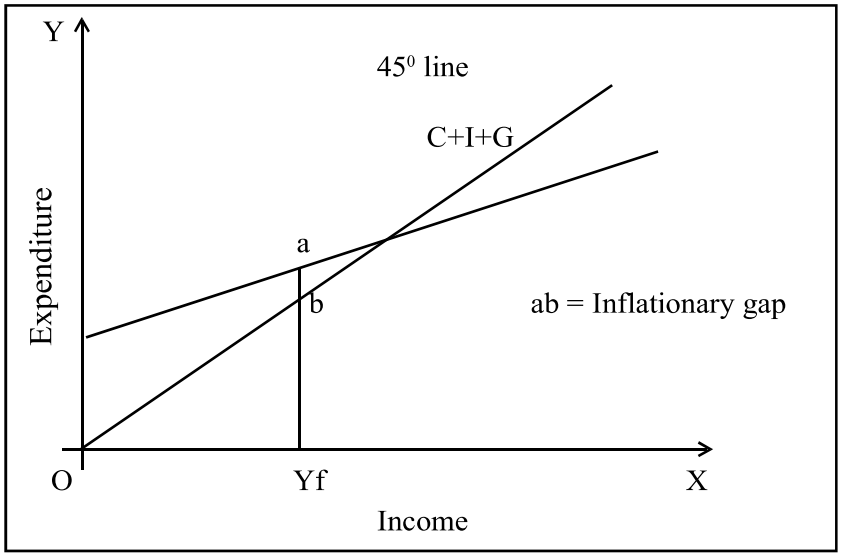
- **Farmers:** Farmers tend to gain during inflation. This is because his receipts (i.e., prices of food grains) go up. But his payments on the other hand, remain either constant or do not increase much. When the farmer has to pay interest on his loan previously opted during the cultivation period, he 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.

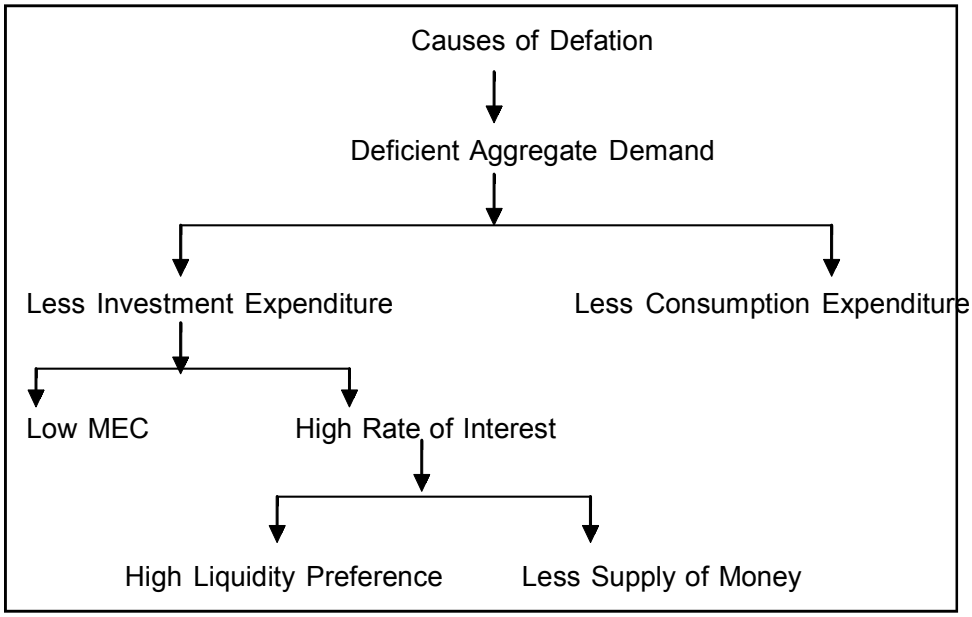
According to the structural approach of inflation, the above factors and similar other structural features of a developing country best explain inflation in that country.

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.

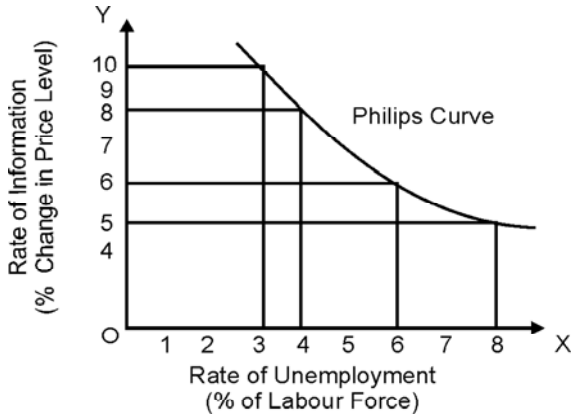


Fig. 4.1: Philips curve showing negative relationship between Rate of Inflation and Unemployment

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)

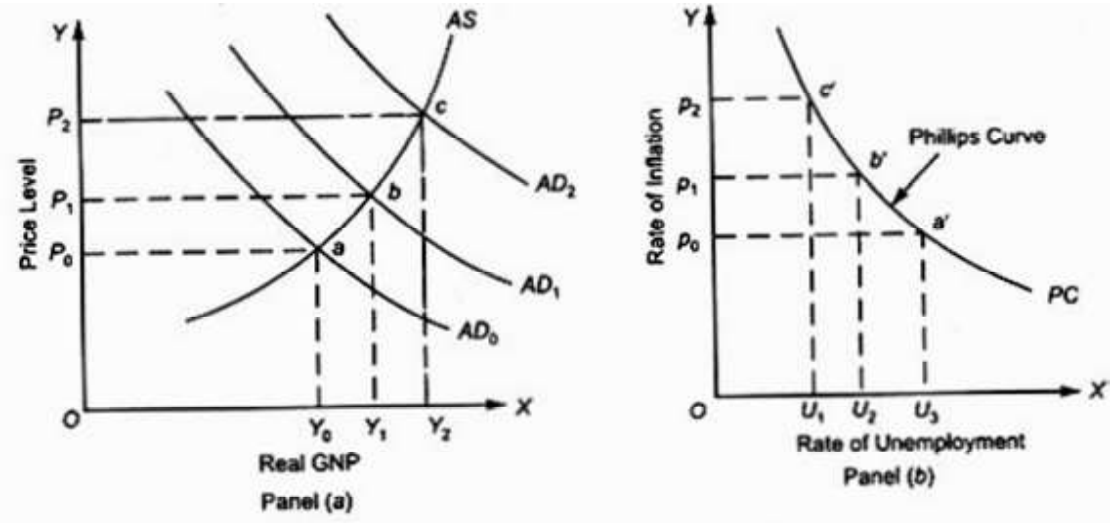


Fig. 4.2: Keynesian Explanation of Philips Curve

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.

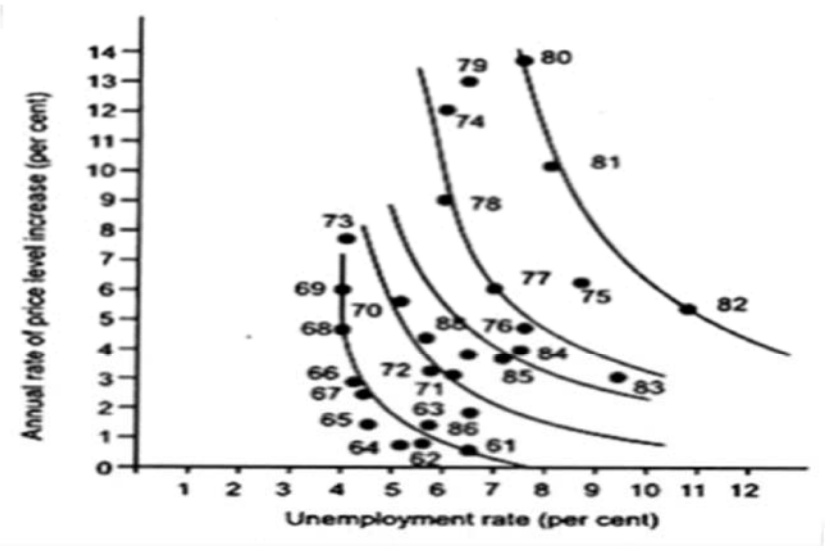


Fig. 4. 3: Shift of Philips Curve in the United States

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)..

.....

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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.

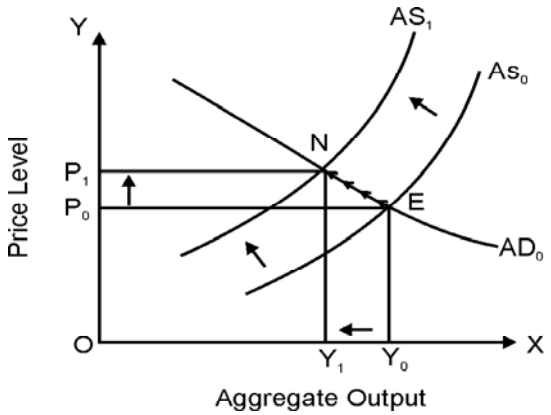


Fig. 4.4: Adverse supply Shock giving rise to Stagflation and breakdown of Philips Curve

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.

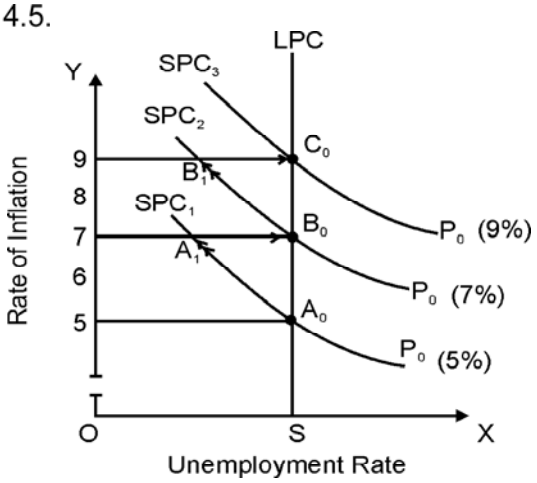


Fig. 4.5: Shift of Short run Philips Curve and deriving Long run Philips Curve

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_1 in 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.

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

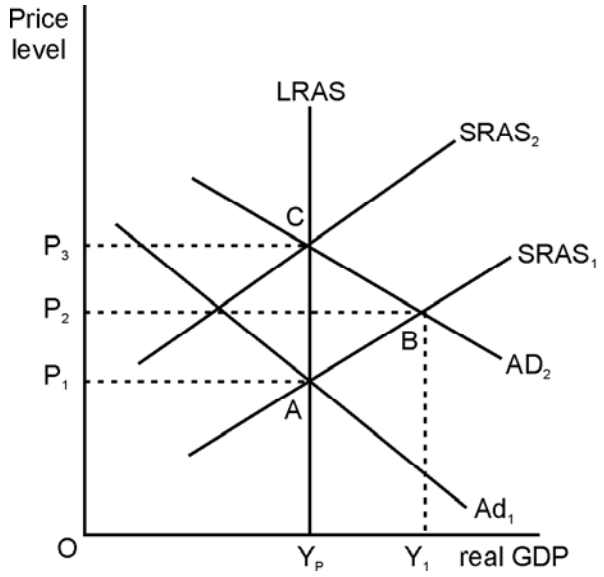
Where, Pe is expected rate of inflation (or price rise)

$\left(\frac{\Delta M}{M}\right)$ 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.



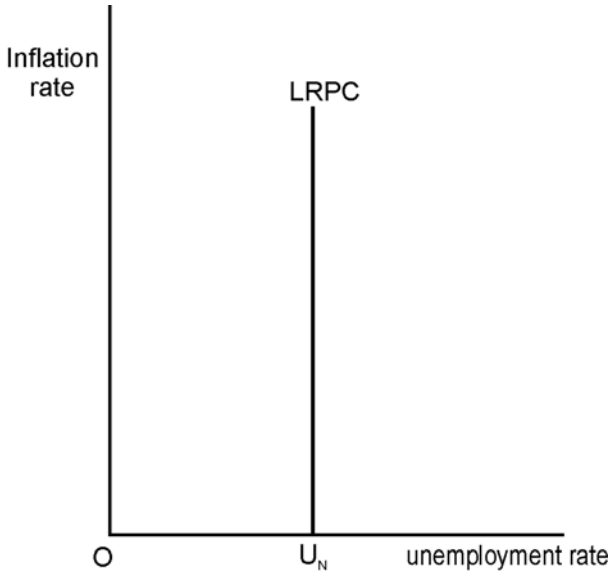


Fig. 4.5: Inflation and National output **Fig. 4.6: The long run Philips Curve**

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.

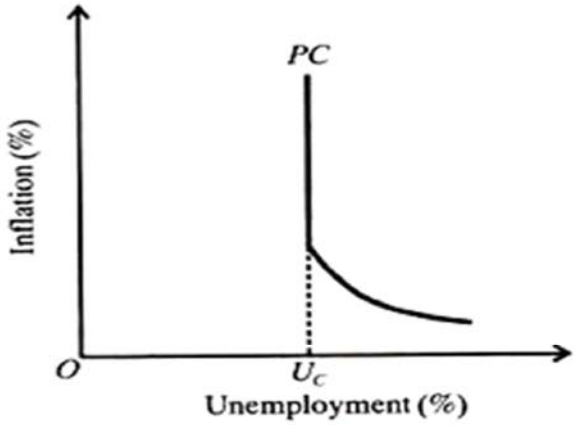


Fig. 4.8: Tobin modified Philips curve

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.

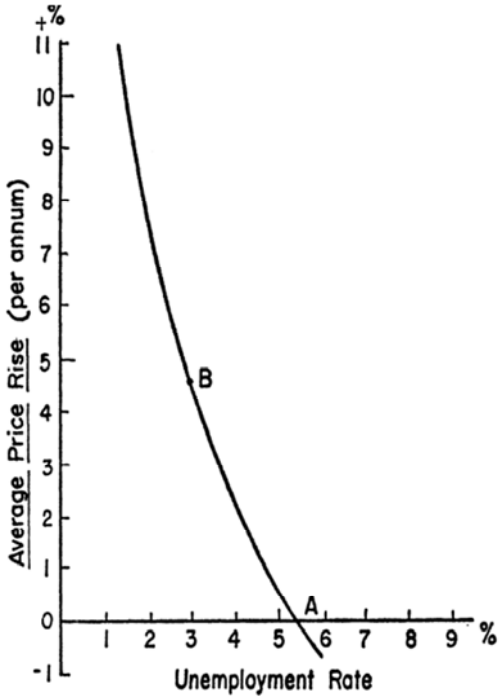


Fig. 4. 9: Samuelson Solow Philips Curve (1934 - 1958)

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.

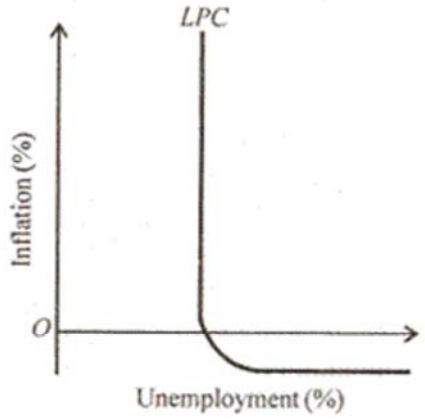


Fig. 4. 10: Solow's modified Philips curve

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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4.10 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.

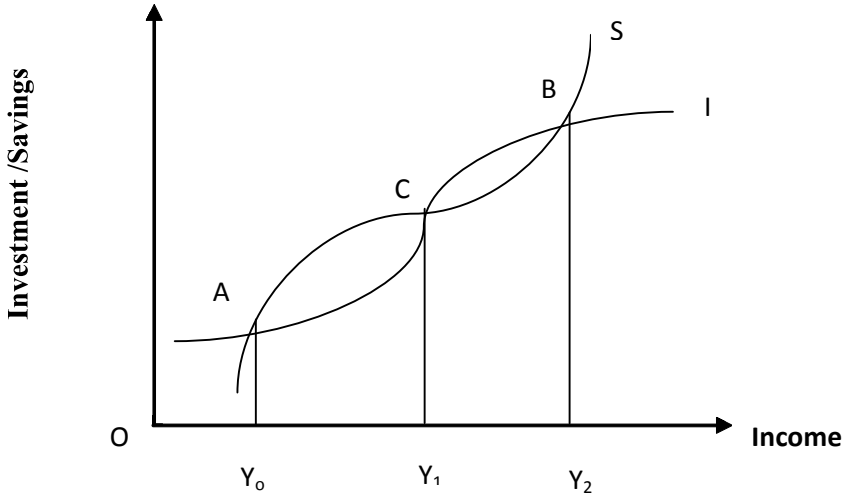


Fig. 5.1: Possible equilibrium points

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.

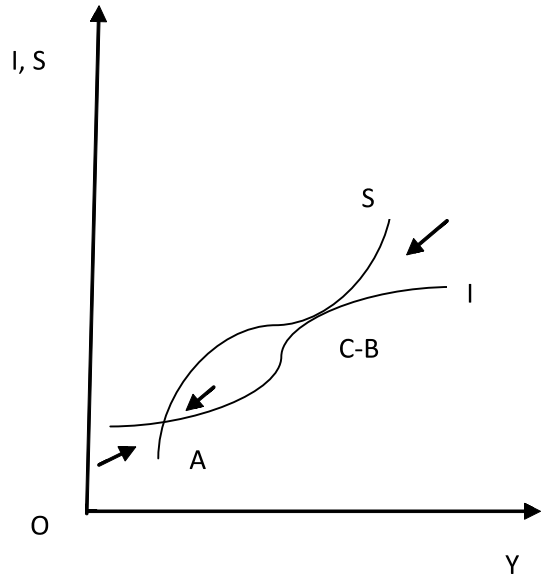


Fig.5.2: Capital accumulation, unstable equilibrium and depression

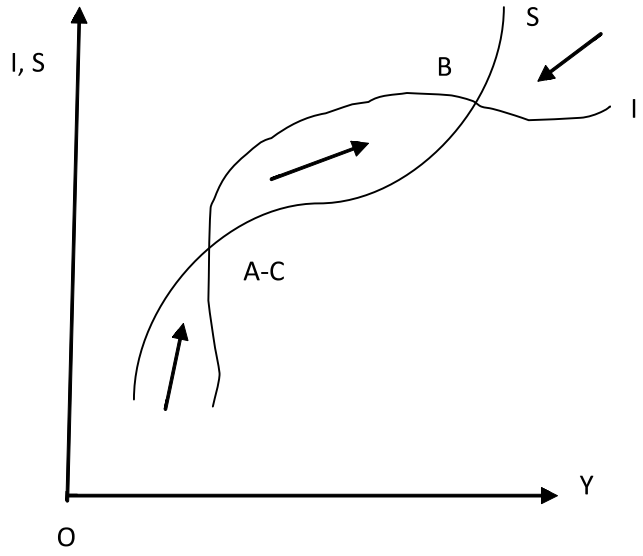


Fig.5.3: Capital depletion, unstable equilibrium and boom

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.

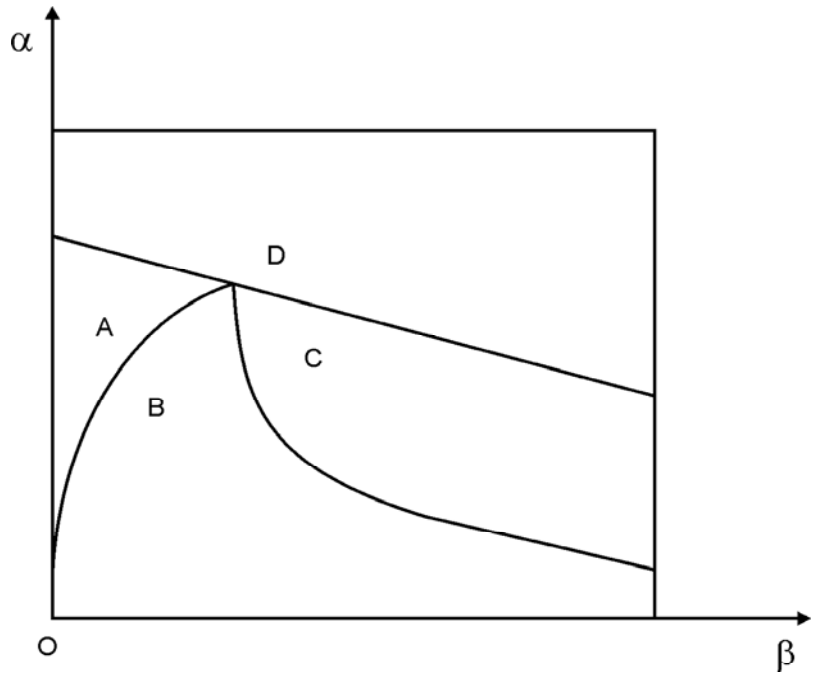


Fig. 5.4: Regions of economic fluctuations

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

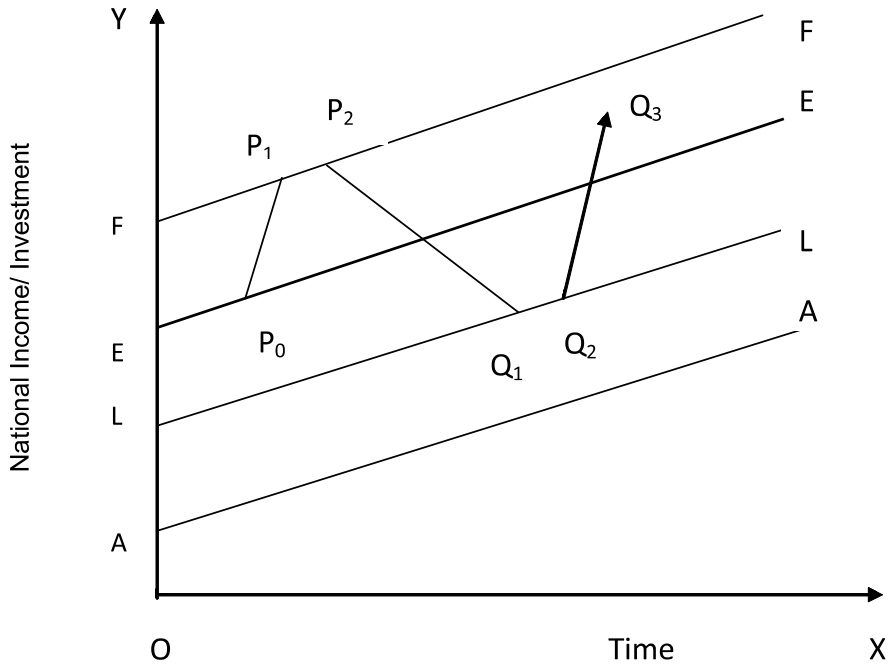


Fig. 5.5: Fluctuation of business activity in between ceiling and floor line

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

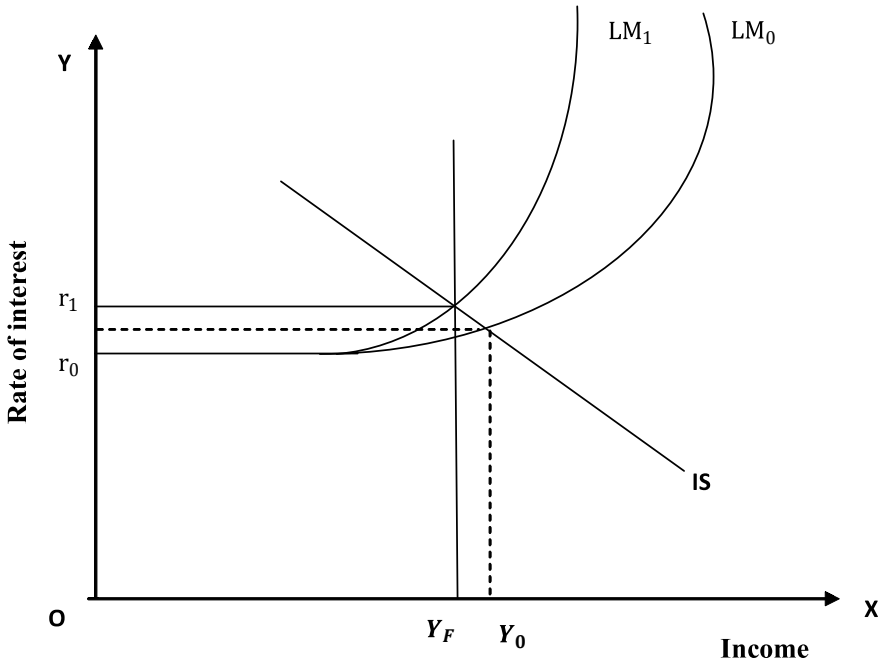


Fig. 5.6: Effectiveness of monetary policy

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.

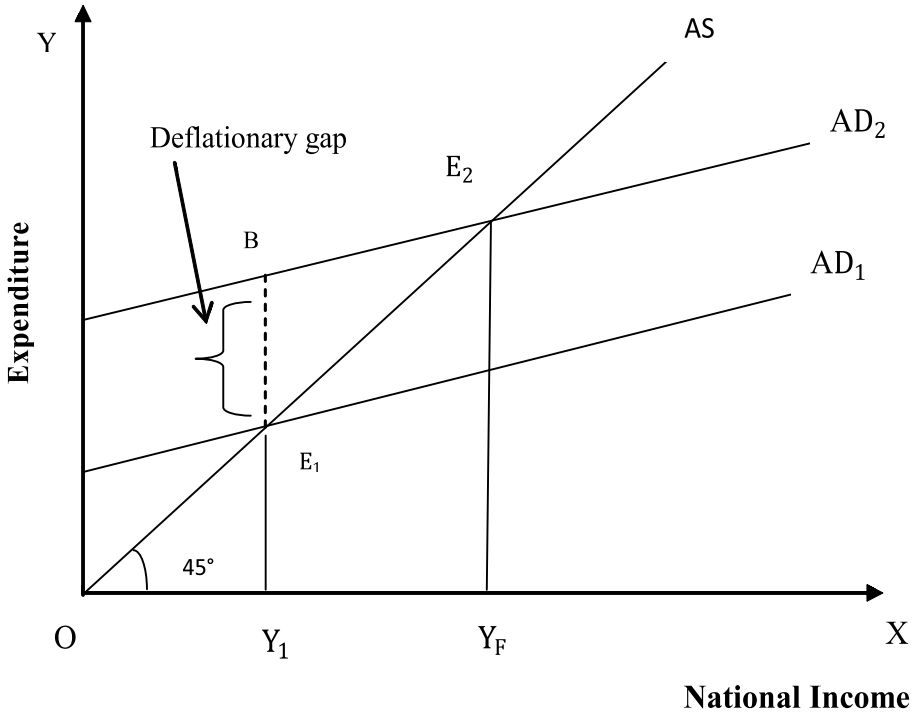


Fig.5.7: Effectiveness of fiscal policy in Deflation

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.

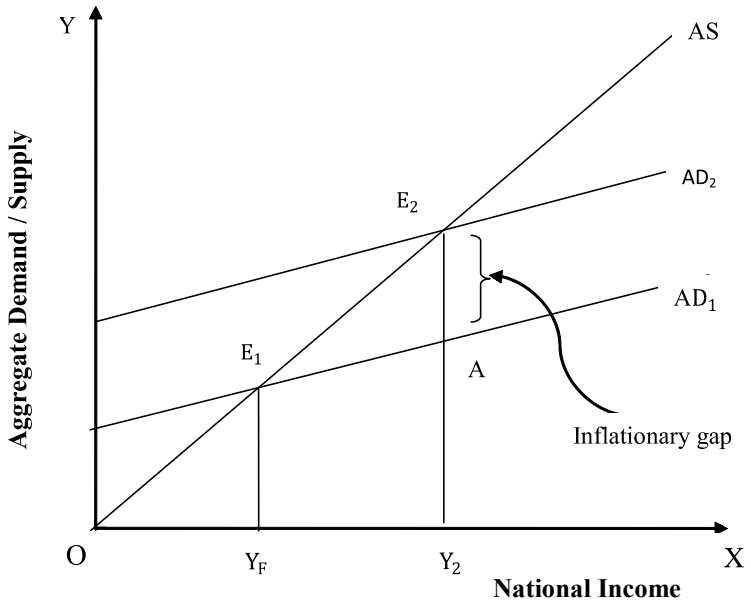


Fig.5.8: Effectiveness of fiscal policy in Inflation

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:

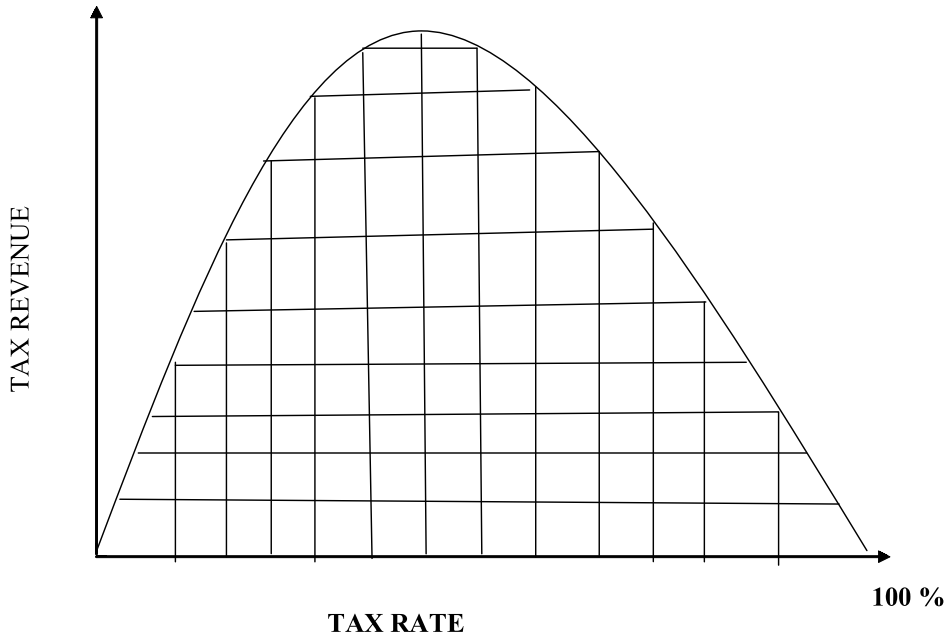


Fig. 6.1: Laffer's Curve

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.

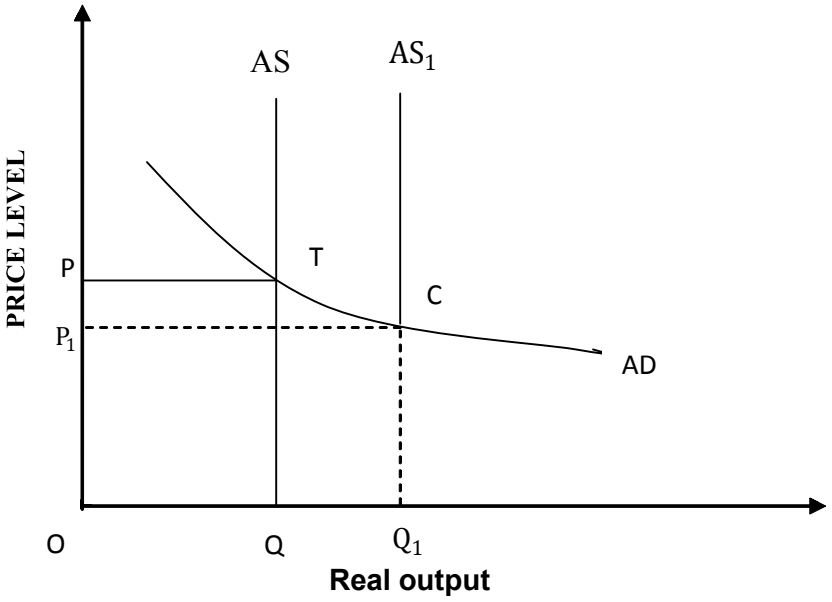


Fig. 6.2: The effect of a supply-side tax cut

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.

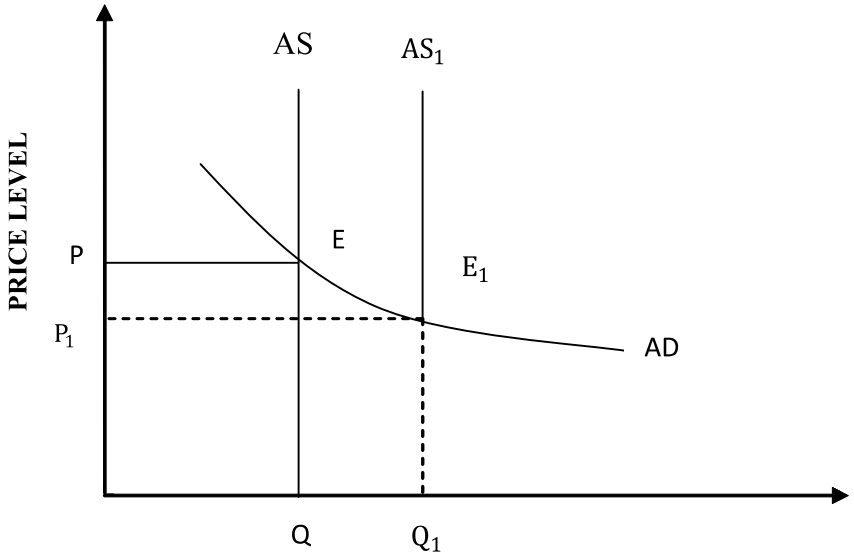


Fig. 6.3 : Shifting of aggregate supply curve of the economy

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.

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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

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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

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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

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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 in-sensitiveness 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.

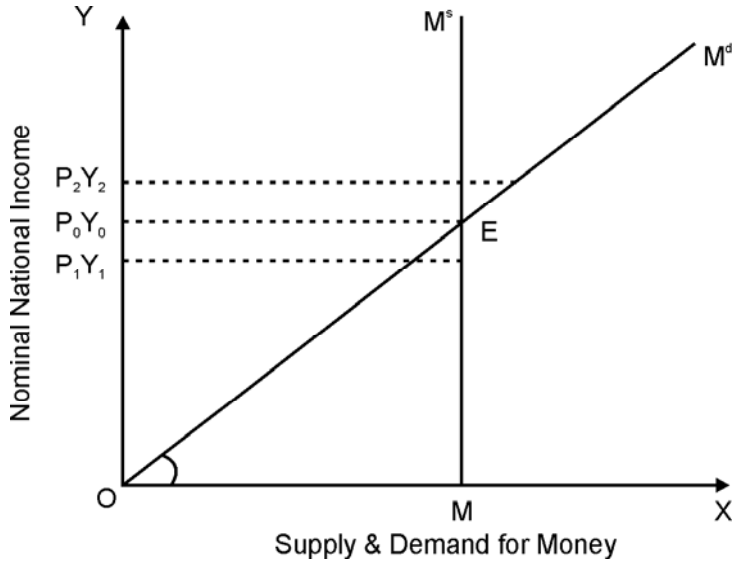


Fig. 7.1: Determination of Nominal income and Money Demand

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

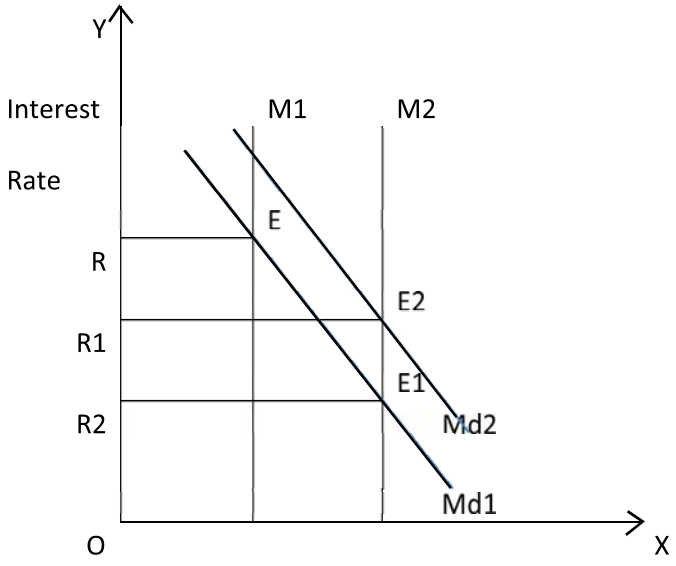
function of K = 1/V (K = Portion of nominal income held in the form of real cash balances i.e. M_d = KPy). The vertical M_S is the money supply curve, and it shows that given amount of money supply OM is fixed in the economy. The demand and supply of money are in equilibrium by intersection of M_S and 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.



Money demand and supply

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.

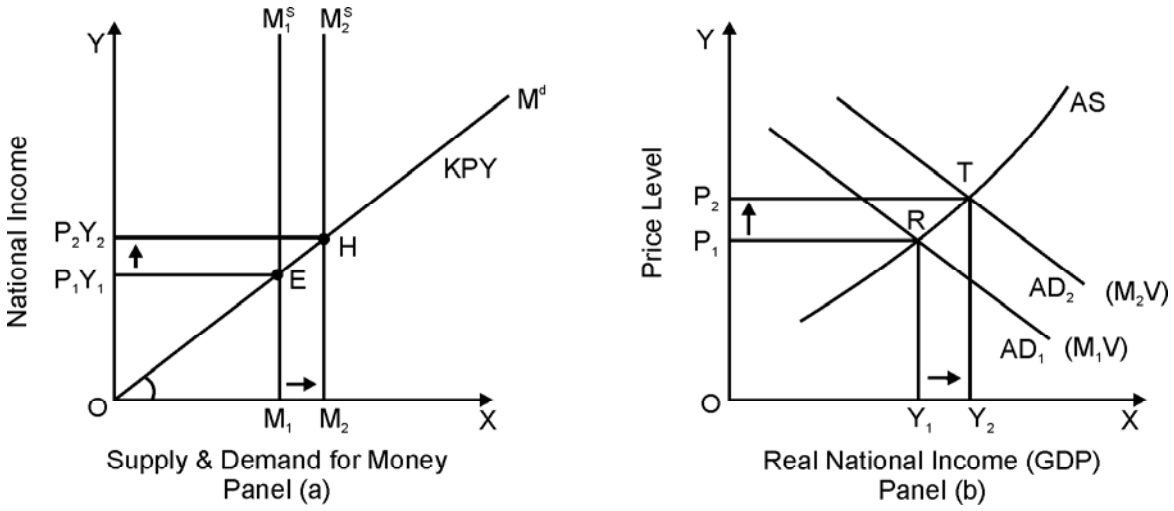


Fig. 7.3: Money Supply and level of price

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

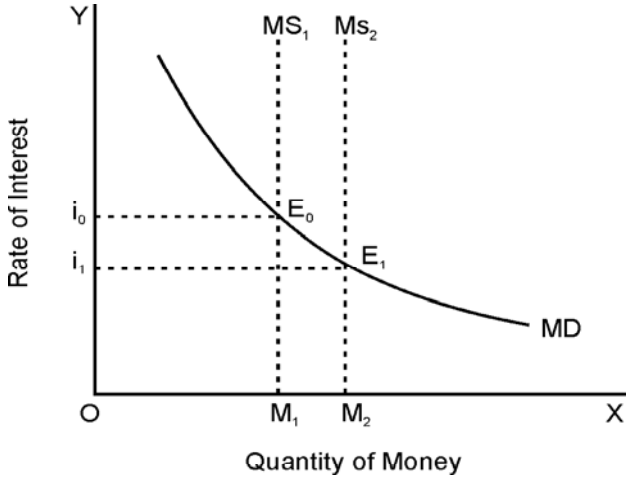


Fig. 7.4: Increase in money Supply and rate of Interest

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.

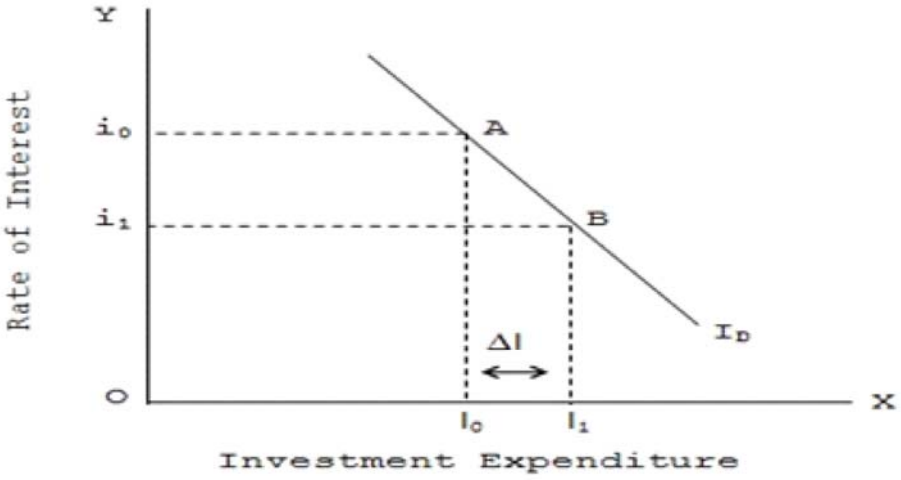


Fig.7.5: Rate of Interest and Investment

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.

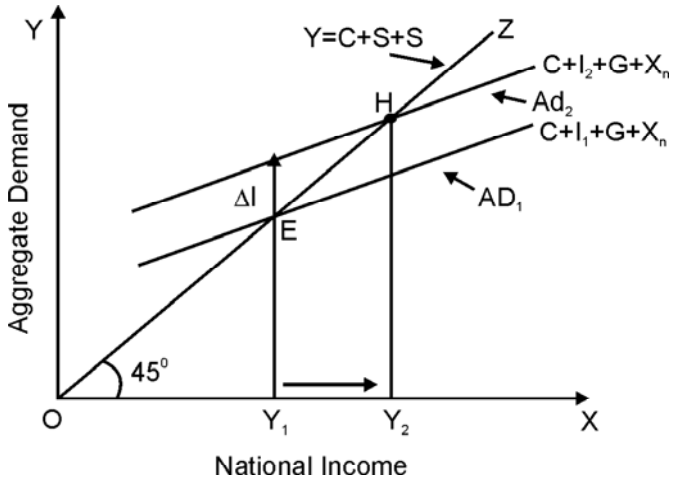


Fig.7.6: Aggregate Demand and National Income

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.

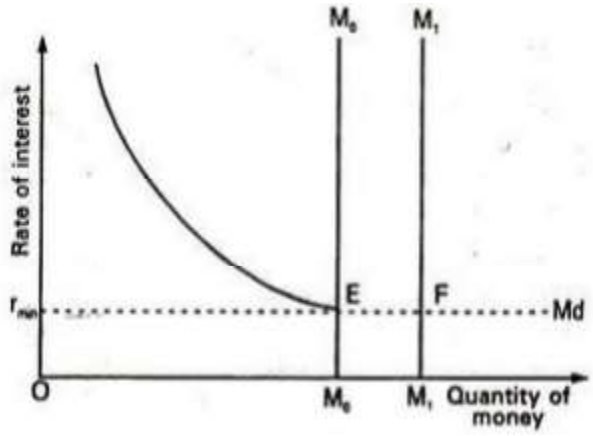


Fig. 7.7: Ineffectiveness of Monetary Policy

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.

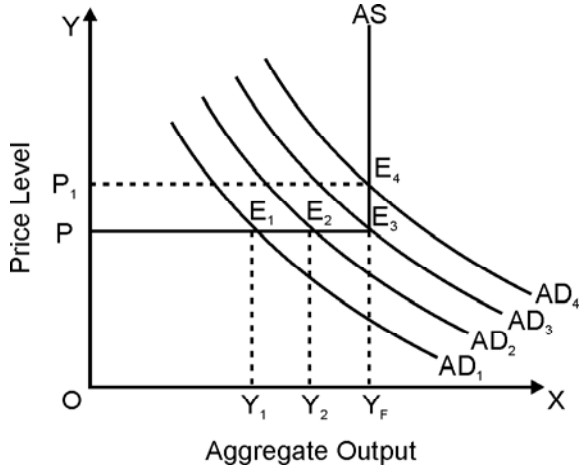


Fig.7.8: Money Supply Aggregate Demand and Price

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_1 which 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_2 as 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.

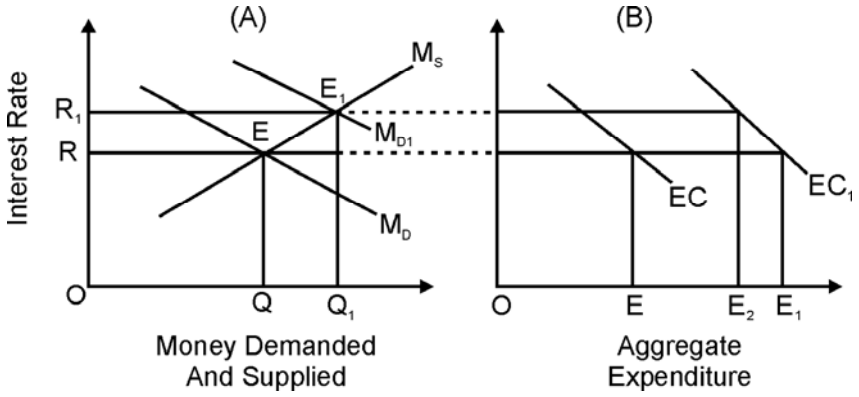


Fig. 7.9: Effect of expansionary Fiscal Policy

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.

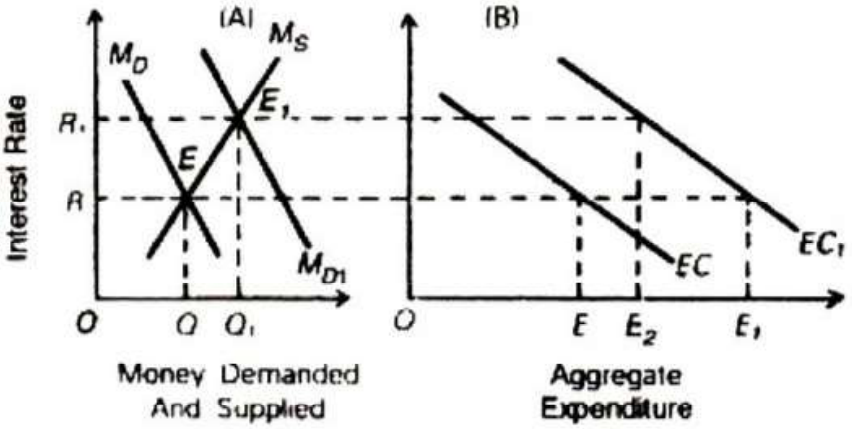


Fig. 7.10: Crowding out Effect of Fiscal Policy

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.

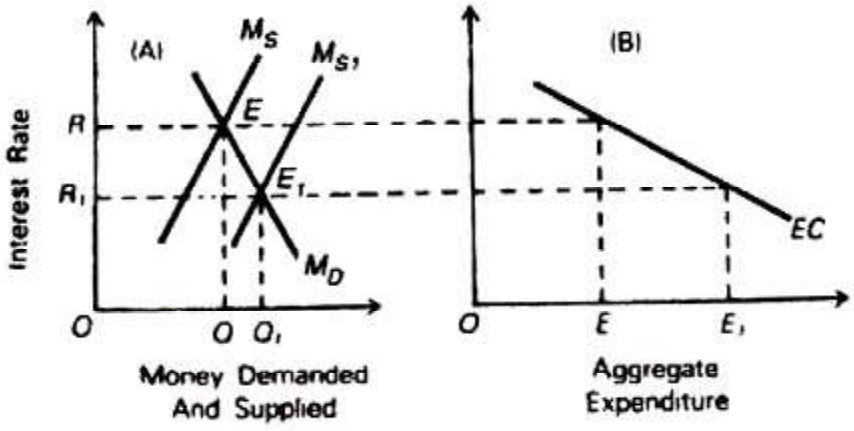


Fig. 7.11: Effect of expansionary Monetary Policy

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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Name of the Paper: .....
Course Code: .....

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Learner's Feedback on Course

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Regarding the course as mentioned above, we would like to know your opinions and comments so as to improve the quality of self learning materials in future. Please respond to the following statements by ticking the number you feel most reflect your opinion. After completion of the additional comments, please detach the page and send/mail the same to us at the address given below.

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1) Approximately how many hours did you spend for studying the units in the course? ☐☐☐

2) Please give your opinions (by ✓ mark) to the following items based on your reading of the block:

Sl. No.	Statements	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
I)	The SLMs of the course fulfil the learning objectives set out in the beginning of each unit					
II)	The units of the SLM could satisfy my academic needs and expectations					
III)	The Unit writers have excellent knowledge about the course contents					
IV)	Language and contents of the units were presented at a level which I could readily understand					
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VI)	Used enough Illustrations (Diagrams, tables etc.) for conceptual clarity					
VII)	Quality of content is engaging, relevant, and up-to-date					
VIII)	The self check questions are very helpful					
IX)	The Possible/model questions and the answers to check my progress have benefited me a lot					

Additional Comments: *(Please feel free to provide your open comments)*

1) Which aspects of the SLM, according to you, worked well?

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2) What sort of changes/improvements do you feel KKHSOU could implement to improve the overall quality of the SLM?

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Thank you for taking the time to complete this form.