

---

# UNIT 19 INFLATION AND UNEMPLOYMENT

---

## Structure

- 19.0 Objectives
- 19.1 Introduction
- 19.2 Price, Price Level and the Measures Thereof
  - 19.2.1 Definition of Index Number
- 19.3 Inflation Defined
- 19.4 Effects of Inflation on Society and Economy
- 19.5 Types of Inflation
- 19.6 Causes of Inflation
  - 19.6.1 Inflation: the Demand-side
  - 19.6.2 Inflation: the Supply-side
- 19.7 Structural Inflation
- 19.8 Anti-Inflationary Policies
- 19.9 Deflation
- 19.10 Stagflation
- 19.11 Inflation and Unemployment : the Phillips Curve
- 19.12 Let Us Sum Up
- 19.13 Key Words
- 19.14 Some Useful Books
- 19.15 Hints to Check Your Progress Exercises

---

## 19.0 OBJECTIVES

---

In this unit you will learn about prices and inflation, a phenomenon, which we come across in our everyday life. The aspects that we would look at are:

- 1 prices and price levels, and their measurement;
- 1 meaning of inflation;
- 1 effect of inflation on various sections of society and the economy in general;
- 1 causes of inflation;
- 1 anti-inflationary policies for inflation; and
- 1 relation between inflation and unemployment using the Phillips curve.

---

## 19.1 INTRODUCTION

---

We come across the term inflation in newspapers every day. The reason why it holds such importance is because of its adverse effects on an economy as well as people. A question that could arise at this point is in what way does inflation affect our everyday life? Let us illustrate with the help of a single household. Inflation, in simple words, is a steady rise in the prices of various goods and services. Given the level of the money income, a household consumes a group of commodities at a given price level. With inflation, the price level goes up. So with the same level of money income, this household can consume a smaller amount of the commodities than it was consuming earlier. Alternately, to maintain the earlier level of consumption this household now needs to have more money. For example, suppose the household has a monthly income of Rs.100, consumes the entire income on a single commodity A and does not save anything. If the price of commodity A is assumed to be Rs. 4 then the household consumes 25 units of A in a month. Now suppose, the price of commodity A goes up from Rs.4 to Rs.5, the household will be able to consume only 20 units of commodity A. To maintain the level of consumption at 25 units of A per month, the household needs to have a monthly income of Rs. 125. Thus, we

see that with inflation, one unit of money purchases a smaller amount of goods than what it was doing earlier. In other words, with inflation, purchasing power of money goes down.

In the example cited above, consumption of the household comprises one commodity only. But for a typical household, consumption involves a variety of goods and services. As a result, increase in the price of one commodity need not affect household consumption adversely if there is a decline in the price of some other good. Therefore, to ascertain the effect of inflation we need to take into account the change in the prices of all the goods consumed by the household. To do that we try to find the change in the general level of prices. Therefore, before defining inflation we need to understand the meaning of price and price level and the changes in these concepts.

---

## 19.2 PRICE, PRICE LEVEL AND THE MEASURES THEREOF

---

What are prices? What do we mean by the term price level? What is the difference between the two? And how do we measure price level? These are some of the question we try to answer in the present section.

In simplified terms price is defined as the rate at which goods and services are exchanged for money. It is the amount of money received for selling or, paid for buying, one unit of a commodity (or services) in an exchange economy.

The term price level is an aggregate concept. It relates to the price of a basket of goods and services. See that we do not refer to the price of a single commodity but to a group of goods and services taken as a whole. Therefore, when we talk of a change in the price level it is always in reference to a group of commodities. Since the prices of commodities differ, in order to measure a change in the price level of a group of commodities, it is necessary to use index numbers. More specifically, we have to use price index. Let us understand the idea of an **index number** in an elementary form.

### 19.2.1 Definition of Index Number

An index number is a device for comparing the general level of magnitude of a group of distinct, but related, variables in two or more time periods. A price index is used for comparing changes in the general level of prices of a group of commodities. Generally the index number refers to changes in the prices obtained over time. It is expressed by putting a particular period (called the base) equal to 100 and the price level for other periods are expressed relative to this base. For example, when we say, the whole sale price index has gone up this year with respect to last year, we are taking last year price level as the base or, the reference point = 100. With respect to it we measure the change in the price level this year.

The *price relative* of an individual item is the ratio of its current price to its price in a base period. The simplest price index for a given commodity can be expressed as

$$I_{t,o} = 100 (p_t / p_o) \dots\dots\dots (1)$$

where  $p_t$  and  $p_o$  denote prices in the current period 't' and the base period '0' respectively.

For instance, if price of a kilo of potato goes up from Rs. 8 in 1995 to Rs. 10 in 1996, then the price index in this case would be:

$$I_{1995, 1996} = 100 (10/8) = 125$$

This index shows a 25 per cent increase in the price of a kilo of potato. In other words, you need 25% more money to maintain your consumption of potatoes at the same old level.

**Check Your Progress 1**

1) What is meant by prices? What does the price level imply?

.....  
 .....  
 .....

2) What is an index number?

.....  
 .....  
 .....

---

**19.3 INFLATION DEFINED**

---

With the background of prices and price level in view we go on to the definition of inflation. We mentioned earlier that Inflation is defined as a persistent rise or, a tendency towards persistent rise in the general level of prices. The adjective ‘persistence’ has to be taken note of. The reason is, if price level goes up today but again falls tomorrow then it may not imply inflation, but only short-term fluctuations in prices. The term general price level is also important since, over a period of time, prices of some commodities may have gone up while some may have actually fallen. As a result, on the whole, the average of these prices may remain constant or even go down. Similarly if the price of a group of commodities, which constitute a small fraction of the total value of output of the economy, would go up, then again it might not be inflationary as such. That is, the effect of rise in prices of such commodities might be too small so as to affect the average price level of all the commodities. Thus we see that inflation is a macroeconomic phenomenon and is not concerned with the rise in the price of a particular commodity, or, a small group of commodities.

Another aspect of inflation is that it need not be open. That is, one would not see any changes in the quoted prices of certain goods. This can happen in a controlled economy where rise in prices of essential commodities are artificially suppressed. In India, goods sold through the public distribution system (PDS) are sold at administered prices, which are maintained at a level much below the prices in the open market. This is known as *suppressed inflation*, as commodities sold in the ration shops may be available at a cheaper rate, but carry a higher price in the market.

In Section 19.1, it was pointed out how inflation is likely to affect a household with fixed money income. In many cases, however, some of the income classes actually benefit from inflation or at the least may remain unaffected by it. The next section discusses how this happens.

---

## 19.4 EFFECTS OF INFLATION ON SOCIETY AND ECONOMY

---

Inflation affects various segments of the society in different ways. It is the poor and the fixed income earners who are almost always the worst affected. For instance, a large proportion of the Indian population are daily-wage earners who work on other people's farm or in small factories. They are employed on the basis of a daily wage or a piece-rate system. Given the huge army of unemployed in our country and the paucity of a employment opportunities (they arise during harvesting and sowing, in case of agriculture), those willing to work far exceed the number that can be employed. As a result, employers almost always find adequate number of workers willing to work, howsoever small the wage rate offered. Workers have very little bargaining power vis-à-vis employers. In times of inflation the unemployment factor plays a crucial role, as the workers are unable to bargain for higher wages to offset increase in prices. Though minimum wage rates are fixed by the government, they are revised after considerable gaps and in many cases are not implemented at all. Thus a worker getting a fixed rate of Rs 12 per garment stitched, would lose in times of inflation as purchasing power of Rs.12 would be declining continuously. The poor have an added disadvantage as they rarely have any savings to fall back upon in times of adversity.

There are others in the society who either gain during inflation or at least manage to maintain the same level of real income. Organized working class like government employees manages to keep pace with inflation to a large extent as their salary is indexed to inflation. Businessmen and entrepreneurs, who can raise prices of their goods and services, may sometimes gain from inflationary situations marked by scarcity of essential services. Thus we see that inflation affects the poor, the fixed income earners and the unorganized working class much more adversely than any other section of the society. On the whole, inflation redistributes income in favour of the rich ?making the rich richer and the poor poorer.

---

## 19.5 TYPES OF INFLATION

---

On the basis of the severity of inflation or, the rate of acceleration in prices we can divide inflation into three different types, namely, moderate, galloping and hyperinflation.

When the general price level increases slowly but steadily, it is known as *moderate inflation*. Moderate inflation remains within a single digit level of less than 9 per cent. You can say that the increase in the price level stays within 'limits'. There are no major uncertainties regarding the price level in the future.

Steady and fairly high rate of increases in the general price level is known as *galloping inflation*. The rate of inflation runs into two digits (20 per cent, 40 per cent etc.) and sometimes even as high as three digits (i.e., 200 per cent). Some Latin American countries like Brazil and Argentina had experienced inflation rates of over 100 per cent in the 1970s.

*Hyperinflation* is characterized by astronomical increases in the annual rate of inflation. There have been cases in history when the price index rose from 100 to 10,000,000,000 within a year and a half! In such situations, money ceases to be a store of value as well as a medium of exchange. The most recent example of hyperinflation is perhaps the case of Brazil in the latter half of the 1980s.

1) Does inflation affect various sections of a society in a similar way? If not, explain why?

.....  
.....  
.....

2) What are the various types of inflation? What are the criteria used for differentiating between them? Explain.

.....  
.....  
.....

3) What is the difference between open and suppressed inflation?

.....  
.....  
.....

---

## 19.6 CAUSES OF INFLATION

---

The causes underlying inflation can be generally divided according to the source through which inflation originates. As we learnt in price of a commodity is determined at the point at which its supply equals demand. This is known as the equilibrium price. If the demand goes up, price of the commodity would go up in order to restore the equilibrium. So is the case when there is a fall in supply of a commodity. In either case the price of the commodity goes up till the supply and demand are equalized. But the source of the change in one case originates from the supply side while in the other from the demand side. Sometimes, rise in the cost of production pushes up the supply schedule. This again leads to a rise in prices.

So, depending upon initial process, we can identify two types of inflation: **Demand-pull inflation** or, *demand-side inflation*; and **Cost-push inflation** or, *cost-side inflation*. Note that here, we refer to aggregate demand and aggregate supply in the economy.

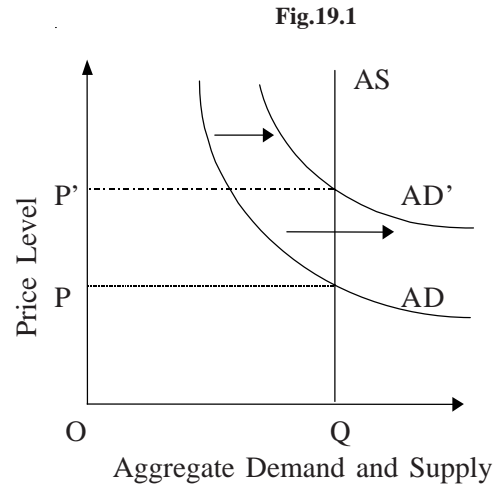
### 19.6.1 Inflation: The Demand-Side

Factors, which influence an increase in aggregate demand with no change in the level of aggregate supply, can be said to cause demand-side inflation. These factors can be an increase in government spending, a decrease in savings rate and a lower rate of taxation, which leave greater amount of money or, increased disposable income with the public, and increase in money supply. Let us examine, how each of these factors generates inflationary tendencies.

#### I) Inflation Caused by Increase in Government Spending

Suppose the government decides to build roads. In the process many unemployed get employment and earn an income. This increases the number of people who have money to spend. With no change in aggregate supply in the economy, a situation of excess demand arises. There are two ways in which this excess demand can be met, viz., by increasing the production and supply of commodities or, by increasing the price level, which would then have negative impact on the demand. In the short run, more often than not, it is difficult to expand supply. Hence

the price level increases to equilibrate the aggregate supply and aggregate demand. An increase in demand arising out of the increased government spending could be depicted by a shift in the **aggregate demand** (AD) curve as shown in Fig. 19.1. In the figure the **aggregate supply** (AS) curve is shown as a vertical line implying that we have taken aggregate supply as fixed in the short run. Thus with unchanged supply, the national real income remains at Y and only the price level goes up to equilibrate demand and supply.



**Fig.19.1 :** Initially aggregate demand is AD and aggregate supply is AS all of OQ quality is purchased at OP price. Rise in government spending pulls OP the aggregate demand to level AD'. But in the long run, output cannot rise. Therefore, supply remains fixed at OQ level. People compete with one another to buy their requirements and in the process bid up prices to new and higher level OP'

## II) Keynesian Inflationary Gap

A related, but a slightly different type, is the Keynesian inflationary gap. Recall that in Keynesian theory, investment plays the vital role in determining the national income. In the Keynesian system, the economy is divided into three broad sectors, namely, the household sector, the government sector and the private sector. The households earn money by offering their labour and other factor services and consume a part of it and save the rest. The private sector produces goods and services, earns profits and invests a part of that, say, for buying machines. The government sector gets revenue from these two sectors by way of taxes and spends it on building of roads, public services and so on. The total income of the economy or the national income consists of the goods and services produced by the above sectors. Expenditure, on the other hand, is the aggregate of consumption, C, investment, I, and government spending, G. Equilibrium in the Keynesian system is obtained where the income, Y, earned in the economy equals the expenditure on it. Assuming that there is no government spending, expenditure would then constitute consumption, C, by households, plus investment, I, by firms. Diagrammatically, equilibrium is obtained where the expenditure line,  $C+I+G$ , intersects the  $45^\circ$ -degree line (depicting **income = expenditure**), as shown in Fig. 19.2. If government expenditure is raised, the point at which the expenditure line  $C+I+G'$  intersects the  $45^\circ$  degree line depicts an increase in the national income level. However, suppose for various reasons, the income level cannot be increased. Then we have a situation of excess demand equal to MN, which will be purely inflationary. MN is known as the *inflationary gap*

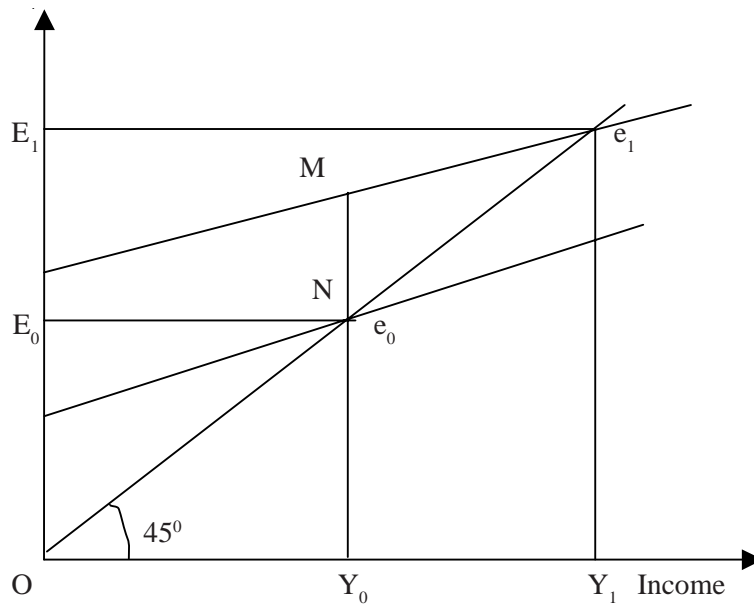


Fig.19.2 : A jump in government spending from  $G$  to  $G'$  pushes up the aggregate expenditure line from  $C+I+G$  to  $C+I+G'$ . Initially,  $e_0$  was the equilibrium point and  $Y_0$  was the equilibrium level of income and  $E_0$  was the level of expenditure. But new equilibrium at  $e_1$  means the aggregate expenditure and money income ought to be  $E_1$  and  $Y_1$  respectively. If, the real income cannot rise along with money income to new higher level (from  $Y_0$  to  $Y_1$ ) only the price will rise. Hence  $MN$  will be called the *Inflationary gap*.

### III) Inflation due to Increase in Money Supply

The above argument holds when there is an increase in the money supply. With increased money supply, there is more money to spend at the disposal of general public. Again a situation of excess demand arises, i.e., a situation of disequilibrium and general price level goes up to restore equilibrium in the system. In this case there is no change in the aggregate supply curve as depicted in **Fig. 19.1**.

## 19.6.2 Inflation: The Supply-Side

Inflation arising out of movements in the aggregate supply curve with the aggregate demand curve remaining unchanged is known as supply-side inflation. Cost-push inflation, profit-push inflation and supply-shock inflation are three variants of this idea.

### I) Cost-push Inflation

Cost-push inflation arises when either the labour unions (or the firms) exercise their market power to increase the wage rate (or the price of their products),. With an increase in the wage rate, producers find that the labour cost per unit of output have risen, and they respond by increasing the prices of goods to cover the higher cost of production. The workers, faced with higher prices, demand still higher wage rate, to which the producers respond by increasing the price of their commodities. A series of increase, in wage rates leads to a series of increase in price. This kind of inflation is known as *wage-push inflation*. When the firms increase the price of their products to increase their profits, there is a demand for higher wage rate by the workers. Higher cost of production due to increases in the wage rate and prices of inputs makes the producers raise their prices further. Again a series of increase in the wage rate leads to a series of increase in the prices. This kind of inflation is known as *profit-push inflation*.



In both the cases, each possible level of output will be supplied at a higher price level than before. As shown in Fig. 19.3, the *aggregate supply* curve (in this case we have taken a curved supply curve for analytical convenience) moves inwards showing that for the same level of output  $Y_1$  the price now being charged is  $P_2$ , which is higher than  $P_1$ . Note, in this case, unlike in demand pull type of inflation, the output level goes down from  $Y_1$  to  $Y_2$ .

A pre-requisite for inflation due to increases in the wage rate is that of unionisation of labour. In India labour is not organized in all sectors and there is very little empirical evidence showing inflation arising out of increases in the wage rate.

Similarly a pre-requisite for the firms to increase the prices is that the firms must be operating in an imperfect market. A firm, which has many competitors, would be unable to increase the price of its products because of the fear of losing its customers. On the other hand, fear of monopolistic or oligopolistic firms can increase their prices without the fear of losing out on demand.

Fig. 19.3

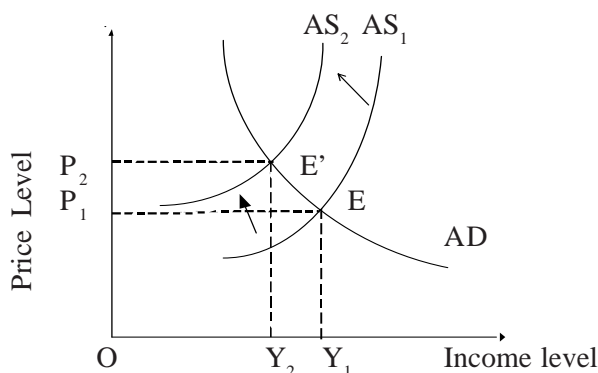


Fig. 19.3 : A rise in the cost of production pushes up the aggregate supply schedule to  $AS_2$ . In other words producers expect the higher price for the same level of output to supply. they were ready to sell  $Y_1$  at  $P_1$  earlier, but now demand  $P_2$  level of price for it. The new equilibrium will take place at  $E'$  - where only  $Y_2$  level of goods and services is produced and sold at  $P_2$  price level. Note that equilibrium income  $Y_2$  is less than  $Y_1$  in pre-inflation income

II) Supply-shock Inflation

Inflation can arise out of either an unexpected or unforeseen sharp fall in the supply of commodities or a rise in the prices of commodities. Reasons for a situation lie out of the control of either the firms or the workers. It is known as supply-shock inflation. For instance, a crop failure due to an unfavourable weather condition would give rise to an all round shortage and lead to increase in the general price level. The above can be an example of the supply-shock inflation. Similarly, in 1973 and 1979, when oil prices were unexpectedly raised by the OPEC all the economies world wide experienced a massive rise in the general prices. This is another manifestation of supply-shock inflation.

19.7 STRUCTURAL INFLATION

Theories of inflation discussed so far have all been developed with particular reference to the developed countries. In most cases, they do not have the same applicability to inflationary experience of developing countries like India. Unlike developed countries of the West, the developing countries are characterized by a lack of adequate resources like capital, foreign exchange (for essential imports like machinery and technology), land and infrastructure (roads, railways, power



etc.). Further, over-population with the majority depending on agriculture for their livelihood means that there is a fragmentation of the land holdings. There are other institutional factors like land-ownership, technological backwardness and low rate of investment in agriculture. These features are typical of the developing economies. '**Structural theory of inflation**' explains inflation in the developing economies in terms of the structural features. Let us see, how these factors work.

### I) Food Shortages

Majority of population in the developing economies live in the rural areas and depend on agriculture for their livelihood. With development, say, building of some new industry, some people get employment outside of agriculture and they settle down in urban areas. But, due to the various *structural features* such as highly unequal distribution of land-ownership and tenancy, technological backwardness and low rates of investment in agriculture, inadequate growth of the domestic supply of food in correspondence with an increase in demand arising from increasing urbanization and population prices increase. Further, the extreme dependence of agriculture on weather produces an acute shortage of food from time to time due to droughts, floods, etc. In years of food shortages, the prices of food grains increases very fast. Food being the key wage-good, an increase in its price tends to raise other prices as well. Therefore, some economists consider food prices to be the major factor, which leads to inflation in the developing economies.

### II) Scarcity of Foreign Exchange

The industrial development of the developing economies requires a heavy import bill on account of import of capital goods, essential raw materials, and in several cases even food grains and other consumer goods. While the developing economies have a very high import requirement, their exports to the developed economies are very small for reasons like poor quality of goods. As a result, the foreign exchange that comes into the country through exports is a much smaller amount than the requirements of the economy. Due to this, the developing economies most of the times face foreign exchange shortages. Moreover, the shortages in the domestic supply of many basic inputs cannot easily be mitigated through imports. As a result, the prices of such goods increase, and the increase spreads to other prices. The result is all-round inflation.

Other structural factors, like socially unproductive private investment in land and precious metals like gold take away a sizable chunk of resources. These resources could have been otherwise invested in new industries, new machines, new roads, better irrigation facilities for agriculture and other productive investment, which could have led to faster development of these countries. According to the **structural approach to inflation**, the above factors and similar other structural features of the developing economies can explain the price rise situations better.

---

## 19.8 ANTI-INFLATIONARY POLICIES

---

Now we have a fairly good idea about the causes of inflation. Let us move on to the question of its remedies. What are the possible ways to control the inflation in an economy? But for recommending a cure, an analysis of the source of the problem, i.e., whether inflation is due to demand-pull factors or cost-push factors, is important. Why that is so, is what we show below.

Fig.19.4

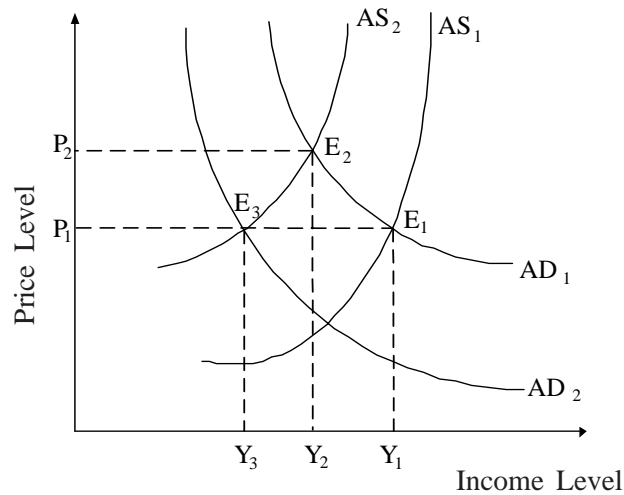


Fig.19.4 : Initial aggregate demand,  $AD_1$  and aggregate supply,  $AS_1$  curves intersect at  $E_1$  where level of income is  $Y_1$  and that of prices is  $P_1$ . However, a rise in cost of production pushes up aggregate supply to  $AS_2$ . This results in a rise in prices to  $P_2$ . At such higher prices, only  $Y_2$  level of income will be generated as the consumers cannot afford to buy larger amounts of goods and services. Adoption of demand management policies under such circumstances, will push down aggregate demand to  $AD_2$ . It may restore the prices to old level  $P_1$  yet level of income at  $Y_3$  is at the lowest level of income.

Suppose, inflation is of the demand-pull variant. This means that a higher level of disposable income with the public with no change in the supply function has given rise to inflation. So, in such situations, inflation can be controlled by simply reducing the extra disposable income in the hands of the people.

The Government can do this by either decreasing the money supply, or by increasing the incentives for savings by giving tax exemptions on savings. Reducing the money supply directly lowers the extra funds available and thus helps in bringing down the demand. Various incentives increase savings, reduce consumption of those who save and thus bring down the level of aggregate demand and the price level. Given the aggregate supply, a rise in the aggregate demand raises the price level. But the demand-regulating measures push back the aggregate demand to  $AD$  and restore the old price level.

If the source of inflation lies in a decrease in the aggregate supply, then prescribed policies above would hamper economic situation on the whole. Fig.19.4 shows this situation as well. If policies, which reduce aggregate demand level, are adopted, then the price level would go down. However, equilibrium level of output would also follow a similar trend. Such policies, therefore, would only decrease the demand for labour and create an all around increase in unemployment levels. For tackling supply-side inflation, what one needs to do is to focus on the supply side. Though the government cannot do anything to increase supply in the short run, it can adopt policies, which nullify the inflationary effect arising out of increase in cost of production.

One of the possibilities is to decrease taxes like sales tax and excise duties at various levels, which helps bring down the cost of production. The firms then can reduce the prices of their products and are able to sell larger quantities in the market. In case of situations like crop failures government can augment food supplies by releasing larger stocks through **public distribution system** and bring down prices. Outright sale (from buffer stocks) in the open market can also have similar effect. The extent, to which such deflationary policies are actually effective, depends on various other factors, which we won't go into here.

---

## 19.9 DEFLATION

---

*Deflation* is a situation where prices fall continuously or have a tendency to fall. This can arise when the aggregate demand is lower than the aggregate supply. Thus, deflation is characterized by a decrease fall in output, increase in unemployment and general slowing down of the economic activities. The Great Depression from 1929 to 1933 in the capitalist countries is an example of an acute deflation when the prices crashed, unemployment catapulted to astronomical heights and the income of these countries fell sharply.

---

## 19.10 STAGFLATION

---

In the Keynesian system an inflationary gap in the short-run would lead to an increase in the real national income and hence employment. Thus while the price level goes up, so does the output, which acts as a dampener on upward movement of the prices. Thus, inflation in the Keynesian system would be accompanied by an increase in the level of real output and employment. However, in 1970s, several countries experienced a peculiar situation. There were rising rate of inflation, which was accompanied, by not only rise in unemployment but also falling or stagnating output. This type of phenomenon is called stagflation.

Suppose the prevailing rate of inflation is 6 per cent. This prevailing rate builds expectations in the minds of people about its level for some time in future. Such an expectation determines the money wage rate to be negotiated by the labour unions and employers. The employers in response to increase in the money wage rate increase their prices, which then increase the rate of inflation in the present period itself. As a result of this unexpected increase in inflation (since inflation rate now is greater than 6 per cent) the labourers find that the earlier negotiated increase in money wage rate is not sufficient to protect them against the falling purchasing power of money and demand a still higher wage rate. Such increase in the money wage rate, to compensate for the new level of inflation, would result in the firms increasing their prices.

Thus the expectation about the future price level plays a crucial role in determining the actual price level today. And according to this view, the simultaneous impact of the remedial policy measures adopted and the lag in the adjustment between the expected inflation rate and the actual inflation rate results in stagflation.

As we saw in Section 19.8, the remedial policy measures initiated would not only bring down the prices but the national income as well. But the effect of such policies is not felt instantaneously. While such policy measures are in the process of exerting their impact, expected inflation is still catching up with actual inflation. That is, the upward pressure on the inflation rate exerted by a slower growth rate of nominal income would be a consequence of the restrictive policy measures followed to control inflation. Therefore, a situation is seen when stagnation in the output level goes hand in hand with the rising inflation.

---

## 19.11 INFLATION AND UNEMPLOYMENT: THE PHILLIPS CURVE

---

In this section we study the relation between the inflation rate and the unemployment rate and see how one affects the other.

For long economists have tried to find a relation between inflation and unemployment. A British economist, A. W. Phillips, studied the relation between the wage inflation (tendency of wages to rise continually) and unemployment. By studying data for the

British economy for the years 1861-1957, he found a correlation between the two, which seemed to suggest that the rate of unemployment and the rate of wage inflation are inversely related. Wage inflation without any change in other factors, we know, would lead to pure inflation of the cost-push variety. This implies a positive relation between the rate of inflation and the wage inflation. On the other hand, an increase in wage rate reduces the demand for labour and thus unemployment increases. This implies an inverse relation between inflation and unemployment. A direct relation between wage inflation and rate of inflation and an inverse one between wage inflation and unemployment imply an inverse relation between rate of inflation and unemployment. We can put these discussions as :

**wage rate  $\propto$  inflation rate**

**wage rate  $\propto$  (1/unemployment rate)**

Therefore: **inflation rate  $\propto$  (1/unemployment rate)**

where  $\alpha =$  **sign of proportionality.**

There are two ways in which this can happen: When unemployment levels are low i.e., when fewer people are unemployed the unionized labour is in a better bargaining position to demand for an increase in the wage rate. On the other hand, the low unemployment rate and relative scarcity of labour are ordinarily times of buoyant demand and abundant profits. Thus, the firms would usually grant the demand for increase in wage rate than face the possibility of strikes and closure of such profitable production. In the reverse case of high unemployment and low profits neither would the labour unions press for higher wages nor would the firms give in to such demands.

The second explanation is the excess demand for labour. In periods of boom characterized by growing demand and profits. The demand for labour is likely to exceed its supply. As a result, the wage rate may go up leading to increase in the rate of inflation. Therefore, as unemployment goes down inflation rate goes up. Note, these two possible explanations, however, are not mutually exclusive as both the factors can work together in periods of either boom or slowdown.

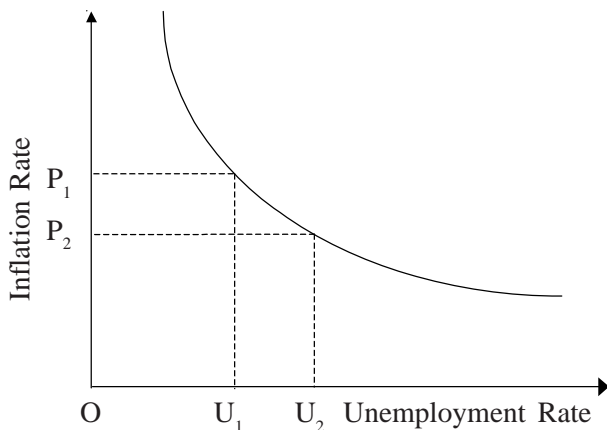
Thus the Phillips curve is a downward sloping curve with the horizontal axis representing unemployment rate and the vertical axis representing the inflation rate. It shows a trade-off between inflation and unemployment, implying that government policies can reduce the unemployment rate only by accepting a higher inflation rate and vice-versa. (Fig. 19.5)

However, the acceptability of the Phillips curve explanation suffered a setback in the 1970s when the capitalist countries experienced situations where rising inflation rate was accompanied by rising rates unemployment, i.e., a situation of stagflation.

There are many criticisms against the Phillips curve, but we enumerate just two of them.

The first argument says that Phillips curve holds true only in the short run and is not valid in the long run. This is because, an increase in the prices with the nominal wage rate remaining the same, implies that larger profits can be made for each unit of the commodity sold. And even bigger profits are possible if larger quantities of the commodities can be sold. Therefore, when prices go up, in order to reap the benefits of higher prices, producers expand the production of goods and services whose prices have gone up. Greater production means more people are employed. This happens in the short run. This is in contrast to the Phillips Curve relationship since increases in inflation leads to fall in unemployment.

Fig.19.5



**Fig.19.5 : The Phillip curve shows inverse relationship between rate of unemployment inflation. As unemployment to rise from  $U_1$  to  $U_2$ , the rate of inflation comes down brought down from  $P_1$  to  $P_2$ . Conversely, higher rate of inflation is the price a society has to pay to bring down the rate of unemployment**

In the long run, things are very different. An increase in prices with the nominal wage rate remaining constant implies that the real wage, which is the ratio of nominal wage rate to general price level, declines. Sooner or later, workers realize that their real wages have gone down and they demand higher nominal wages in keeping with the inflation rate. An increase in nominal wage rate implies that the cost of production goes up and hence it is no longer as profitable for producers to raise production. Therefore, they cut down on production and consequently employment too would go down. Thus, while the inflation rate remains at the present level whereas, the unemployment rate goes up. Thus, the theory of trade-off between inflation and unemployment no longer remains valid. But we must not lose sight of the fact that the Phillips Curve analysis is based on the experience of 96 years, which saw two world wars and many momentous changes in the technology profile of the world.

The other argument runs as follows: It says that the Phillips curve ignores the role of capital in sparking off inflation and unemployment. Under capitalism, capitalists' aim to maximize profits leads them to adopt new technologies, which are generally more capital-intensive. This tends to lower the need for labour and hence increases the rate of unemployment. At the same time these capitalists follow an aggressive mark-up pricing policy with a view to increase their profit margins leading to an inflationary spiral. Thus the theory of trade-off between inflation and unemployment no longer remains valid.

This argument seems to assume that there shall be no expansion in the overall demand for goods and services when the technological changes are raising productivity per worker by substantial amounts! Historical experience of the rising consumerism and mass production would not justify such an assumption.

**Check Your Progress 3**

1) What are the various causes of inflation? Explain with diagrams

.....  
 .....  
 .....

2) What is meant by Stagflation?

.....

3) What is deflation

.....  
.....  
.....

4) Give a reason why Phillips curve might not be valid.

.....  
.....  
.....

---

### 19.12 LET US SUM UP

---

In this unit we learnt that price is the rate at which goods and services are exchanged for money. The 'Price level' is an aggregate concept. Increase in the price level denotes less of the goods and services for one unit of money. Since the price level is concerned with many differently priced goods and services, use of index numbers required to measure changes in the price level. An index number is a device for comparing the general level of the magnitude of a group of distinct, but related, variables in two or more time periods. There are different types of measures for price index.

We also learnt that inflation is a sustained rise, or a tendency towards it in the general level of prices. Inflation affects the fixed income earners and the poor most adversely. It also slows down the growth rate of an economy. The types of inflation that a country may face range from moderate to hyperinflation depending on the rate of inflation.

Inflation can arise from either the demand side or the supply side. The former would include factors like increase in government expenditure, lowering of tax rates and increase in supply of money. The latter would include factors like increase in the prices of basic inputs or mass consumption goods, or increases in wage rate. We also read that these causes of inflation in many cases do not explain experience of the less developed countries. Structural inflation tries to do that by taking into account structural peculiarities typical to these countries.

For applying anti-inflationary policies it is necessary to know the source of inflation, i.e., demand-side or supply-side, for getting the best results.

We have learnt that deflation is a situation where prices are continuously falling or have a tendency to fall. Stagflation, on the other hand is a situation where inflation is coupled with a stagnating real output and a high rate of unemployment

Finally, we have seen that the Phillips curve tries to trace out a relation between unemployment and inflation. But other than some decades over which the Phillips curve relationship applies, it is more or less redundant. In the developing countries unemployment has come about historically with little to do with inflation.

---

### 19.13 KEY WORDS

---

**Deflation** : is a situation where prices fall continuously or have a tendency to fall. This generally happens when the



*aggregate demand* falls short of the *aggregate supply* in the economy.

- Gestation Period** : The period between the time when investment in a project is made and when production starts.
- Hyperinflation** : It is characterized by an astronomical increase in the annual rate of inflation. This generally happens when people lose faith in money as a medium of exchange.
- Inflation** : It is defined as a persistent rise or a tendency towards persistent rise in the general level of prices. It is the rise in prices of all the commodities, which are part of the price index and should not be confused with a rise in the price of a commodity or a group of commodities such as food products.
- OPEC** : refers to the Organization of the Petroleum Exporting Countries. These include Indonesia, Kuwait, United Arab Emirates, Qatar, Iran, Iraq, Tanzania, Venezuela, Algeria, Libya, Nigeria, and Saudi Arabia.
- Piece-rate System** : A fixed amount of money is paid on the basis of the number of units of a good produced/stitched/collected etc.
- Price level** : is an aggregate concept and it relates to the price of a basket of goods and services.
- Stagflation** : It is a situation when the rising inflation is accompanied by a falling or stagnating output. This generally happens in the conditions of some *structural rigidities* (like shortage of infrastructural facilities like transportation, power, etc.) in an economy.
- Suppressed inflation** : Inflationary situations, which do not get reflected in the quoted prices. This could be done by subsidizing the commodities under question. Governments do this many times to protect the weaker sections of the population to protect them from a fast rise in prices.

---

## 19.14 SOME USEFUL BOOKS

---

Bhaduri, A., *Macroeconomics: The Dynamics of Commodity Production*, Macmillan 1986, Chapter 3.

Gupta, S. B., *Monetary Economics: Institutions, Theory and Policy*, S. Chand and Co. 1989, Chapter 14.

Gupta, S. B., *Monetary Planning for India*, 1979, Oxford University Press, Chapter 3 and Appendices.

Shapiro Edward, 1984, *Macro Economic Analysis* (5th Edition); Galgotia Publications: New Delhi



---

## 19.15 ANSWERS/HINTS TO CHECK YOUR PROGRESS EXERCISES

---

### Check Your Progress 1

- 1) Price is defined as the rate at which goods and services are exchanged for money. It is the amount of money received for selling or paid for buying one unit of a commodity or service in an exchange economy. The term price level is an aggregate concept as it relates to the price of a basket of goods and services. It does not refer to the price of a single commodity but to a group of goods and services taken as a whole. Therefore, when one talks of a change in the price level it is always in reference to a group of commodities.
- 2) An index number is a device for comparing the general level of the magnitude of a group of distinct, but related, variables in two or more time periods. A price index is used for comparing the changes in the general level of prices of a group of commodities. Generally the index number refers to the changes in the prices obtained over time, and it is expressed by putting a particular period (called the base) equal to 100 and expressing the other periods relatively to 100.

### Check Your Progress 2

- 1) Inflation affects various sections of a society in different ways. The organized working class, such as government employees, etc. have fixed income but they manage to keep pace with inflation to a large extent. The businessmen and entrepreneurs, who can raise the prices of their goods and services may sometimes, gain from inflationary situations marked by scarcity of essential services. The poor and the fixed income earners, with low bargaining power vis-à-vis their employers and little savings to fall back upon, are the ones who lose maximum during inflation.
- 2) On the basis of the severity or the rate of acceleration of prices we can divide inflation into three different types, namely, moderate, galloping and hyperinflation. When the general price level rises slowly but steadily, it is known as *moderate inflation*. Moderate inflation remains within a single digit and usually the annual inflation rates stays below 9 per cent. Steady and fairly high rate of increases in the general price level is known as *galloping inflation*. The rate of inflation runs into two digits (20 per cent, 40 per cent, etc.) and sometimes even as high three digits (e.g., 200 per cent). *Hyperinflation* is characterized by an astronomical increase in the annual rate of inflation.
- 3) See Section 19.3.

### Check Your Progress 3

- 1) The causes of inflation can be divided into two main categories, namely, supply-side factors and demand-side factors. Increase in government expenditure, increase in money supply, etc., are some of the causes in the demand-side factors. Crop failures, sudden increase in prices of basic goods etc., are some of the causes falling under supply-side factors. For details look into the section on the causes of inflation.
- 2) Till the late sixties it was believed that inflation almost always is accompanied by an increase in employment and output. But the experiences of some countries of a rising inflation rate accompanied by a rising unemployment rate, in the early seventies, came as a blow to this belief. Situations like this where a rising inflation is accompanied by a falling or stagnating output are known as *stagflation*

- 3) **Deflation** is a situation where prices fall continuously or have a tendency to fall. This can arise when the aggregate demand is lower than the aggregate supply and as a consequence the price level tends to fall. Deflation is characterized by a fall in output, increase in unemployment and general slowing down of economic activities.
  
- 4) The Phillips curve shows a trade-off between inflation and unemployment. It says that an economy can achieve a lower rate of inflation only at the cost of a higher rate of unemployment and vice-versa. But the validity of this trade-off has been questioned with the experiences of stagflation. The validity of a trade-off between the two is because the Phillips curve ignores the role of capital in sparking off inflation and unemployment. Under capitalism, the capitalists' aim to maximize profits leads them to adopt new technologies, which are more often than not more capital-intensive in nature. This tends to lower the need for labour and hence increase the rate of unemployment. At the same time these capitalists follow an aggressive mark-up pricing policy with a view to increase their profit margins. This leads to an inflationary spiral.





# EEC-11 Fundamentals of Economics

Block

## 8

### **MONEY AND PRICES**

---

#### **UNIT 18**

**Quantity Theory of Money** **5**

---

#### **UNIT 19**

**Inflation and Unemployment** **23**

---



---

## **BLOCK 8 MONEY AND PRICES**

---

### **Introduction**

This block discusses the role of money in the economic system. Theories of demand for money are discussed by introducing classical, Keynesian and monetarist versions of quantity theory (**Unit 18**). The problem of price rise and employment is covered in **Unit 19**. Whole range of issues centred on the functions of money, supply of money, situations of consistent rise in prices of commodities and their impact on production and employment form the subject matter of the block.