CHAPTER 24

Inflation: Meaning, Measures and Effects

INTRODUCTION

The problem of inflation is as old as market system. But, a persistent, continuous and high rate of inflation—generally, 5% or more—has emerged during the post-War II period. Inflation has been the most intractable economic problem for both theoreticians and policy-makers all over the world. The problem of inflation has received a more serious attention since the early 1970s. A continuous rise in the general price level over a long period of time has been the most common feature of both developed and developing economies (for details, see Tables A24.1 and A24.2 in the Appendix to this chapter). For example, the US was facing the problem of high rate of inflation (around 5 per cent) even though the US economy is facing recession. India, a fast developing nation—growing at the rate of 9% per annum was facing a high rate of inflation—over 12% in the 2nd half of 2008 which had created economic, social and also political problems of the country. Persistent inflation is perhaps the second most serious macroeconomic problem confronting the world economy today—second only to hunger and poverty in the 'third world.' Some authors consider inflation as the 'dominant economic problem' of modern times. The persistent inflation and the problems created by inflation have claimed more attention of the economists, policy makers and politicians than any other macroeconomic problem. This has led to abounding increase in the literature on inflation. In this chapter, we discuss three main aspects of inflation—meaning, measurement and effects of inflation. The theories of inflation and policy measures to control inflation, and the relationship between inflation and unemployment are discussed in two subsequent chapters.

24.1 WHAT IS INFLATION?

In a broad sense of the term, inflation means a considerable and persistent rise in the general price level over a period of time. However, there is no universally acceptable definition of inflation. The definition of inflation has been, in fact, a matter of economists' opinion on price rise and its causes. Let us look at some widely quoted *early definitions* of inflation and their implications.

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According to Pigou,[1] "Inflation exists when money income is expanding more than in proportion to increase in earning activity." It implies that the difference between the rate of increase in money income and rate of increase in real income gives the rate of inflation. To Coulborn, inflation is a situation of "too much money chasing too few goods." According to Kemmerer, "Inflation is ... too much currency in relation to physical volume of business." Crowther defined inflation as, "a state in which the value of money is falling, that is, prices are rising."[2] The general drawback of these definitions is that they tell the *cause of inflation* rather than telling what inflation is. The definitions of this orientation do not capture the full implications of the inflationary situation. Besides, despite being theoretically unsound, these definitions are alleged to be of little use in the formulation of anti-inflation policies, especially under modern economic conditions characterized by complexity of factors causing inflation.

Consider *some recent* and more appropriate definitions of inflation. According to Ackley, "Inflation is a persistent and appreciable rise in the general level or average of prices."[3] Harry G. Johnson defines inflation as "a sustained rise in prices."[4] According to Samuelson, "Inflation denotes a rise in the general level of prices".[5] Bronfenbrenner and Holzman[6] have suggested a number of alternative definitions of inflation which are mostly modified versions of the earlier definitions. Their alternative definitions make things more fuzzy rather than adding clarity to the concept of inflation.

The modern economists, however, seem to agree that *inflation means a 'persistent' and 'appreciable' increase in the general level of prices*. Nevertheless, the terms 'persistent' and 'appreciable' and other terms like "sustained," "considerable," "continuing," and "prolonged" used in other definitions of inflation are not precisely defined. In practice, however, the term *'persistent'* implies that the price level continues to rise and does not respond to anti-inflationary policies. The term *'appreciable'* is more ambiguous because it does not specify as to what rate of increase in the price level is to be considered 'appreciable' or 'considerable'—5%, 10%, 30% per month or per annum or what? There is no specific answer to this question, nor can there be any because economic conditions, desirability of inflation, ability of the economy to absorb or tolerate inflation and effects of inflation vary from country to country and from time to time.

24.1.1 What Rate of Price Rise is Inflation?

If one goes by the definition of inflation given by some modern economists, *any rise* in the general price level is *not* inflation. In their opinion, only a 'persistent', 'prolonged' and 'sustained' and a 'considerable' and 'appreciable' rise in the general price level can be called 'inflation'. Though the terms 'persistent', 'prolonged' and 'sustained' are not defined precisely, it implies that if price rise is not 'persistent', prolonged or sustained, it is not inflation whatever the rate of rise in the general

1. A. C. Pigou, "Types of War Inflation," *EJ.*, December 1947, p. 409 and in his *The Veil of Money*, p. 34.
2. M. Crowther, *An Outline of Money*, p. 106.
3. Ackley, Gardner, *Macroeconomic Theory, op. cit.*, p. 421.
4. Harry G. Johnson, "A Survey of Theory of Inflation", *Ind. Eco. Rev.*, Vol. 6, No. 4, August, 1963, reprinted in his *Essays in Monetary Economics* (George Allen & Unwin Ltd., London, 1966), p. 104.
5. Samuelson, P. A. and Nordhaus, W. D., *Economics*, (15th International Edn, 1995), p. 574.
6. Martin Bronfenbrenner and Franklin D. Holzman, "A Survey of Inflation Theory," *Am. Eco. Rev.*, September 1963.

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price level. Nor do the economists specify what rate of price rise is 'considerable' or' appreciable' – 1%, 5%, 10%, 20% or what? They do not provide a specific answer to this question too. It may thus be concluded that the economists do not provide a definite answer to the question as to 'what rate of increase in price rise is inflation'.

However, if one goes by Samuelson-Nordhaus definition of inflation, 'a rise in the general level of prices' is inflation. It means that *any* rise in the general price level over and above the base-year level is inflation. This is the concept of inflation which is generally used in the analysis of price behaviour. For instance, the rate of price rise in India during April-May 2009 was below 1% and had gone down to 0.13% in the last week of May 2009 – the lowest in 30 years. This almost zero rate of rise in the general price was also called inflation in public reports. This is the practice, in fact, in all countries. This concept of inflation is adopted also by the international organizations like World Bank and IMF.

This should not mean, however, that modern economists' perception of inflation—a considerable and persistent price rise—is meaningless and impracticable. If one looks at their approach carefully, one finds that their approach is policy oriented and they have an important and useful point of view. As we will discuss in detail later, inflation upto a certain level is advantageous and desirable as it is conducive to economic growth and employment. But beyond this level, inflation is harmful and often proves disastrous to the economy. Besides, it creates many social and political problems. Therefore, when inflation rate crosses its desirable limit, it has to be controlled. But, an anti-inflationary policy and inflation control measures have to be devised very carefully or else it may do more harm than good to the economy. For this purpose, the policy-makers have to ensure (i) that inflation rate is high enough to prove harmful to the economy and the society, and (ii) that inflation persists over a long period of time and it is not an intermittent rise-and-fall affair of a seasonal affair or 'supply-shock' kind of inflation, e.g., oil supply shock of 1970s causing global inflation. Since economic conditions of different countries and their ability to absorb inflation vary from country to country and, within a country, from time to time, it is not justifiable to specify a rate of price rise to be called inflation. Each country has to find for itself the *desirable rate of inflation* at different points of time and to formulate policy measures accordingly to control inflation.

Now a question arises here: What is the desirable rate of inflation? The economists' point of view on this question is discussed below.

24.1.2 What is Desirable Rate of Inflation?

The question as to what is a desirable rate of inflation can be answered by linking it to the economic and social needs of the country. In general, a ***moderate rate of inflation is considered to be desirable and acceptable*** for at least three reasons.

(i) A moderate rate of inflation keeps the economic outlook optimistic, promotes economic activity and prevents economic stagnation.

(ii) It is helpful in the mobilization of resources[7] by increasing the overall rate of savings and investment—inflationary financing has, in fact, been widely used to finance economic growth of the underdeveloped countries.

[7] This aspect of inflation will be discussed in detail in a subsequent section of this chapter.

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(iii) It is historically evident that, despite intermittent deflation, the general price level has exhibited a rising trend, and some increase in the general price level is inevitable in a dynamic and progressive economy.

A rate of inflation higher than the *desirable* rate of inflation is considered to be 'considerable'. Now the question arises: ***What is the moderate rate of inflation***? This question cannot be answered in specific percentage terms because desirability of inflation depends on the need and the absorption capacity of a country which are subject to variation from time to time. The capacity of a country to absorb inflation may be defined in terms of the limit of the price rise beyond which the economy gets overheated and macro variables like savings, investment, growth of output, *BOP* position, and employment get adversely affected. The absorption capacity, so defined, varies from country to country and from time to time depending on their growth potentials. Therefore, the desirable or the moderate rate of inflation has to be determined for each country and for different periods of time. There is no definite rule in this regard. However, based on the past experience, Harry Johnson has suggested that 1-2 per cent inflation in developed countries and 4-6 per cent inflation in less developed countries is the appropriate and desirable limit of moderate inflation.[8]

As regards the desirable rate of inflation for India, the Chakravarty Committee (1985), a Committee set up by the RBI to review the monetary system of the country, considered a 4 per cent rate of inflation in India socially desirable and conducive to economic growth. Some economists consider a lower rate of inflation to be desirable. "Some people who regard inflation as an economic evil believe that a price level rising at a rate of around 1.5 per cent ... assists in achieving and maintaining full employment and a satisfactory rate of growth."[9] However, if one goes by the recent record of inflation. (see Appendix Tables A24.1 and A24.2), inflation rate of 1.5 per cent appears to be too low to maintain "full employment and a satisfactory growth rate."

To conclude, **a price rise of 2-3 per cent per annum in the developed countries and 4-5 per cent per annum in the developing economies is generally considered as the desirable rate of inflation.** Therefore, a price rise in excess of 2–3 per cent in developed countries and 4–5 per cent in developing countries can be regarded as 'considerable' and undesirable. This definition may not be theoretically defendable but it is empirically defendable. Also, it has an important policy implication that so long as (i) the general level of price rises at an annual average rate of a 2-3 per cent in developed countries and 4-5 per cent in less developed countries, and (ii) macrovariables are not adversely affected by the price rise, an anti-inflationary policy is not advisable as it may distort the price system and affect adversely the employment and growth process.

Price Rise in Excess of Moderate Rate May not be Always Inflationary As noted above, from the viewpoint of the desirability of moderate inflation, any price rise in excess of 2-3 per cent in the developed and 4-5 per cent in the developing economies may be considered undesirable or problematic inflation. This will be, however, an erroneous conclusion because **a price rise on account of the following factors cannot be taken to be inflationary.**

8. Harry G. Johnson, "Is Inflation the Inevitable Price of Rapid Development or Retarding Factor in Economic Growth?", *Malayan Economic Review*, Vol. 11, No. 1, April 1966. Partly reproduced in *Leading Issues in Economic Development*, (ed) by Gerald M Meier (Oxford University Press, Delhi), Sixth Edition—quoted from p. 179.

9. Edward Shapiro, *Macroeconomic Analysis*, (Galgotia Publishers, New Delhi, 1994), p. 468.

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(i) Price rise due to change in the composition of *GDP*—high-price industrial goods replace the low-price farm products;
(ii) Price rise due to qualitative improvement in the products accross the board;
(iii) Price rise due to change in price indexing system, and
(iv) Recovery in price after recession.

Therefore, while deciding on whether a price rise in excess of the moderate rate of inflation is genuinely inflationary, one must take these factors into account and adjust the price rise accordingly, especially when the purpose is to formulate anti-inflationary policies.

24.2 METHODS OF MEASURING INFLATION

There are two common methods of measuring inflation: (i) measuring inflation by percentage change in Price Index Numbers (PIN), and (ii) measuring inflation by change in *GNP* Deflator. The two methods of measuring inflation are discussed below.

24.2.1 Measuring Inflation by Change in PIN

The following formula is used for measuring the rate of inflation through the change in the PIN.

$$\text{Rate of Inflation} = \frac{\text{PIN}_t - \text{PIN}_{t-1}}{\text{PIN}_{t-1}} \times 100$$

where PIN_t in the price index number in the year or period selected for measuring inflation and PIN_{t-1} is the price index number in the preceding year or period.

The two widely used PINs are Wholesale Price Index (*WPI*), also called Producer Price Index (*PPI*), and Consumer Price Index (*CPI*). *WPI* is used to measure the general rate of inflation and *CPI* is used to measure the change in the *cost of living*.

In order to illustrate the measurement of inflation, let us use price index numbers in India in the first decade of the 21st century. The *WPI* (2004–05 = 100) for 'all commodities' increased from 143.3 in 2010–11 to 156.1 in 2011–12. The rate of inflation between 2010–11 and 2011–12 can be obtained by using the above formula as follows.

$$\text{Rate of Inflation} = \frac{156.1 - 143.3}{143.3} \times 100$$

$$= 8.93 \text{ per cent}$$

24.2.2 Measuring Inflation by GNP Deflator

The *GNP* deflator is the ratio of nominal *GNP* to the real *GNP* of the same year, i.e.,

$$GNP \text{ deflator} = \frac{\text{Nominal } GNP}{\text{Real } GNP}$$

where *Nominal GNP is GNP at current prices* and *real GNP* is *GNP at the prices of the base year*.

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(iii) Hyper Inflation

In general, a price rise at more than three-digit rate per annum is called 'hyper inflation'. According to some economists, however, "Hyper inflation is often defined as inflation that exceeds 50 per cent per month ..... An inflation rate of 50 per cent per month implies a more than 100-fold increase in the price level over a year"[15] During the period of hyper inflation, paper currency becomes worthless and demand for money decreases drastically. Germany suffered from hyper inflation in 1922 and 1923 when wholesale price index shot up by "100 million percent between December 1922 and November 1923."[16] November 1923 was the worst period of hyper inflation in Germany—"from January 1922 to November 1923, the price index rose from 1 to 10,000,000,000."[17] Hungarian inflation of 1945-46 is the worst case of hyper inflation ever recorded: the "rate of inflation averaged about 20,000 per cent per month for a year and in the last month prices skyrocketed 42 quadrillion[18] per cent."[19]

The price rise in zillion and quadrillion percentage makes the meaning of hyper inflation obscure. It goes beyond the mental vision of the number. The following anecdotes about German hyper inflation would reveal what happens during the period of hyper inflation.

— People carried basket-load of money to the market and brought goods in pocket.
— It was cheaper to burn currency notes to make tea rather than buying it in the tea-shop.
— Price of a house in pre-inflation period was just sufficient to pay a day's rent in post-inflation period.
— At the time of entering the cafe, the price of a cup of coffee was 4,000 marks, which rose to 8000 marks before one could finish his coffee.

In the recent past, Argentina, Brazil, and Peru had hyper inflation in 1989 and 1991. The rates of inflation in these countries in 1989 and 1990 are listed in Table 24.1.

Table 24.1 Rate of Inflation in Argentina, Brazil and Peru–1989 and 1990

Country	1989	1990
Argentina	3079.8 per cent	2314.0 per cent
Brazil	1287.0 per cent	2937.8 per cent
Peru	3398.6 per cent	7481.7 per cent

(*Source:* CMIE, World Economy & India's Place In It, October 1993, Table 11.6)

According to prediction made by some economists, the inflation rate in Yugoslavia was to reach 2,50,000 per cent in December 1993 (*TOI*, 27/12/1993). The Yugoslav treasury had issued the biggest currency notes with denomination of 500 billion dinars to facilitate transactions.

15. CMIE, *World Economy and India's Place In It*, October 1993, Table 11.6.
16. Baumol, W.J., and Blinder, A. S., *op. cit.*, p. 109.
17. Samuelson, P.A. and Nordhaus, W. D., *Economics, op. cit.*, p. 579.
18. In US and France, 1 quadrillion = 1,000,000,000,000,000, and in UK and Germany, 1 quadrillion = 1,000,000,000,000,000,000,000,000 (i.e., 24 zeros placed after 1) or 1 quadrillion = 1,000,000,000 zillion or 1 quadrillion = 1, 000,000 septillion.
19. Baumol, W. J. and Blinder, A. S., *op. cit.*, p. 109.

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(iv) Open and Suppressed Inflation

In the contemporary writings on the subject, one often comes across the terms 'open inflation' and 'suppressed inflation.' When there is no control on the rising prices and prices are free to find their own level, the inflation under this condition is called ***open inflation***. In the post-War II period, control and regulation of prices by direct and indirect measures has become a common feature of economic policy of most developed and developing economies. In addition to indirect measures including monetory and fiscal control measures, direct price control measure in the form of statutory fixation of the price or fixation of a price ceiling; rationing the consumption of scarce goods, controlled distribution of goods through public distribution system; subsidization of commodities with inflation potentials, etc. are used to control the price rise. In spite of these control measures, prices do rise and inflation does take place but at a rate lower than the potential rate in the open system. This kind of inflation is called ***suppressed inflation***.

In the modern world economy *open inflation* is a rare phenomenon. Countries facing inflation have suppressed inflation. For example, the 7-8 per cent inflation in India in 2008 was virtually a suppressed inflation.

24.4 INFLATION, DISINFLATION AND DEFLATION

Before we proceed to discuss further aspects of inflation, let us understand the difference between *inflation* and *disinflation* and between *inflation* and *deflation*. ***Inflation*** refers to a considerable and persistent increase in the general price level. ***Disinflation*** means decline in the rate of inflation. ***Deflation*** means fall in the general price level below the base-year level. The conceptual difference between these terms is illustrated below with hypothetical price data in Table 24.2.

Table 24.2 Measuring Inflation, Disinflation and Deflation

(Base year = 2000–01)

Year	Price Index Number (PIN)	% Change in Price (Year-to-Year)	Nature of Price Change
2000–01	100	—	—
2001–02	110	10	Inflation (10%)
2002–03	105	4.5	Disinflation (5.5%)
2003–04	100	(–) 5.0	Disinflation (5.0%)
2004–05	100	0.0	Zero Rate of Inflation
2004–05	95	– 5.0	Deflation

As can be seen from Table 24.2, when PIN rises from 100 in base-year 2000–01 to 110 in year 2001–02, it means there is 10% ***inflation***. When PIN decreases from 110 in year 2001–02 to 105 in year 2002–03, ***inflation*** rate on year-to-year basis has declined from 10% to 4.5% but it still remains above the base-year level. This is the situation of ***disinflation***—the fall in the rate of inflation. When PIN declines below the base-year PIN = 100, this means ***deflation***. Thus, ***deflation*** means that the general price level has gone down below the *base-year price level.*

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Inflation, Disinflation and Deflation in India

Looking at the Indian data, the weekly rate of inflation (based on WPI) had shot up to 13.1% in the 2nd week of August 2008 – the highest rate of inflation during the past 16 years – and the *annual* inflation rate had gone up to 12.81% in 2008. This was a matter of great concern for both the MOF and the RBI. Thereafter, however, inflation rate started declining setting a *disinflationary trend.* In the 2nd week of September 2008 inflation rate declined to 12.14%. Over the following period of three months, inflation rate had sharply declined to 6.61% in the 2nd week of December 2008 due mainly to the recession in the economy caused by the impact of global recession. This decline in the inflation rate was, in fact, ***disinflation.*** The disinflationary trend continued and inflation rate declined to 0.13% in the last week of May 2009, i.e., inflation rate had fallen to a near-zero level. The price level continued to decline and fell to –1.61% in the first week of June 2009 and –1.31% in the last week of June. This marked a situation of ***deflation*** in India.

24.5 INFLATION IN INDIA: A LONG-TERM VIEW

The historical record of inflation in India is given in Table 24.4. As the table shows, India has had inflation almost continuously over a period of six decades, though the rate of inflation has been changing – sometimes low, sometimes high – and in some years there was deflation. The inflation rate during the First Plan period (1951–56) was very low (1.5%), rather insignificant. But, the price rise picked up during the Second Plan period (1955–56 to 1960–61) when prices had increased at the rate of 6.3 per cent per annum. As can be seen in Table 24.4, the five-year average rate of inflation in India remained limited to one digit during most of the period of the past five decades, except, of course, in 1970s. It was only during the first half of 1970s and the first half of 1990s that the rate of inflation had crossed one-digit rate.

Table 24.3 Annual Average Rate of Inflation in India: 1960-2001

(Base: 1993–94 = 100)

Period	52-week annual average	Point to Point (March end)
1950–51 to 1955–56*	1.5	---
1956–56 to 1960–61	6.3	5.2
1961–62 to 1965–66	5.8	5.9
1966–67 to 1970–71	6.7	5.7
1971–72 to 1975–76	12.0	10.8
1976–77 to 1980–81	8.5	11.0
1981–82 to 1985–86	6.5	5.5
1986–87 to 1990–91	7.8	8.5
1991–92 to 1995–96	10.6	9.3
1096–97 to 2000-01	5.0	5.3

* Figures taken from CMIE, *Basic Statistics Relating to the Indian Economy*, 1994, Table 21.2

Source: Economic Survey—2001–2002, Ministry of Finance, Government of India, p. 111.

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Table 24.4 presents the inflation rates in India for the period 2000-01 to 2008-09.

Table 24.4 Annual Inflation Rate: 2000-01–2010-11

(Year-on-year: 1999–2000 = 100)

Year	Inflation Rate (52-week average)
2000–01	7.2
2001–02	3.6
2002–03	3.4
2003–04	5.5
2004–05	6.5
2005–06	4.4
2006–07	5.4
2007–08	4.7
2008–09	8.4
2009–10	3.8
2010–11	9.6
2011–12	9.0
2012–13	7.5
2013–14	6.2

Source: *Economic Survey*-2008-09, MOF, GOI, Table 4.1, p. 64; *Economic Survey*-2011–12, Table 4.2, p. 75, and *Economic Survey* 2012–13, Table 4.1, p. 80.

Conclusion

From the data presented in Tables 24.3 and 24.4, it can be concluded that the Indian economy has been prone to inflation. However, in view of the fact that it is a fast growing economy, inflation rate has been within the range of moderate inflation. Besides, a comparison of inflation rates in pre-economic reform period (pre-1990 period) and post-reform period shows that the inflation rate tended to decline in the post-reform period. It may be the result of faster growth rate of the economy, i.e., 5% plus. Inflation in India will be analysed in a greater detail in the next chapter, in the light of the theories of inflation.

24.6 SOCIAL AND ECONOMIC EFFECTS OF INFLATION

The social and economic effects of inflation are all pervasive. It affects all those who depend on the market for their livelihood. The effects of inflation may be favourable or unfavourable and low or high depending on the rate of inflation. For example, a galloping and hyper inflation have devastating effect on the economy and have serious social and political implications too. In this section, however, we will discuss only economic effects of inflation on certain major aspects of the econo-

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2004–05	6.5
2005–06	4.4
2006–07	5.4
2007–08	4.7
2008–09	8.4
2009–10	3.8
2010–11	9.6
2011–12	9.0
2012–13	7.5
2013–14	6.2

Source: *Economic Survey*-2008-09, MOF, GOI, Table 4.1, p. 64; *Economic Survey*-2011–12, Table 4.2, p. 75, and *Economic Survey* 2012–13, Table 4.1, p. 80.

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my, viz., (i) distribution of income, (ii) distribution of wealth,[20] (iii) different sections of the society, (iv) output and economic growth, and (v) employment of labour.

1. Effect of Inflation on Distribution of Income

The effect of inflation on income distribution depends on how it affects the price received and price paid by different sections of the society, especially the consumers and the producers. *Prices received are the same as incomes* defined crudely. For example, households receive their incomes in the form of factor prices–wages and salaries, rents and royalties, dividend, interest, profits and income from self-employment. Similarly, *actual prices paid represent the expenditures on consumer goods and production inputs. Inflation changes the income-distribution-pattern only when it creates a divergence between total price received and total prices paid by different sections of the society*. For example, let us consider only two major forms of incomes–wage incomes and profits. When price rise is so sector-wise uniform that wages increase proportionately to the rise in profit incomes, the income distribution remains generally unaffected. When output prices increase at a rate higher than input prices, profits rise faster than wage incomes and incomes get redistributed in favour of the profit earners—the employers. This is the case generally. However, if inflation is predictable and consumers are able to adjust consumption pattern and wage earners can move from low-wage jobs to high-wage jobs, then the impact of inflation on income distribution is considerably mitigated.

What happens in general, however, is that product prices increase first and at a faster rate, and input prices (especially wages) increase later and at a lower rate. It is so because, there is always a time-lag between the rise in output prices and input prices. For example, prices of goods and services increase first, in general, and wages of labour after a time gap. It is a general practice that when prices of consumer goods increase, dearness allowance is paid after a time gap. This is also the general case. As a result, wage incomes flow to producers of wage-goods first and at a faster rate than the reverse flow. Consequently, inflation cause redistribution of income in favour of the producers. Consequently, rich (firms) get richer and poor (labour) get poorer.

2. Effect of Inflation on Distribution of Wealth

From the viewpoint of analysis here, let us look at wealth as accumulated assets. Assets can be classified as: (i) price variable assets, and (ii) fixed value assets. *Price-variable assets* are those whose prices change with change in the general price level. The money value of price-variable assets increases, during the period of inflation. Price-variable assets can be further classified as: (a) *physical assets* including land, building, automobiles, gold, jewellery, etc., and (b) *financial assets* including shares and stocks. The *fixed-value assets*, on the other hand, are those assets whose money value remains constant even if the general price level changes. *Fixed-value assets* include bonds, term deposits with banks and companies, loans and advances, etc. Like assets, there are liabilities also. *Liabilities* are mostly of fixed claim nature like house loans, car loans, bank loans, and mortgage of property. Let us assume, for the sake of simplicity in the analysis, that fixed value assets and fixed value liabilities cancel out.

20. Generally, the effect of inflation on income and wealth distribution are discussed together. However, since income is a flow concept and wealth is a stock concept, we will discuss them separately.

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Under the above assumption, the effect of inflation on the distribution of wealth depends on how inflation affects the *net wealth* (= assets – liabilities) of the different classes of wealth holders. The effect of inflation on the net wealth depends on how inflation affects the money value of the price-variable assets. If prices of all price-variable assets increase at the rate of inflation, then there will be no change in asset portfolio and no change in wealth distribution.

However, if price of price-variable assets increases at a rate higher than the rate of inflation, inflation changes the distribution of wealth. Inflation changes wealth distribution by changing the wealth accumulation ability of the different groups of wealth holders. Suppose there are only two categories of wealth holders – the high wealth and the low wealth holders. In general, high wealth holders belong to high income groups. The ability to acquire wealth depend on the ability to save and ability to save depends on the income. As a matter of the general rule, the high income groups have a higher ability io save and therefore a higher ability to acquire wealth. During the period of inflation, income of the high-income groups increases at a higher rate than that of the low-income groups. As noted above, during the period of inflation, income of the businessmen increases at a higher rate than that of the employees, and income of the business executives increases faster than that of the low-grade employees. Therefore, the higher income groups are able to save more and accumulate more wealth than the lower income groups. As a result, the wealthy people are able to acquire more and more wealth than the low wealth holders. It may thus he concluded that inflation changes wealth distribution in favour of the wealthy class of the society.

Empirical Evidence

It has been argued above that inflation can, at least theoretically, affect the distribution of income and wealth under certain conditions. Let us now turn to the question whether inflation really affects income and wealth distribution. The economists have devoted a considerable effort and attention to examine the effect of inflation on the distribution of wealth. A voluminous literature[21] is available on the subject. Empirical studies do not produce conclusive evidence on the effect of inflation on the distribution of income and wealth. To quote Samuelson and Nordhaus, "The summary wisdom of these studies indicates that the overall impact is highly unpredictable."[22]

3. Effects of Inflation on Different Sections of Society

As noted above, the overall impact of inflation on income and wealth distribution is unpredictable. However, inflation has certain definite and predictable effect on the income of certain sections of society. These are briefly discussed below.

21. Some widely quoted works are listed here: G. L. Bach and A. Ando, "The Redistributional Effect of Inflation," *Rev. of Eco. & Stat.*, February 1957. pp. 1-13; S. E. Harris, *The Incidence of Inflation: Or Who gets Hurt?*, Study Paper No. 7, *in Study of Employment, Growth, and Price Levels*, Joint Economic Committee, US Congress 1959; A. Brimmer, "Inflation and Income Distribution in the United States," *Rev. of Eco. & Stat.*, February 1971. pp. 37-48; E. C. Budds and D. F. Seiders, "The Impact of Inflation on the Distribution of Income and Wealth," *Am. Eco. Rev*, May 1971, pp. 128-38; W. D. Nordhaus, "The Effect of Inflation on the Distribution of Economic Welfare," *Jl. of Credit, Money and Banking*, February 1973, Part 2, pp. 465-96; G. L. Bach and J. B. Stephenson, "Inflation and the Distribution of Wealth," *Rev. of Eco. & Stat.*, February 1974. pp. 1-13; A. M. Maslove and J. L. Rawley, "Inflation and Redistribution," *Canadian JL. of Eco.*, August 1975, pp. 399-409; J. Foster, "The Redistributive Effects of Inflation : Questions and Answers," *Scottish Jl. of Pol. Eco.*, February 1956, pp, 73-98; H. Niida, "The Distributional Effects of the Inflationary Process in Japan," *Rev. of Income and Wealth*, June 1978, pp. 195-219; J.J. Minarik, "The Size Distribution of Income During Inflation," *Rev. of Income and Wealth*, December 1979, pp, 377-92.

22. P.A. Samuelson and W.D. Northaus, *Economics, op. cit.*, p. 581.

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Wage Earners It is a common belief that wage earners are hurt by inflation. Some economists consider this belief as a myth.[23] In fact, whether wage earners lose or gain by inflation is again a matter of labour-market conditions. In developed countries labour is, by and large, organized and labour market is competitive. According to Baumol and Blinder[24] "the average wage typically rises more or less in step with prices." This contradicts the 'popular myth' that wage earners are, in general, losers during the period of inflation. They have used US data to show that real wage "is not systematically eroded by inflation." They add, "The fact is that in the long-run, wages tend to outstrip prices as new capital equipment and innovation increase output per worker."

The Baumol-Blinder conclusion holds not only in the US but also in India, at least, for the organized sector of the country. In the organized sector, labour is unionized. The organized labour uses its union power to get compensatory increase in their wages. The labour in the organized sector is, therefore, often adequately compensated for the loss of purchasing power due to inflation. In India, according to the official data, the public sector employees, that is, a part of the organized sector, was more than doubly compensated. The per capita annual emoluments had increased by 1326.17 per cent between 1971-72 and 1994-95, whereas the consumer price index (1960 = 100) had gone up by only 630.21 per cent during this period.[25] The annual emoluments in the private organized sector had increased at a faster rate. It may thus be concluded that the wage earners in the organized sector of India had gained during the period of inflation.

However, the economists' finding that inflation benefits labour can hardly be accepted as a universal phenomenon. For, labour market conditions and price variations vary from country to country and from time to time. The labour markets in the less developed countries, mostly in the countries facing a large scale open and disguised unemployment, are generally divided between *organized* and *unorganized* labour markets. In India, for example, the employment share of unorganized sector is much larger—nearly five times bigger—than that of the organized sector.[26] The wage in the unorganized labour market have not increased in proportion to the rate of inflation. Therefore, the labour in the unorganized sector is a net loser during the period of inflation. However, things have been found different in the organized sector. According to a study conducted by Times Bureau (*ET*, May 2009), the rise in the wage rate was 5-6 percentage point higher than the labour productivity in the manufacturing sector in 2007. This might be both the cause and the effect of inflation. Thus, it may be concluded that inflation harms the labour of the unorganised sector but it benefits the labour of the organised sector.

Producers Whether producers gain or lose due to inflation depends, at least theoretically, on the rates of increase in output and input prices, i.e., in the prices they receive (the output

23. See, for example, W. J. Baumol and Alan S. Blinder, *Economics: Principles and Policy, op. cit.*, p. 100.
24. W. J, Baumol and A. S. Blinder, *Economics: Principles and Policy*, op. cit., p. 101.
25. See *Economic Survey*, 1996-97, Government of India, Ministry of Finance, p. S-54.
26. According to Planning Commission estimates (published in *Economic Survey*, 1996-97, p. S-54), the total employment in India stood at 320.5 million persons in 1994-95, of which nearly 183 million (based on 1981 ratio) were self-employed. It means, 137.5 million belonged to the category of employees. Of this, only 27.4 million, i.e., about one-fifth, were employed in the organized sector including private industrial and public sector. Thus, unorganized labour market comes to nearly 5 times of the organised labour market.

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price) and the prices they pay (input prices or the cost of production). In general, product prices rise first and faster than the cost of production. Therefore, profit margin increases and producers gain. Let us elaborate on this point.

The product prices rise first due to demand-pull factors such as rise in money supply, rise in income (as was the case in India in 2007 and 2008), or supply bottlenecks. The input prices remaining the same, profit margin increases. This creates additional demand for inputs pushing the input prices up, though at different rates and with different time lags. As mentioned above, wages and salaries increase in the long run in step with the rate of inflation. However, it must be borne in mind that wages and salaries do not increase automatically and simultaneously during the period of inflation. There is always a time-lag between the rise in product price and wages. Wages and salaries are not increased until labour unions create pressure for wage-hike. So there is a time lag. Therefore, producers gain during inflation due to wage-lag. Besides, other input prices increase at a lower rate. Therefore, producers are the net gainers.

However, firms have to bear some additional cost, called *menu cost*. During the period of inflation, especially when inflation rate keeps increasing, firms are required to revise their prices, print new price lists and publicize their new prices. The cost incurred for this purpose is called *menu cost*. In spite of the *menu cost*, the firms stand to gain from inflation.

Fixed income class The people of the fixed-income category are the net losers, during the period of inflation. The reason is that their income remains constant even during the period of inflation, but the prices of goods and services they consume increase. As a result, the purchasing power of their income gets eroded in proportion to the rate of inflation. For example, suppose that a person earns a fixed annual income of Rs 100,000 and that the rate inflation is 10 per cent. It means that if he spends his total income, he can buy goods and services worth only Rs 90,000 at the prices in the current year. If prices continue to increase at the rate of 10 per cent per annum, his purchasing power will be reduced to goods and services worth Rs. 81,000 in the second year and to worth Rs 72,900 in the third year, and so on.

Borrowers and lenders In general, borrowers gain and lenders lose during the period of inflation. For example, suppose a person borrows Rs 5 million at 12 per cent simple rate of interest for a period of five years to buy a house. Suppose also that escalation in property prices is such that property prices double every 5 years. After 5 years, the borrower would pay a total sum of Rs 8 million whereas the price of house rises to Rs 10 million. The borrower gains by Rs 2 million. The lender loses by the same amount in the sense that had he bought the house himself, his asset value would have risen to Rs 10 million.

The government The government is a net gainer during the period of inflation. In order to analyze the government's gain from inflation, let us consider the *government as a taxing and spending unit and as a net borrower*. As regards the effects of inflation on tax revenue, inflation increases revenue yields from both, the direct and indirect taxes. Consider first the direct taxes, viz., personal and corporate income taxes.

Inflation increases tax yields from ***personal income tax*** in at least three ways. *One*, inflation redistributes income generally in favour of higher income groups. This kind of income transfers

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enlarge the tax base for the personal income tax. As a result, the yield from the personal income tax increases. *Two*, inflation increases the nominal income at the rate of inflation, real income remaining the same. As a consequence, an income which was non-taxable prior to inflation becomes taxable after inflation. This also enhances the tax base and, therefore, the tax revenue. *Third*, with the increase in the nominal income due to inflation, incomes taxable at lower rates becomes taxable at a higher rates. This increases the yields from personal income tax.

As regards the ***corporate income tax***, tax-yield increases during the period of inflation on account of two factors. ***One***, during the period of inflation, output prices increase generally faster than the input prices. Therefore, the total profit increases. Consequently, the yield from the corporate income tax increases. Even if output and input prices increase at the same rate, the volume of nominal profit increases. This increases the tax yield. ***Two***, the yield from the corporate income tax increases also due to tax laws in respect of depreciation allowance. Firm's tax liability is determined after deducting the allowable depreciation of the plant and equipment. In determining the tax liability, depreciation is allowed on firm's book-cost of plant and equipment, not on their (inflated) market value. The taxable profit is overstated to this extent. This enhances the government's revenue from the corporate income tax.

As regards the revenue from **indirect taxes**, it depends on whether indirect taxes (customs, excise and sales tax) are imposed at fixed rate per unit of output or at *ad valorem* rate. If taxes are imposed at fixed rate, the rise in price does not affect the revenue. However, indirect taxes are generally imposed at *ad valorem* rates. The *ad valorem* rates enhance the revenue from the indirect taxes in direct proportion to the rate of inflation. In India, a major part (about three-fourths) of the central government tax revenue was contributed by indirect taxes (customs and excise) prior to the tax reforms of 1991-92: these taxes still contribute nearly half of the total tax revenue, for example, 47.0 per cent in 2006-07. The high rate of inflation during the 1970s and 1980s had contributed a great deal to the yields from the indirect taxes. The additional revenue accruing to the government due to inflation, tax rate remaining constant, can be called **inflation tax**.

4. Effect of Inflation on Economic Growth

The effect of inflation on economic growth can be examined at both theoretical and empirical levels. Let us first examine the issue of inflation and economic growth at theoretical level. *Theoretically*, the rate of economic growth depends primarily on the rate of capital formation which depends on the rate of saving and investment. Therefore, whether inflation affects economic growth positively or negatively depends on whether it affects savings and investment positively or negatively. Most economists hold the view that there is a positive relationship between inflation and saving and investment and, therefore, *inflation is conducive to economic growth*. Two arguments are put forward in favour of this proposition.

First, during the period of inflation, there is a time-lag between the rise in output prices and rise in input prices, particularly the wage rate.[27] This time-lag between the rise in output prices and the wage rate is called wage-lag. When the wage-lag persists over a long period of time, it enhances

27. For the evidence of wage-lag, see Alchian, A. A. and Kessel, R. A., "The Meaning and the Validity of Inflation Induced Lag of Wages Behind Prices," *Am. Eco. Rev.*, March 1960, pp. 43-66; T. F. Cargil, "An Empirical Investigation of Wage-Lag Hypothesis," *Am. Eco. Rev.*, December 1969, pp. 806-16.

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the profit margin. The enhanced profits provide both incentive for a larger investment and also the investible funds to the firms. Firms plaugh back their profits for higher profits. This results in an increase in investment, production capacity and a higher level of output.[28]

Second, inflation tends to redistribute incomes in favour of higher income-groups whose incomes consist mostly of profits and non-wage incomes. This kind of inflation-induced redistribution of incomes increases total savings because upper-income groups have a *higher propensity to save*. The increase in savings increases the supply of investible funds and lowers the rate of interest. Since investment is the function of interest rate, other factor given, a lower rate of interest increases investment. With increase in investment, production capacity of the economy increases. This causes an increase in the total output, which means economic growth.

Going by these arguments, the developing countries unable to mobilize adequate development finance through taxation and borrowings have been recommended inflationary financing of their growth. For example, according to Harry G. Johnson, " ... some degree of inflation—but a moderate degree only—is the logical concomitant of efficient economic mobilization"[29] Apart from helping growth through redistribution of income, he argues, a moderate rate of inflation breaks the characteristic "rigidities and immobilities" of the underdeveloped economies and can "draw labour and resources out of traditional or subsistence sectors into the developing sectors of the economy" and can help efficient reallocation of resources.[30]

As regards the **empirical evidence** of relationship between inflation and economic growth, there is no clear evidence of whether inflation helps or hinders growth. The historical records and empirical researches do not seem to have produced a clear evidence of positive relationship between inflation and economic growth, at least in the long run. "Looking back to the record of the eighteenth and the nineteenth centuries, some economists find a positive relationship between inflation and economic growth in various countries"[31] Samuelson and Nordhaus recount the US experience: "Until the 1970s, high inflation usually went hand in hand with high employment and output. Rising inflation occurred when investment was brisk and jobs were plentiful. ... But a more careful examination of the historical record has revealed an interesting fact: The positive association between output and inflation appears to be only a temporary relationship. Over the longer run, there seems to be no sustained relation between a country's inflation rate and its level or growth of output or employment."[32] Different kinds of relations between inflation and growth have been observed during the post-War II period: (i) low rate of inflation and high rate of growth (West Ger-

28. For the effect of wage-lag on profits, investment and economic growth, see D. Felix, Profit Inflation and Industrial Growth", *Qly. Jl. i.e Eco.*, August 1956, pp. 441-63, and E. J. Hamilton, "Prices as Factor in Business Growth," *Jl. of Eco. Hist.*, December 1952.
29. Harry G. Johnson, "Is Inflation the Inevitable Price of Rapid Development or a Retarding Factor in Economic Growth ?", *Malayan Economic Review*, Vol. 11, No. 1, April 1966. Reproduced in Gerald M. Meier (ed.) *Leading Issues in Economic Development*, (Oxford University Press, Delhi, 1995), pp. 179-82 (quoted from p. 179).
30. Harry G. Johnson, *op. cit.*, p. 179.
31. Edward Shapiro, *Macroeconomic Analysis*, 5th Ed. (Galgotia Publication Ltd., New Delhi), p. 489.
32. P.A. Samuelson and William D. Nordhaus, *Economics*, 15th Edn., pp. 582-81.

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many); (ii) high rate of inflation and high rate of growth (Japan); (iii) high rate of inflation and low rate of growth (United Kingdom);[33] and (iv) low rate of inflation and low rate of growth (India).[34]

Conclusion

Most economists generally agree that *a moderate rate of inflation is conducive to economic growth and that, in the short run, there is positive relationship between moderate rate of inflation and economic growth.* In the words of Samuelson and Nordhaus, *"While economists may disagree on the exact target for inflation, most agree that a predictable and stable or gently rising price level provides the best climate for healthy economic growth."*[35] In the long run, economic growth of a country is affected by many factors and, therefore, the relation between inflation and growth loses its distinctiveness. Furthermore, a very high rate of inflation—galloping and hyper types of inflation—causes erosion in real savings and investment and therefore the actual savings and investment. For example, Five year Plan expenditure in India has doubled in each successive Plan but the real value of investment has declined due particularly to 8-9 percent annual rate of inflation during the 1970s and 1980s. A high rate of inflation, especially when it is unanticipated, throws investment and production plans out of gear. When price rise is unpredictable, people find it very difficult to determine the course of their response to the price changes. This upsets the price system which causes inefficient allocation of resources and, thereby, a lower output. For example, Jerret and Selody[36] have found that the output growth in Canada declined by 0.3 per cent for each 1 per cent increase in the inflation rate. In their opinion, "... there is no doubt that high inflation is bad for growth."[37]

5. Effect of Inflation on Employment

Economic growth and employment go hand in hand. It may thus be construed that inflation has promotional effect on employment. It is a widely accepted view that a moderate rate of inflation helps economic growth which creates additional employment opportunities. Since inflation affects growth variables—savings, investment and profits—favourably, it affects employment favourably too. The economists have found that the greater the rate of investment, the greater the rate of employment till the economy reaches the full employment level.

However, a very strong conflict arises between growth and employment at a high rate of inflation. While a high rate of inflation increases employment, it affects growth adversely. Besides, inflation as a means to growth and employment involves severe economic and social costs in terms of distortions in relative prices, malallocation of resources, and social and political unrest. There-

33. Edward Shapiro, *op. cit.*, p. 489. Besides, according to a research conducted by ASSOCHEM, India, revealed that a double digit (14.4%) food inflation in 2013 had caused 40% decrease in savings of the country (Reported in Business Lines, 18th November 2013).
34. The annual average rate of inflation in India during 1950-51 to 1993-94 was 6.5 per cent which is close to the desirable limits of inflation (5-6% p.a.) for developing economies. This is therefore a low rate of inflation accompanied by a low rate of economic growth (3.5%) during this period.
35. P.A. Samnelson and W.D. Nordhaus, *Economics, op. cit.*, p. 583.
36. Quoted in Dornbusch and Fischer, *op. cit.*, (6th Edn.), p. 521. Evidence reviewed in Jack Selody, "The Goal of Price Stability," Bank of Canada Technical Report No. 534, May 1960.
37. Rudiger Dornbusch and Stanley Fischer, *Macroeconomics*, 6th Edn., *op. cit.* p. 521.

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fore, it cannot be allowed to go uncontrolled. If it is controlled, it will limit the employment and cause unemployment. The policy-makers are therefore often faced with a situation of dilemma. If inflation is allowed to go on a high rate, it will affect growth adversely, and if it is controlled, it will affect employment adversely and there may be a high rate of unemployment. The policy-makers are therefore required to find *a trade-off between inflation and unemployment*. This issue has received a great deal of attention in recent times. This issue has been discussed in detail through the Philips Curve in Chapter 26.

Suggested Reading

Ackley, G., *Macroeconomics : Theory and Policy* (Macmillan, New York, 1978), Ch. 15.

Baumol, W. J. and Blinder, A. S., *Economics: Principles and Policy*, 4th Edn., (Harcourt Brace Jovanovich, Publishers, New York, 1988), Ch. 6.

Dornbusch, R., Fischer, S. and Startz, R., *Macroeconomics* (Tata McGraw-Hill, New Delhi, 9th Edn., 2004), Ch. 7.

Mankiw, N. Gregory, *Macroeconomics* (Worth Publishers, New York, 2004), Ch. 4.

Shapiro, E., *Macroeconomic Analysis*, 5th Edn., 1994, (Galgotia Publications, New Delhi) Ch. 21.

Questions for Review

1. Define inflation. Can any price rise be called inflation? What is the acceptable or desirable limit of inflation?
2. How is inflation measured? Explain the methods of measuring inflation with examples.
3. What is meant by national income deflator? How is national income deflator used to measure inflation?
4. Why is a moderate rate of inflation considered to be desirable for the economy? What are the limits of desirable rate of inflation for the developed and developing nations?
5. What are the types of inflation? How do they differ from one another?
6. Explain and distinguish between moderate, galloping and hyper inflation. What are the general features of these kinds of inflation?
7. 'A moderate degree of inflation is the logical concomitant of efficient economic mobilization.' Explain and justify the statement.
8. What is meant by suppressed inflation? Is the current rate of inflation in India suppressed or open inflation? Justify your answer with facts.
9. What are the effects of inflation on wage-earners, fixed-income people, debtors and creditors, producers and the government? Give the reasons for the effects of inflation on different sections of the society.
10. What is meant by inflation tax? Under what conditions is inflation tax used as a source of financing growth?
11. How does inflation affect economic growth? How can inflation be used to make the economy grow?
12. Explain the relationship between inflation and employment. Is achieving a high rate of employment by means of inflation always desirable?

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APPENDIX TO CHAPTER 24

Table A 24.1 Annual Average Rate of Inflation in Industrial and Some Other Developed Countries

Industrial Countries	1949–69	1970–73	Other Developed Countries	1949–69	1970–73
Austria	5.85	5.70	Australia	4.89	6.40
Belgium	2.00	5.05	Finland	4.69	6.60
Canada	2.50	4.65	Greece	4.71	6.41
Denmark	4.46	7.10	Iceland	8.71	12.50
France	5.74	5.90	Ireland	3.78	9.30
Germany	1.80	5.40	New Zealand	3.98	8.31
Italy	3.09	6.55	Portugal	2.42	10.50
Japan	5.24	7.37	South Africa	3.15	6.41
Netherlands	4.12	6.70	Spain	6.06	8.40
Norway	4.07	7.90	Turkey	7.41	12.10
Sweden	3.93	6.72			
Switzerland	1.85	5.79			
UK	3.83	8.05			
USA	2.07	4.90			
Group average	3.61	6.27	Group average	4.88	8.69

Source: Joseph O. Adekunle, *Rates of Inflation in Industrial, Other Developed and Less Developed Countries—1949-65*, IMF, *Staff Papers*, November 1968, updated by Geoffry Maynard and W. Von Ryckeghem, in *A World of Inflation* (B. T. Batesford Ltd, London, 1976), pp. 1-3.

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Table A 24.2 Annual Average Rate of Inflation in Less Developed Countries

Countries	1949-69	1970-73	Countries	1949-69	1970-73
Argentina	26.95	33.20	Israel	8.35	8.10
Bolivia	36.89	3.90	Korea	45.67	10.00
Brazil	31.45	11.80	Mexico	5.17	9.40
Ceylon	1.17	6.30	Morocco	4.92**	3.40
Chile	30.96	75.70	Nicaragua	4.58	6.20
Colombia	9.73	12.60	Pakistan	2.71	5.50
Costa Rica	2.69	3.70	Panama	0.20	4.30
Dominican Republic	0.91	6.20	Peru	9.35	6.90
Ecuador	2.63	8.10	Philippines	2.48	10.40
El Salvador	2.90	1.20	Thailand	3.30	4.10
Ghana	6.13*	9.40**	Tunisia	4.69	3.40
Guatemala	1.40	3.50	United Arab Republic	1.95*	3.40
Honduras	2.50	3.10	Uruguay	30.25	43.40
India	3.99	6.40	Venezuela	1.62	3.10
Iran	3.88	5.20			
Iraq	0.17	4.60	Group Average	9.69	10.80

*1949-68; ** 1970-72.

Source: Joseph O. Adekunle, *Rates of Inflation in Industrial, Other Developed and Less Developed Countries—1949-65*, IMF, *Staff Papers*, November 1968, updated by Geoffry Maynard and W. Von Ryckeghem, in *A World of Inflation* (B. T. Batesford Ltd, London, 1976), pp. 1-3.

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1. Frictional Unemployment

The concept of *frictional unemployment* can be better understood with reference to the classical postulate that there is always full employment. *There is therefore no unemployment.* If there is any unemployment at any time, it is of temporary nature. This kind of unemployment is called *frictional unemployment*. The temporary unemployment is caused by some extraneous disturbance in the economy and friction in the labour market throwing some workers out of job. Besides, the labour market in a free economy is 'always in a state of flux'. While new job-seekers enter the labour market, some quit the market as retirees or take up some business. While new firms enter the market creating new job opportunities, some firms close down reducing demand for labour. For these reasons, the labour supply mismatches with labour demand for a short period. These kinds of changes in the labour market often cause an abnormal gap between demand for and supply of labour. The excess of labour supply takes the form of frictional unemployment. According to classical postulates, frictional unemployment is quickly wiped out through an automatic process of market mechanism and adjustments.

The neoclassical economists, on the other hand, focused on the imperfections in the labour and product markets in the real world and on the frequent emergence and continuation of frictional unemployment. They have argued that, in real world, imperfections in the labour market arise due to lack of information about vacancies, cost of information, cost of training, slow occupational mobility, and cost of transportation and displacement in case of spatial movement of labour, monopoly powers of labour unions and business corporations. In an imperfect market setting, *the upward adjustment in the wages in response to price-rise is quick but the downward adjustment is slow and rigid.* Therefore, labour market remains uncleared even if there is change in wages, i.e., some persons willing to work at the prevailing wage rate remain out of job. Therefore, under imperfect labour market conditions, some *unemployment of frictional nature* becomes a regular affair, especially where technological changes are regular in the economy. According to the neo-classical view, ***frictional unemployment can be defined as the number of unemployed persons under the condition that the number of job-vacancies equals the number of job-seekers who somehow fail to get the job.*** In other words, ***frictional unemployment is said to exist when job-vacancies equal the job-seekers and yet some persons are unemployed.***

Furthermore, the neo-classical economists postulated that, notwithstanding the existence of frictional unemployment, the economy is deemed to be in the state of full employment. For example, "for the American economy, the frictional rate of unemployment is thought by many economists to be about 4 per cent, and therefore full employment is said to occur when the rate of employment is approximately 96 per cent."[2] In simple words, with 4 per cent frictional unemployment and 96 per cent employment, the American economy was considered to be in state of full employment in the 1970s. So the policy requirement of a country was confined to removing frictional employment by correcting market imperfections, reducing monopoly powers of labour unions and business corporations, and by providing market information and job training.

2. Structural Unemployment

The structural unemployment arises due to structural change in a dynamic economy making some workers go out of job. Structural changes include change in structure or sectoral composition of

2. Fred R. Glahe, *Macroeconomics: Theory and Policy* (Harcourt Brace Jovanovich, Inc., NY, 1973), p. 231.

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the economy and change in technology. Change in sectoral composition means gradual decline of some kinds of industries and emergence of new industries. The downfall or decay of some kinds of industries throws people of specific skill out of job. They remain unemployed till they find new jobs. Technological changes alter the demand pattern of different kinds of skills. Some skills become obsolete and some less efficient. In a dynamic society, structural change is a continuous process. In this process, some persons find it difficult to get a new job requiring a new kind of job skill. The important thing in the structural unemployment is that there are vacancies and there are job-seekers and yet there is unemployment because of mismatch between the demand and supply pattern of the labour market.

In spite of a great deal of similarity, the structural unemployment is different from the frictional unemployment. Under frictional unemployment, an unemployed person gets a job after a short period of unemployment, whereas under structural unemployment, a person either goes out of job or remains unemployed for a prolonged period of time till he acquires new skills. In simple words, *frictional unemployment appears to disappear, whereas structural unemployment appears to stay,* even if they arise for the same reasons.

3. The Natural Rate of Unemployment

The term 'natural rate of unemployment' was coined and used by Milton Friedman. Friedman has defined the natural rate of unemployment as the rate of unemployment "which has the property that it is consistent with equilibrium in the structure of *real* wage rate".[3] Friedman's concept of natural rate of unemployment is similar to the concept of *structural unemployment.* Structural unemployment, as mentioned above, becomes a regular feature in a dynamic society. As a result, a certain rate of unemployment is always there even when market is cleared and the economy is in the state of full employment equilibrium. At this rate of unemployment, the forces of demand-pull and cost-push inflation are in balance and the rate of inflation is stable. Friedman calls this rate of unemployment as '*the natural rate of unemployment.*' In Friedman's opinion, the natural rate of unemployment is an unavoidable feature of the economy. Therefore, at the natural rate of unemployment, the economy is said to be at full employment. The theory of the natural rate of unemployment will be discussed in a forthcoming section.

4. Cyclical Unemployment: Okun's Law

Arthur Okun,[4] the Chief economist of the President Kennedy's Council of Economic Advisors in the United States, was the first to bring out the relationship between output and unemployment. Okun used output and employment data of 1950s and early 1960s to study the relationship between output and employment. His study revealed that ***every one percentage point increase in unemployment rate results in a 2.5 per cent[5] reduction in real GNP below the natural output.***

3. Milton Friedman, "The Role of Monetary Policy," *Am. Eco. Rev.*, 58 (March 1968), p. 8. The theory of natural rate of unemployment was later developed also by Edmund Phelps in his (ed.) *Employment and Inflation* (NY: Norton, 1970).
4. Arthur M. Okun, "Potential GNP: Its Measurement and Significance" in his *The Political Economy of Prosperity* (Brookings Institution, Washington, D. C., 1970), pp. 132-45.
5. Different authors quote different percentage figures for decline in output due to 1% fall in unemployment. For example, Samuelson [*Economics,* 15th Edn., p. 559] quotes 2%; Robert J. Gordon [*Macroeconomics,* 3rd Edn., p. 351] quotes 2.5%; N. G. Mankiw [*Macroeconomics*, 5th Edn., 2003, p. 37] and Geoffrey Woglom [*Modern Macroeconomics,* 1988, p. 285] quote 3%. We use here Gordon's 2.5% which is the average of the three rates.

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This relationship between unemployment and output is known as Okun's law. The unemployment rate of 2.5 percent is called ***Okun coefficient***. It implies that a one percentage point decline in real *GDP* causes a 0.4 percentage point in the unemployment rate.

Different versions of Okun's law are available in the literature on the subject. One of the widely quoted versions is expressed as

$$100\,(Y^N - Y)/Y^N = LC\,(u - u^N)$$

where Y = real actual GNP; Y^N = natural output; LC = Okun's law coefficient; u = unemployment and u^N = natural unemployment.

The Okun's law does not stand the empirical test in exact quantitative terms. But inverse of this law does indicate an irrefutable fact that recession causes fall in output and fall in output causes unemployment.

Let us now turn to our main concern in this chapter, that is, the relationship between the rate of inflation and the rate of unemployment.

26.2 INFLATION AND THE RATE OF UNEMPLOYMENT

The relationship between inflation and employment has been a contentious issue. Although the issue was first raised by Irving Fisher in 1920, it was A.W. Phillips, a British economist and a Professor at London School of Economics, who conducted an empirical and theoretically sound study[6] in 1958 on the relationship between unemployment and the change in money wage rates in the British economy during the period from 1862 to 1957. Phillips found an ***inverse relationship between the rate of changes in the money wage rate and the rate of unemployment***. According to his findings, when money wage rate increases, unemployment rate decreases. The rise in money wage rate may be the *cause* and also the effect of inflation. In any case, inflation and unemployment (or employment) are interrelated. It is possibly for this reason that the logic of the Phillips curve was extended to construct the theory of relationship between inflation and unemployment. In fact, Phillips' findings created a flutter and generated a long debate on the relationship between inflation and unemployment and its policy implications. In the course of the debate, many economists expressed their opinion on and contributed to the analysis of relation between the rate of inflation and the rate of employment (or unemployment). However, to begin with, we will discuss first the Phillips curve and its theoretical findings.

26.2.1 The Phillips Curve

As mentioned above, Phillips had found in his study that there exists an inverse relationship between the rate of change in the money wage rate and the rate of unemployment. He presented this inverse relationship between the change in money wage rate and the rate of unemployment

6. A.W. Phillips, "The Relation between Unemployment and the Rate of Change of Money Wage Rates in the United Kingdom—1862-1957," *Economica*. Vol. XXV, November 1958, reprinted in M. G. Mueller (ed.), *Readings in Macroeconomics*, 2nd Indian Edn. (Surjeet Publications, Delhi, 1988). All quotations are from the reprint).

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in the form of a curve, called Phillips curve.[7] Phillips established through an empirical study that there exists an ***inverse relationship*** *between the rate of unemployment and the rate of increase in money wages*. The general conclusion that is drawn from Phillips' empirical finding is that a rise in money wage rate reduces the rate of unemployment and a fall in money wages increases the rate of unemployment. Besides, from policy point of view, Phillips curve reveals that there exists a trade-off between the rate of unemployment and the rate of change in money wage rates, that is, a lower rate of unemployment can be achieved only by allowing money wage rate to increase upto a certain level. This implies that inflation reduces unemployment.

The Phillips curve (as given in his own paper) is reproduced in Fig. 26.1. The dots in the figure show the combination of rise in wage rate and decline in unemployment rate in different years over a period of 52 years. A curve drawn through the cluster of dots produces the *Phillips curve*. This curve shows the inverse relationship between the rate of change in money wage rate and the rate of unemployment. This result is based on the study by Phillips covering a period of 52 years, i.e., from 1861 to 1913.

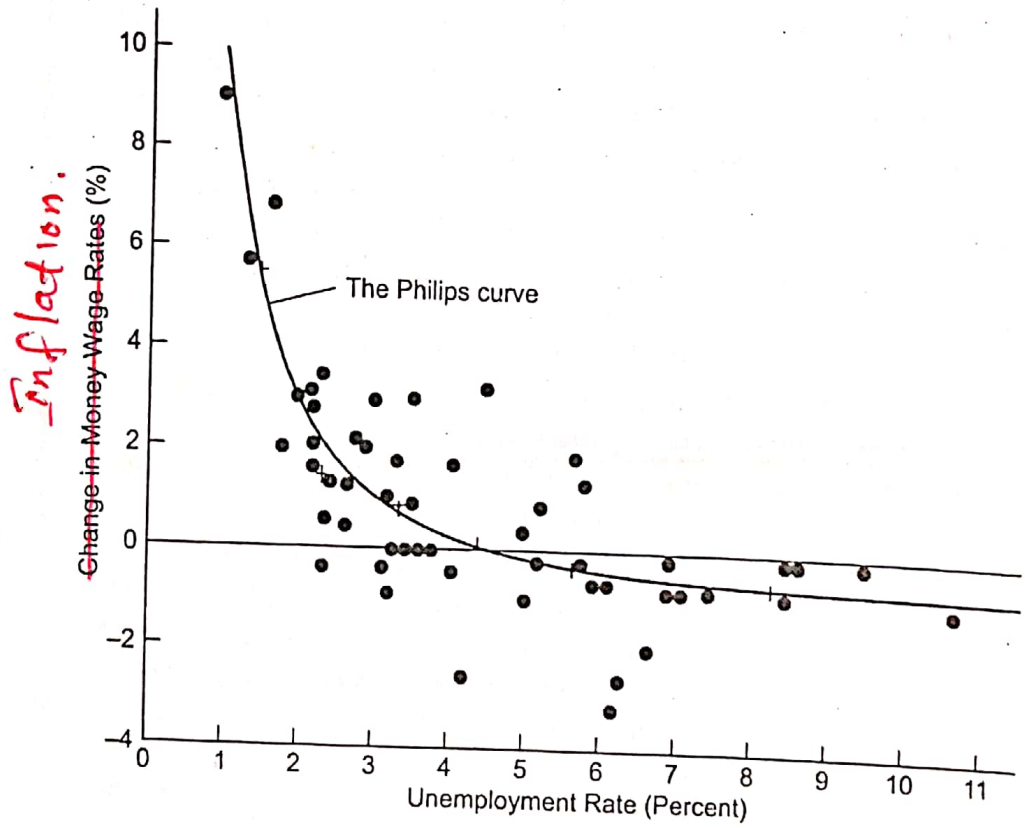

Fig. 26.1 The Phillips Curve: Inflation and Unemployment

7. Although the Phillips curve is named after A.W. Phillips, some authors contend that the inverse relationship between inflation and unemployment was focused on much earlier by Irving Fisher. For example, R. Gordon and Gardner Ackley point out, in their separate books, that the inverse relationship between the unemployment rate and inflation rate was first brought out much earlier by Irving Fisher in his article "A Statistical Relation between Unemployment and Price Changes," *International Labour Review*, June 1926, reprinted in *Journal of Political Economy*, March/April 1973, pp. 596-602. Gordon even argues that 'The curve should actually be called "Fisher curve". For further details, see R. J. Gordon, *Macroeconomics, op. cit.*, 3rd Edn p. 237 *fn.*, and Gardner Ackley, *Macroeconomics: Theory and Policy, op. cit*, 1978, p. 439 *fn.*

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The Phillips curve shown in Fig. 26.1 is drawn on the basis of an equation fitted to the actual data. The fitted equation is given as

$$y + a = bx^c$$

or

$$y = -a + bx^c$$

where y is the rate of change of wage rates and x is the percentage unemployment, and the constants b and c are constants estimated by applying the least square method using the values of x and y, and constant a was obtained through "trial and error."

The relationship between wage rate and unemployment rate produced an empirical equation, as given below. The equation estimated by Phillips that yielded the Phillips curve given in Fig. 26.1.

$$y + 0.900 = 9.638\, x^{-1.394}$$

or

$$\log (y + 0.900) = 0.984 - 1.394 \log x$$

The validity of the Phillips curve was tested for different periods by Phillips himself. Its validity was later examined by other economists also. For instance, Richard Lipsey applied the 'standard statistical technique' to data collected and used by Phillips to verify the relationship between the rates of change in money wage rates and unemployment rates. Lipsey's finding[8] was similar to Phillips' results though Lipsey's equation was somewhat different.

26.2.2 The Extension of the Phillips Curve to Inflation and Employment

Although Phillips had traced the relation between the rate of change in money wages and the rate of unemployment, his analysis was later extended to examine the relationship between the rate of inflation and the rate of employment. A plausible reason for this might be the fact that movements in wages and prices are interlinked and they move in the same direction. Under this interpretation of the curve, some economists have used the US data to verify the Phillips curve in the short run phases of different periods. For example, Dernburg[9] used the US data for the period 1951-61, Dornbusch and Fischer[10] for 1961-69, Ackley[11] for 1955-69, and Glahe[12] for 1961-70. They all find Phillips curve relationship to be consistent with the US data in the short run. Their Phillips curve shows a ***positive relation*** between the rate of inflation and the rate of employment.

8. R. G. Lipsey, "The Relation Between Unemployment and the Rate of Change of Money Wage Rates in the United Kingdom, 1862-1957 : A Further Analysis", *Economica*, XXVII (February 1960), reprinted in R. A. Gordon and L.R. Clien, eds, *Readings in Business Cycles, (Richard D. Irwin, 1965)*. Lipsey arrived at a similar conclusion though his equation is somewhat different as given below.

$$W = -0.44 + 0.023\,(1/U) + 12.52\,(1/U^2)$$

9. Thomas F. Dernburg, *Macroeconomics: Concepts, Theories and Policies*, (McGraw-Hill,), 7th Edn, pp. 295-96.
10. R. Dornbusch and S. Fischer, *Macroeconomics, op. cit.*, pp. 216-17.
11. Gardner Ackley, *Macroeconomics: Theory and Policy, op. cit.*, pp. 441-43.
12. Fred R. Glahe, *Macroeconomics: Theory and Practice, op. cit.*, 1973, p. 233.

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26.2.3 Factors Behind Phillips-Curve Relationship

As mentioned above, the economists have found an inverse relationship between the rate of inflation and the rate of unemployment, i.e., inflation reduces unemployment. A question arises here: Why is there an inverse relationship between the rate of inflation and the rate of unemployment? Or, how does inflation reduce the rate of unemployment or how does it promote employment? The inverse relationship between the inflation rate and the unemployment rate can be explained by both the demand-pull and the wage-push factors of inflation.

Demand-pull Factor Considering the demand-pull factor first, Phillips postulated that during demand-pull inflation, demand for labour increases as increase in prices gives firms incentive to increase production. He argues, "When the demand for labour is very high and there are very few unemployed we should expect employers to bid wage rates up quite rapidly, each firm and each industry being continually tempted to offer a little above the prevailing rates to attract the most suitable labour from other firms and industries" (Mueller, *op. cit.*, fn. 6, p. 245). As the labour moves from one firm to another and from one industry to another, it creates job vacancies. As a result, the unemployed labour is drawn into employment. Thus, with the increase in the money wage rates following the rise in inflation rate, the rate of unemployment decreases. More importantly, it has been observed that with the upward movement in the wage rate following the rise in prices, the demand for labour is quick and rapid. On the contrary, during the period of recession or deflation, 'workers are reluctant to offer their services at less than the prevailing [wage] rates when the demand for labour is low and unemployment is high.' It means that downward adjustment of the wage rates is slow and that unemployment increases with decrease in the wage rates.

Two conclusions can be drawn from the analysis of relationship between wage rate and inflation: (i) unemployment rate and wage rate are inversely related, and (ii) upward movement in wage rates is rapid and quick during inflation, but downward adjustment in wages is gradual, rather sticky, during the period of deflation. These trends make the Phillips curve a non-linear curve with a negative slope.

Wage-push Factor As explained in Chapter 25, wage-push inflation is caused by an autonomous demand by the labour unions for increase in wages in excess of increase in labour productivity. The extent to which labour unions can get wages pushed up depends, among other things, on the rate of unemployment. The lower the rate of unemployment, the greater the union's power to get wages pushed up and *vice versa*. Also, the period of low unemployment is generally the sign of 'buoyant' product market and high profits. Therefore, employers are willing and able to pay higher wages. There is, therefore, a fast upward movement in wages and decrease in unemployment. On the contrary, when unemployment rate is high and profits are low, labour unions are constrained to demand high wage rates and employers, on their part, resist paying higher wages. Thus, with high rate of unemployment, wages tend to decline. These relationships produce a Phillips curve.

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26.2.4 Phillips Curve, Inflation-Unemployment Trade-off and Policy Implications

A high rate of both inflation and unemployment is undesirable. But, inflation is desirable to some extent as it reduces unemployment. From employment policy point of view, therefore, it often becomes essential for the countries facing high rate of unemployment to find a suitable combination of rates of inflation and unemployment. This combination can be obtained by exchanging some rate of unemployment for some rate of inflation. The exchange rate refers to the 'trade-off' rates of inflation and unemployment. The Phillips curve provides a large number of such trade-off points. This is called the '**menu for choice between inflation and unemployment.**' The trade-off between inflation and unemployment has a very important policy implication. Given the inflation and unemployment rate combinations, policy makers get a number of trade-off points between inflation and unemployment to choose from.

A widely used *theoretical* or *hypothetical Phillips curve* is given in Fig. 26.2. The vertical axis on the left side measures the annual rate of inflation and the horizontal axis meaures the rate of unemployment. Note also that the vertical axis on the right side measures the annual per cent rise in the wage rate. The inflation rate on the left vertical axis reads inflation rate adjusted for an assumed 2 per cent increase in the productivity of labour in relation to rise in the wage rate. In other words, *inflation rate equals rate of increase in wages less annual rate of increase in labour productivity.* For example, if wages rise by 5 per cent and labour productivity increases by 2 per cent, then the rate of (wage-push) inflation is only 3 per cent.

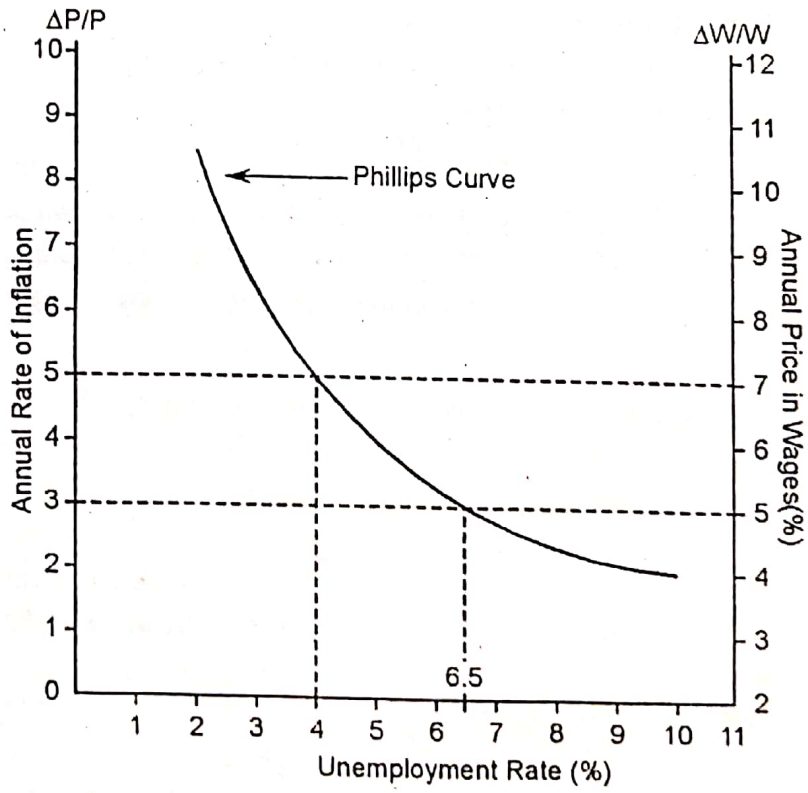

Fig. 26.2 The Theoretical Phillips Curve: Inflation and Unemployment

Given the Phillips curve as in Fig. 26.2, the *trade-off* between the unemployment and the inflation rate can be easily found. For example, as shown in the figure, a 2.5 per cent (= 6.5 per cent−4 per cent) unemployment can be traded (accepted) for a 2 per cent (= 5 per cent−3 per cent) infla-

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tion. It means, from policy point of view, that if unemployment rate is intended to be reduced from 6.5 per cent to 4 per cent, a rise in inflation rate from 3 per cent to 5 per cent will have to be tolerated. If an inflation rate of 3 per cent is the target, an unemployment rate of 6.5 per cent will have to be accepted. A similar conclusion can be drawn by linking unemployment rate to wage-inflation rate given on the vertical axis on the right-hand side.

26.3 MODIFICATIONS IN PHILLIPS CURVE

Phillips had traced an inverse relationship between unemployment rate and wage rate that existed during a very long period from 1861 to 1913. A period of 52 years is by any measure a long run. However, recent evidence shows that the *Phillips curve relationship holds only in the short run.* In the long run, Phillips curve keeps shifting up on down. For instance, the studies which were carried out on the basis of the US data for the 1960s, 1970s and 1980s confirm the existence of the Phillips curve only in the short run. The Phillips curve is found to be relevant only for 1961-69, for the 1970s, and for the late 1980s, though at different rates of inflation and unemployment. But, when the entire unemployment and wage data for 1961-93 is plotted together, it produces a Phillips curve which keeps shifting up and down in the long run[13] in a spiralling way. It is therefore concluded that *there exists either no or a weak relationship between inflation and unemployment in the long run.*

However, economists continued to ask themselves: Why does Phillips curve keep shifting up and down in the long run? An answer to this question was found by Edmund Phelps[14] and by Milton Friedman.[15] Since Friedman's contribution in this regard is much more widely cited, we will confine our discussion here to his modification of the Phillips curve and his theory of *the natural rate of unemployment*. This will be followed by a brief discussion on Eckstein-Brinner Phillips curve.

26.3.1 The Long-Run Phillips Curve: Friedman's Theory of Natural Rate of Unemployment

In his attempt to explain the spiralling Phillips curve, Milton Friedman integrated the logic of the short-run Phillips curve with the macroeconomic policies adopted for controlling inflation and unemployment. In the process, he constructed a long-run Phillips curve. Friedman began by showing graphically that Phillips curve holds only in the short-run. In the long run, he argues, there is always a rate of unemployment whatever the rate of inflation. This rate of unemployment he calls the ***"natural rate of unemployment"***. The natural rate of unemployment was subsequently termed as the **"non-accelerating-inflation rate of unemployment" (NAIRU)**. A significant feature of the NAIRU is that *it exists even when labour market is cleared and is consistent with*

13. *Economic Report of the President (US), 1994.* Quoted in Samuelson and Nordhaus, *Economics, op. cit.*, p. 588. See also R. Dornbusch and S. Fischer, *Macroeconomics, (6th Edn)* p. 217.
14. Edmund S. Phelps, "Money-Wage Dynamics and Labour Market Equilibrium," *Jl. of Pol. Eco.*, July-August 1968, Part II, pp. 678-711, and *Inflation Policy and Unemployment Theory* (W.W. Norton, NY, 1972), Ch. 2.
15. Milton Friedman, "The Role of Monetary Policy," *Am. Eco. Rev.*, Vol. 58, 1968.

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(v) **Inexpensive technology for small and marginal farmers** Organic farming is inexpensive, as it uses natural resources as inputs. Therefore, it is within the reach of even small farmers.

India has an comparative edge in organic farming, as compared to other countries, because organic farming is labour intensive and India has a huge population. Inspite of being a very lucrative option, farmers are not taking up organic farming because of the below mentioned reasons:

- Lack of products for use in fertilisation and soil amendments.
- Lack of products for plant pest and disease control.
- Lack of equipments used in organic agriculture.
- Lack of unrestricted veterinary medicines.
- Lack of experience in marketing organic products.

National Rural Employment Guarantee Act (NREGA)

NREGA was enacted with the objective of enhancing livelihood security in rural areas by providing atleast 100 days of guaranteed wage employment in a financial year to every household whose adult members volunteer to do unskilled manual work. The Act initially was enforced in 200 districts with effect from 2nd February, 2006. According to the Act, those interested, have a right to register themselves with the local Gram Panchayats and seek employment.

Work is to be provided within 15 days from the date of demand, failing which the State Government will have to pay unemployment allowance at stipulated rates. This act confers a right on the rural households to demand upto 100 days of employment as a matter of their statutory right.

Lately, because of slowing growth, inflation and shortage of labour, there is much focus on this programme. Wages under this scheme are higher than the minimum wages in 20 states. This scheme has supported consumption growth, but is now contributing to inflation.

Some analysts claim that support programmes like NREGA have contributed to a rise in food demand but the activities involved in it are not increasing agricultural productivity. Also, as more and more people get employment in other sectors, wages of agricultural labour also show a rise. This rise in wages and incomes of rural households have resulted in increased food demand by rural families. This increased demand for food, has resulted in inflation.

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Inflation means considerable & persistent rise in the general price level over a period of time.

Moderate rate of inflation is desirable. (2-3% per annum price rise in Developed countries & 4-5% per annum in the Developing countries is desirable rate of inflation

17 Understanding Inflation

Inflation

It means a persistent upward movement in the general price level. It results in fall in the purchasing power of money. According to economists, inflation does not affect much unless and until prices increase by a minimum of 5% per annum. (Inflation is a problem when 5% or more)

> **Deflation**
>
> It is just the opposite of inflation. It is a state in which general prices are falling and purchasing power of money is rising.

Types of Inflation

Inflation can broadly be of the following types:

(i) **Demand-pull Inflation** When demand for goods and services is more than their supply, their prices rise. Such price rise is called demand pull inflation. e.g. increase in the prices of petrol is due to its increased demand. The below graph depicts the effect of increase in demand on price.

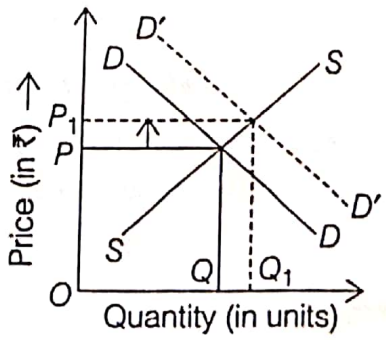

Fig. 17.1

As the demand curve shifts to *D'D'* from *DD*, showing increase in demand, the price also increases from *OP* to OP_1.

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(ii) **Cost-push Inflation** It results when prices of factors of production rise. A rise in factor prices leads to a rise in the total cost of production and consequently a rise in price level. This may result in an inflationary spiral, and can affect one industry or sector or the whole economy.

For example, Rise in wages in the steel industry will cause price of steel to go up. This will raise the prices of vehicles, machines, etc. using steel as a input. The rise in the prices of vehicles may in turn raise the cost of transport and manufactured goods. The cost of agriculture may also rise due to high prices of tractors.

Ultimately, food and raw material prices will go up leading to higher cost of living. So, a cost push inflation generally acts as a trigger point covering the whole economy. It is also difficult to control.

Generally, most economies face inflation due to the combined effect of the above two factors.

Stagflation

It is an economic situation, which means that the economy is growing slowly or even stagnating and at the same time, it is experiencing a high rate of inflation. India witnessed his phenomenon in 1991-94.

Indicators of Inflation and Their Trends in India

In India, the variation in prices are measured in terms of Wholesale Price Index (WPI) and Consumer Price Index (CPI).

(i) **Wholesale price index** It is the price of a representative basket of wholesale goods comprising of 676 items which carry different weights. It is released every month on the 14th.

The WPI does not include services and non-tradable commodities. In the financial year 2011-12, the WPI was 9.14%.

(ii) **Consumer price index** It measures the changes in the retail price of goods and services consumed by the households. It reflects the cost of living for a homogeneous group of consumers.

There are four CPI indices in India. These are:

(a) CPI for industrial workers.

(b) CPI for agricultural labours.

(c) CPI for rural labours.

(d) CPI for urban non-manual employees.

Since, it measures the changes in retail prices, therefore, it represents the real inflationary pressure. The average CPI was 8.4% in 2011-12.

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The Central Statistics Office (CSO) has come out with a new series on CPI with base year 2010. This series intends to reflect the actual movement of prices at micro level. According to this new measure, consumer price index for urban area was 7.38%, for rural area it was 8.25% and combined was 7.65% in January,

Trends of Inflation in India

Indian economy has witnessed inflation in each and every Five Year Plan, with the exception of the first Five Year Plan.

The table 17.1 shows the WPI during various plan periods:

Table 17.1 WPI During Plan Periods

Ist Plan	IInd Plan	IIIrd Plan	IVth Plan	Vth Plan	VIth Plan	VIIth Plan	VIIIth Plan	IXth Plan	Xth Plan	XIth Plan
51-56	56-61	61-66	69-74	74-78	80-85	85-90	92-97	1997-2002	2002-2007	2007-2012
– 3.6	6.3	5.8	9	6.3	9.7	6.7	6.6	3.9	5.04	7.4

Inflation can creep, walk, gallop and jump

- **Creeping inflation** When prices are rising gently, it is known as mild or low or creeping inflation. The rise in the price level should not be more than 3% per annum.
- **Chronic inflation** If creeping inflation continues for a long period, then it is termed as chronic or secular inflation.
- **Walking inflation** When prices rise by more than 3% but less than 10% per annum, then it is called walking inflation.
- **Running inflation** When prices rise by more than 10% but less than 20%, then it is a case of running inflation.
- **Galloping inflation** When prices rise by more than 20% but less than 1000%, galloping inflation occurs. It is also referred as jumping inflation.
- **Hyper inflation** When prices rise above 1000% per annum, it is referred to as hyper inflation. Hungary in 1946 and Zimbabwe in 2004-2009 witnessed hyper inflation.

Causes of Inflation in India

The following are the important causes of inflation in an economy:

(i) **Increase in public expenditure** Public expenditure in India is rising at an alarming rate. It was 18.6% of GDP in 1961; in 2012-13, it has risen to 28%. In addition to this, around 40% of the expenditure is on non-developmental activities, such as salaries of police and defence personnel.

This increases the purchasing power of the employees, but correspondingly supply is not affected. So, the price level rises. e.g. on welfare programmes also contribute to inflation.

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(ii) **Deficit financing** It means financing the budget deficit by borrowing from banks or printing more currency. Deficit financing of large amounts tends to increase money supply in the economy. This increases the purchasing power of the citizens thereby increasing their demand. This leads to demand-pull inflation.

(iii) **Erratic agricultural growth** The Indian agriculture is still dependent on monsoons and thus crop failures due to inadequate rainfall have been a common feature of our country.

This causes the price of the food items to increase also leading to an increase in the general price level.

(iv) **Agricultural price policy of government** To safeguard the interests of the farmers, the government announces a minimum support price for agricultural produce. Although, this policy is beneficial for farmers, but it has been a major contributory factor to the problem of inflation, as if is kept much higher than the market price.

(v) **Inadequate rise in industrial production** Performance of the industrial sector has been disappointing. It has been unable to match the demand in the market, especially the essential consumer goods sector which includes industries like oil, food manufacturing, textiles, apparrel and footwear. This has led to inflation.

(vi) **Upward revision of administered prices** There are a number of important commodities, which are produced in the public sector, for which price level is administered by the government. The government keeps on raising prices from time to time, in order to cover the losses of the public sector leading to cost-push inflation.

(vii) **Rise in population** Our country has experienced population growth since 1951. With increase in population, the demand for necessary goods also increase, leading to increase in prices.

(viii) **Inflation across borders** In today's world of globalisation, inflation across the borders have effects on a country's price level. Since 1980, crude oil prices have shown a substantial rise. This has caused the prices to go up in the domestic market also.

(ix) **Increase in the rates of indirect taxes** The government has increased the rate of indirect taxes like sales tax, excise duty, VAT, etc. Higher indirect taxes lead to high prices.

(x) **Credit expansion** Easy availability of credit for the purchase of consumer durables have caused an increase in demand for these products. As a result, price level has gone up.

(xi) **Black money** In India, there is a huge stock of unaccounted or black money. This money raises the demand and leads to inflation.

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Problems Related to Inflation

The following are the problems faced by an economy due to inflation:

(i) **Inflation hinders the process of growth** Inflation increases the cost of production, thereby forcing the producers to scale down their operations. This proves to be an obstacle in the progress of a country.

(ii) **Adverse effect on people with fixed income** Price rise adversely effects the people in the fixed income group. With increase in the general price level, they are able to purchase less with their fixed income. Their standard of living also suffers.

(iii) **Increase in the cost of projects** Due to inflation, it becomes costly to implement new projects of both public and private sectors. In the absence of additional resources, the projects are often scaled down.

(iv) **Adverse impact on balance of payments** Due to inflation, domestic goods become costly. This leads to fall in exports resulting in an adverse effect on the balance of payments, as imports became cheaper leading to rise in imports.

(v) **Wage price spiral** Due to increase in the price-level, the employees also demand an increase in their wages. This increase in wages further cause the prices to rise. Vicicous circle sets in.

(vi) **Inequality** Inflation widens the gap between the rich and the poor. So, the capitalists are able to accumulate wealth, while the poor people find it difficult to make the ends meet.

(vii) **Economic stagnation** Inflation lowers the purchasing power of the people. A major part of their income is spent in meeting the necessities of life. So, secondary and tertiary sectors tend to stagnate.

(viii) **Impact on FDI** Inflation has a negative effect on the flow of foreign investment in a country, because of increased cost of inputs and decline in the purchasing power of the foreign currency.

(ix) **Speculation and hoarding** Inflationary trends in the economy act as a fuel to the speculative and hoarding activities of traders.

Government's Policy to Check Inflation

Government's policy to check inflation can be grouped as:

(i) **Price policy** Through price policy, government tends to direct, regulate and control the prices of goods and services in an economy. The two basic tools of price policy are:

(a) **Price control of essential goods** It is controlled by announcing a maximum price or the ceiling price. This is the maximum price that a producer can charge for his products. Government declares this price to ensure their availability to all sections of society.

(b) **Procurement price and support price** It is the price fixed by the government at which it buys the produce of the farmers for its Public Distribution Systems (PDSs) such as Fair Price Shops (FPSs) or for distribution under various schemes.

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Support price is the minimum price which is offered to the farmers for the purchase of their surplus output. Government attempts to keep the above prices within reasonable limits.

(ii) **Monetary policy** Through this policy, the Central Bank tries to control the money supply in an economy. The main three tools of monetary policy are:

(a) **A check on the supply of money** With the help of RBI, the government tries to check the money supply in the economy. The lesser the money supply, the less is the rate of inflation.

(b) **Increase in interest rates** The Central Bank i.e. the RBI can increase the bank rate to check inflation. Increase in bank rate makes credit dearer and leads to a fall in demand, thereby checking inflation.

> **Bank rate** is the rate of interest charged by the Central Bank from the commercial banks for loans.

(c) **Decrease in the supply of credit** The Central Bank can adopt the following measures to reduce the supply of credit.

- Increase in CRR and SLR
- Sale of government securities like NSC.
- Rise in margin money requirements.
- Credit rationing.

> - **Cash Reserve Ratio** (CRR) It is that part of the total deposits of Commercial Banks which they have to keep with RBI.
> - **Statutory Liquidity Ratio** (SLR) It is that part of total deposits of Commercial Banks which they have to keep with themselves in liquid assets.

(iii) **Fiscal policy** Fiscal policy is government's policy relating to income and expenditure. The government can resort to following fiscal measures to check inflation:

(a) **Control on public expenditure** During inflation, government tries to cut down on public expenditure, so that demand for goods and services do not rise in the economy.

(b) **Public debt** Government tries to supplement its financial resources by borrowing from public. This reduces the purchasing power of the people.

(c) **Increase in taxes** Taxes are increased, so that disposable income in the hands of consumers is reduced.

(d) **Surplus budget policy** The government may lower its expenses as compared to its income. This helps to reduce the demand in an economy.

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CASE STUDY

Hyper Inflation in Zimbabwe

On 18 April 1980, the Republic of Zimbabwe was born from the former British colony of Southern Rhodesia. The Rhodesian dollar was replaced by the Zimbabwe dollar at par value.

When Zimbabwe gained Independence, the Zimbabwean dollar was more valuable than the US dollar. In its early years, Zimbabwe experienced strong growth and development. Economic indicators for the country were strong.

From 1991-1996, the Zimbabwean Zanu-PF Government of President Robert Mugabe embarked on an Economic Structural Adjustment Programme (ESAP), designed by the IMF and the World Bank, that had serious negative effects on Zimbabwe's economy. In the date 1990s, the Government instituted land reforms intended to redistribute land from white landowners to black farmers to correct the 'injustices of colonialism'.

However, may of these farmers had no experience or training in farming. From 1999-2009, the country experienced a sharp drop in food production and in all the other sectors as well. The banking sector also collapsed, with farmers unable to obtain loans for capital development. Food output capacity tell to 45% and manufacturing output to 28%. Unemployment rose to 80%.

At Independence in 1980, the Zimbabwe dollar became the common currency. Originally the paper notes were Z$ 20, 10, 5 and 2; and the coins were Z$ 1, and 50, 10, 5 and 1 cents. As larger bills were needed to pay for menial amounts [A loaf of bread was Z$550 million in the regular market, the Central Bank of Zimbabwe planned to print and circulate denominations of upto Z$ 10, 20, 50 and 100 trillion.

The Government did not attempt to sight inflation with fiscal and monetary policy. The Reserve Bank also printed a Z$ 21 trillion bill to pay off the debts owed to IMF.

On three accessions, the Central Bank of Zimbabwe redenominated the the aumency. But all the attempts were in Vain. In 2009, the Government abandoned printing Zimbabwean dollars at all. As of 2014, Zimbabwe still uses a combination of currencies, mostly US dollars.

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