Chapter 11

Inflation and Unemployment

Abstract

Inflation is rise in the general level of prices of goods and services in an economy over a period of time. As a result of rise in the price levels, currency's power to purchase decreases gradually. It shows a loss of real value in the internal mode of give and take, and unit of account in an economy. It can impact economy both negatively and positively, and has several dimensions. On the negative side, it causes rise in the opportunity cost of having currency. It could discourage investment in the markets and saving, as upcoming uneven inflation can restrict investment. If inflation is rapid, then there can be scanty of required goods and services due to artificial shortage and hoarding. On the other hand, in response to inflation, State Bank of Pakistan, adjust real interest rates in order to control recessions, and encourage investment in non-monetary capital projects, and these are the positive aspects of inflations. In this chapter; types, methods of measurement, effects, causes, and remedial measures of inflation are discussed. In the last section, interrelationship of inflation and unemployment is discussed in detail.

Keywords: inflation, money, interest rate, government spending, State Bank

11.1. Inflation and Its Types

Inflations are triggered by excessive growth of the money supply. There is certain factor which determine low to moderate rates of inflation. It can be due to jerks in real demand for goods and services, or variability in the existing supplies or due to other factors. But mostly long period inflation appears due to higher growth of money supply than the growth rate of economy. In the recent era, economies like consistent but low rate of inflation. Monetary authorities of state control the inflation in the country. These legal bodies include central bank of country, who announces the monetary policy for the specified period of time by making modification in the rate of interest, open market operations, and by setting of banking reserve requirements. In the economy, inflation can be due to four causes, and this give rise to four types of inflation which are explained in the following sections.

Box 11.1 Inflation Situation in Pakistan

- Inflation rate from 1957 until 2013, averaged at 8.0 % with all time high 38 % in December 1973 and lowest -10.3 % in February 1959. However, after falling from 20.8 % in 2008-09, inflation continued to decelerate from 13.7 % in 2010-11 to 11 % in 2011-12 and further to 7.8 % on period average basis during July-April 2012-13 owing to improved supply of consumable items and declining trend in world commodities prices. Consequently, prices of various domestic commodities particularly edible stuff witnessed a significant stability during the course of year.
- Consumer price inflation maintained a downward trend during most of the first ten months (July-Apr) of current fiscal year 2012-13. It averaged 7.8 % against corresponding increase of 10.8 %. The food with weight of 34.8 % and non-food having weight 65.2 declined and stood at 6.6 % and 8.5 % respectively, due to better supply position whereas core inflation which is nonfood-non energy is estimated at 9.9 %.
- Overtime inflation pattern is shown in the following,

Source: *GOP (2013)*

11.1.1. Demand Pull Inflation

This is also called excess demand inflation, and it one of the important type of inflation. It happens when the total demand for the commodities cross the volume of supply, resultantly price of these items rises in the market. History shows that this inflation emerged repeatedly, and it is most common type of inflation. During the war times, this inflation emerges because demand for the war related materials increases and ultimately inflation happens. Other kind of inflation appear in economy oftenly in conjunction with demand-pull inflation.

Consider in the previous year price was P_1 and the real output was at its potential level Y_1 (Figure 11.1). At this LR equilibrium point A, the AD curve (AD_1) crosses the SRAS), and the long-run AS (LRAS). Consider in the recent year, AD curve rises to AD_2, say caused by rise in customers' optimism. Consider, variation on the supply side of the economy, and no variation in short run AS and long run AS at new equilibrium levels. Here, P and real GDP are found where the new AD curve (AD_2) intersects the $SRAS_1$ curve at point B, with P_2 and Y_2 at its coordinates. Graphs of economic activity indicate a rise in price level of $(P_2 - P_1)/P_1$ % and a increase in the level of income. Moreover, unemployment declines from the natural rate. And, this is not the end of the process of the adjustment. This can be attributed to the GDP that cannot remain above its potential value always. When unemployment will be less its natural rate, it will create scanty of labour. In this scenario, nominal wages will increase. As it does, short-run AS declines and it moves to level $SRAS_2$. Further, price level increases and real GDP starts to decline. With no further variation in AD, it remains at the same level until this process ends when the $SRAS_1$ curve has shifted to $SRAS_2$. On the same way, P has risen to P_3 and real GDP has returned to Y_1.

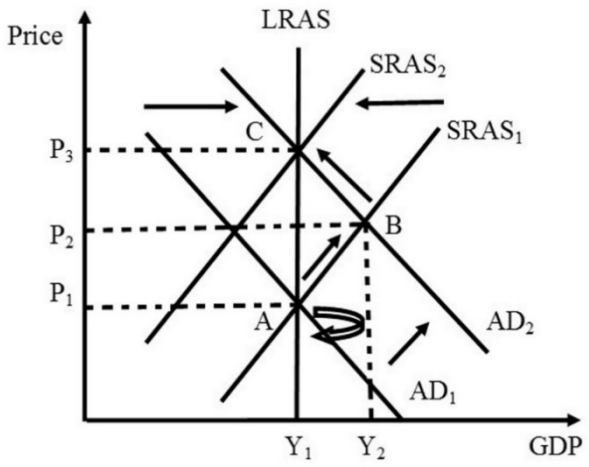


Fig. 11.1 Demand-Pull Inflation

11.1.2. Cost Push Inflation

This inflation is due to the rise in the cost of inputs which triggers the prices of outputs. An increase in wages increases COP and prices (McConnel and Brue 2005). This type of inflation does not happen much oftenly as demand pull inflation and it can occur in conjunction with it.

Let's try to find the impact of such declines in SRAS on the P and output. Consider, a similar set up as in the Figure 11.1. Here, in Figure 11.2, from previous year LR equilibrium (point A). Consider, oil producing countries rise the P of oil by cutting back their outputs. The SRAS curve shifts to the left, $SRAS_2$. Now, P increase and output of the economy falls, a combination is called stagflation, as discussed earlier.

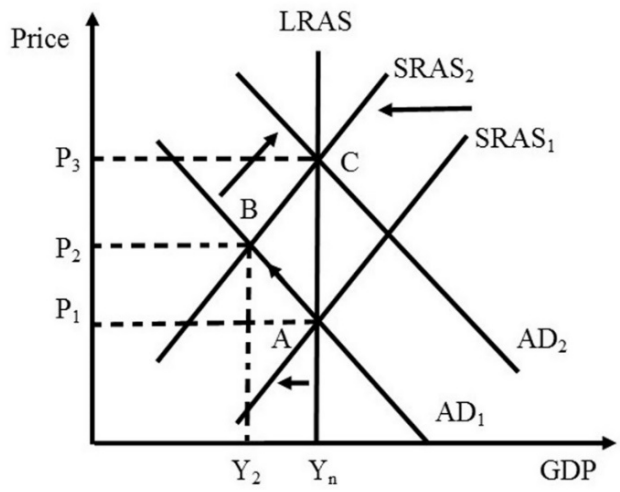


Fig. 11.2 Cost Push Inflation

11.1.3. Pricing Power Inflation

This inflation can be called administered price inflation. It happens when entrepreneurs increase the prices to gain more profits. This is not the phenomena of recession, rather it appears in the times of good sales and when economy is working well. It can also be called oligopolistic inflation, as it is oligoplist who can impact the price levels. Through the media, like, TV or newspapers, it can be known that business is working well and when oligoplist come to know boom of economy, he raises the price levels. As oligopolistic firm increase the price levels, other major firms of the economy will also follow the same price levels and will broaden their price margins and there will be no losses from price competition.

11.1.4. Sectoral Inflation

This type of inflation happens when any of the other three influence the industry badly. Like, steel and oil, that increases costs of the industries by employing P levels of all products in the industry. So, if inflation is there what is solution to one or all of these types of inflation? Last type of inflation take us to the other three types. For oligopolistic inflation, make sure there is no conspiracy which antitrust law makes illegal. Oligopolies are not encouraged in the economy to establish and raise general price levels in the markets. Price competition can help to combat the inflation, so, increasing the import competition can help here. In case of cost push inflation, wage rates go up due to elevated input costs. Laborers even earn more than their productivities. Oftenly, wage rates are low and leave the worker in poverty. Increase in the wage rate is some time mandatory to tie up labor with price levels. Inflation some time impact high income class as well.

Demand pull inflation can be effectively controlled through proper macroeconomic policy like, tight monetary and fiscal policies. Additional demand is controlled

through reducing the borrowing and stopping rises in the money supply and state budget surplus occurs, if needed, to lessen purchasing power within the economy. These techniques are applied not much aggressively to avoid some unforeseen consequences and applied in case of demand pull inflation. But, if these tools are used in any other types of inflation, it would cause the problem of unemployment. There is another possibility that more than one type of inflation happens at the same time. A well-known term is a wage-price spiral, where demand pull likely initiate the problem of inflation, labor demands and wage rates increases to manage the cost of living, which push up their incomes and adds further demand-pull. It is the time when oligopolies the prices and it ultimately more inflation appear.

This type of inflation is summation of different inflation due to different causes, and it is referred as hyperinflation or run-away inflation. In the markets price levels increase fastly when labor is paid, they immediately make shopping to avoid further inflation. If it prevails for a long time in the country, state even repudiate its legal tender and announces a new with money which they issue more sparingly to control inflation. It is the dangerous situation and every country desire to avoid this nightmare. It is important to know how much inflation is not dangerous and will not lead to the problem of hyperinflation. This allowed level of inflation is different for country to country and there is no proper percentage for it.

But if inflation is slow moving than it is not a serious problem. Within economy, annual 3 % increases in inflation stimulates business as firm purchases inputs and hire labor at a given price level, and when they sold their goods and services in the markets there is inflation and they get more margins. Here, it is important to control inflation from increasing slowly upwards. Otherwise, in the long run, people who are saving maximum for retirement find that the purchasing power of their savings is being declined by 3 % annually.

11.2. Measurement of Inflation

11.2.1. Consumer Price Index (CPI)

It is widely used method of measurement for the inflation and it is used for the overall price paid by customers for the purchase of commodities. In this criterion, price information is collected for each of the item and then it is included in the quantification through weights based on its worth in the consumption. It is used for measuring the consumer inflation rates. Inflation rate is quantified by observing the variation in the price indices. CPI quantifies variation in the price level of given basket of commodities needed for a traditional customer. Mostly, national statistical level data is updated for changes in the inflation. In this regard, CPI is most widely

Box 11.2 The Money on the Doorstep

"This discussion item comes from a lecture delivered by Harvard economist John Kenneth Galbraith at the University of Illinois. It illustrates the difference between real and nominal income; another concept students often have trouble understanding. Galbraith invited his audience to imagine being at home one night when the phone rings. An unidentified voice tells a lucky individual that he/she should look on the front doorstep at 6 a.m. tomorrow morning, where he/she will find an envelope with $1000 cash. The following morning, the individual finds there is, indeed, an envelope lying on the front doorstep with money, but it only contains $880.

Galbraith asked, "Do you feel happy that you now have $880 you didn't have before? Or do you feel cheated because you were expecting to receive $1,000 and only received $880?" The missing money, he explains, is the result of a 12% rate of inflation. The individual was promised $1,000 of nominal income, but inflation eroded away $120 before the money arrived, leaving a real income of only $880.Galbraith suggested most people will feel cheated, because they feel they had earned the original sum and had the difference stolen away from them, but goes on to point out that raises in income are frequently simply adjustments to compensate for inflation, similar to the cost-of-living adjustments usually applied to Social Security payments, government worker salaries, and the like. It's a sophisticated concept, but it does get students thinking about the effect of inflation on nominal incomes and whether or not a raise in salary actually leads to an increase in buying power".

Source: *Rosales and Journell (2012)*

used. Statisticians collect the monthly prices of given basket of goods and services and quantify the weighted index of these prices. Each good in this basket is weighted according to its worth in consumption in general. Most common and significant items for consumption like food and housing, attain high weight in the index than uncommon items as, jewelry. The basket of CPI contains 487 products and Wholesale Price Index comprises of 463 commodities (GOP 2011).

The CPI like the other price indices, is also expressed in the form of some threshold level like "base year" for pricing. Classically, in this index, a supposed value of 100 is used in base year. Bench mark year and the composition of the selected items is revised after some years routinely. Direction and intensity of weighted index is considered as the variation and direction of general price level in the economy. Inflation is considered as the annual rate, for example, "prices rose, on average, 2.5

% over the last year." It can be quantified on monthly basis as well. This index can be further subdivided into sub-indices to observe the movement of price levels overtime for the selected combination of goods and services. Different CPI can be constructed for different type of customers to show differences between groups in the make-up of their typical expenditures (Zandi 2003). For example, in case of low income people, when CPI will be constructed, low weight will be given to the expensive items as these will be like luxurious item for them but in the CPI of upper class these items will have more weight.

11.2.2. Core Inflation

There are some advanced CPI which are basically adjusted indices. Official of State Bank of Pakistan uses certain measure which are called "core" inflation, it shows the variation in the overall CPI. It is adjusted to exclude price variation specifically volatile prices (like, energy or food costs, which regularly oscillate time to time). These stripped-down CPI tools are helpful in understanding the internal prevailing scenario of the economy. These indices can be adjusted to exclude the impact of state taxes, like variation in the sale taxes. Many item in the market establish clear seasonal drifts (their prices go up in the specific times). In these cases seasonally adjusted inflation data can provide a better picture of inflation (Zandi 2003). Another way to abstract from seasonal P variations is to concentrate on annual comparisons of prices.

Quantifying CPI inflation is a delicate, and it overstate the true rate of inflation. As, these indices do not consider advances in the amount of commodities which may offset rise in P. On the other hand, according to the some experts, CPI do not measure the inflation properly. This can be due to scarce allowances for the variation in the cost of housing and other prices. Spending by the customers is one section of the economy, prices can vary for all other goods and services. For these all other goods and services separates indices are established and used. For example, a producer price index quantifies the inflation rate of resources of the firms that are being used in the production of final goods and services. Specialized commodity price indices include the fluctuations in the prices of inputs like, energy, minerals, and farm outputs.

11.2.3. GDP Deflator

It is also one of the important measurement tool for the inflation. This is designed to quantify the overall level of inflation of all the good and services that are within the boundary of an economy. It is wider and more general measure for the inflation than the other tools for inflation measurement which focus only on the consumer markets. But it has a limitation, it is not easy to calculate as other i.e., CPI and this issue make it less reliable measure of inflation (McConnel and Brue 2005). It shows the ratio of nominal GDP to real (inflation-adjusted) GDP. Like other measures, separate deflators can be established for each section of GDP expenditure (for example, consumption, investment, exports, and imports).

Oftenly inflation does not happen in current production and sale of commodities but it can also be in the prices of long-lived assets. Like, high price of houses and upward moving stock markets shows a phenomenon of inflation in the asset prices.

Commonly in its policies, SBP only concentrate on the inflation in wages and prices, and take aggressive step to control it, like increasing the rates of inflation. On the same time, inflation in the prices of assets, like in stock markets, is ignored.

11.3. Stagflation

A state of low economic growth and proportionately low employment supplemented by increase in prices is called stagflation. It happens in the economy when price move upwards but economy is not growing at good pace and it is really a threat for economy. This type of inflation appeared in 1970s when world oil prices increased surprisingly, and inflation appeared even in developed economies. Low economic growth rate causes consistent elevated unemployment. It increases problems for economic policy, so activities planned to reduce this inflation may worsen the condition of unemployment, and vice versa.

11.4. Effects of Inflation

These depends upon the nature of inflation. Indicators, like inflation rate, stability of inflation, whether it is abnormal or normal, whether it is predicted or not, these things decide the consequences of inflation. Inflation is a problem, and it is cut by the unprotected sectors of economy. It is a theft against the poor who face a decrease in the real incomes in a time period of consistent P increase. Three major functions are effected by the inflation, i.e., production, consumption expenditure and distribution.

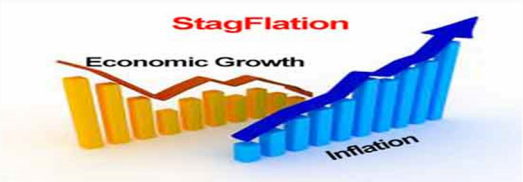
11.4.1. Effect on Production and Economic Growth

Economies with unorganized labor and single digit inflation will raise profitability and increases the investment, employment, productions, income, demand and prices. This occurs as wages of laborers is not indexed to inflation, so wages will decline with the passage of time in the era of inflation, whether it is predicted or not. If it is inflation of predicted type, the real wages of organized labor would reduce as well, it may be adjusted with a time lag. The companies will earn profits during the intervening period between predicted elevation of prices and its compensation to labor. So, while we are talking about growth of economy and output, low (single digit) inflation would be beneficiary.

11.4.2. Effect on Distribution of Income and Wealth

In case of circulation of wealth and assets, effect of inflation is not same on all parts of economy. Organized laborer's wages are indexed to inflation. During the period of inflation, borrowers are in benefit as value of real interest go down and lender could face the losses. So, in the time of inflation, wealthy become wealthier and poor become poorer.

Box 11.3 Stagflation: A Historical Review of Pakistan



"Stagflation refers to a combination of two major undesirable economic conditions: the economy slowing down (stagnation), coupled with prices climbing up sharply (inflation). According to the chart, FY1981 to FY1988 witnessed high economic growth with low inflation. Between FY1989 to FY2000, there was moderate growth with high-to-moderate inflation. And during FY2005 to FY2012, the gap between economic growth and inflation rose dramatically, leading the economy into the dangerous abyss of 'stagflation'. There are *three* over-simplified root causes of stagflation. *First* is the increase in oil prices. Oil is an input for generating economic activity, including electricity production (thermal power generation), running factories, and transportation. And since Pakistan imports a great deal of oil from abroad, naturally, when international prices of crude oil and petroleum products go up, it automatically results in inflation. *Secondly*, when the government prints money, it results in inflation. *Third*, when the local currency weakens against the dollar, as it did over the last few years, imported goods become expensive. In simple words, when the cost of carrying out commercial activity goes up, the economy slows down, as is happening now.

And when the government mismanages public finances, it leads to stagflation. In recent times, the federal government has, on several occasions, heavily borrowed money from the State Bank of Pakistan, and relied on currency printing for deficit financing. Stagflation is a double-edged sword for the poor (have-nots), as earning opportunities vanish while prices of basic commodities go up. Pakistan's middle class, who is considered the backbone of any economy, has been adversely hit by the ongoing stagflation. It is difficult to deal with stagflation when it occurs. However, if the government is sincere, it should right-size its sprawling administrative structure and widen the tax net in order to decrease its reliance on borrowing or currency printing — deficit financing. It should minimize the fiscal imbalances. Generally, we tend to underestimate the resilience and dynamics of the national economy. Pakistan conducted nuclear tests amidst fears of economic collapse. However, the invisible power of the economy and cooperation of some friends made it possible for the country to survive the shock. This shows that our economy has evolved into a force which can survive even deeper turmoil".

Source: *Hashmi and Hamdani (2014)*

11.4.3. Effect on Consumption and Economic Welfare

Inflation declines the purchasing power of money grossed by the poor, and their economic prosperity. Laborers who do not adjust for the high inflations, face a serious decline in real incomes as their gross income rests fix for a long time period. Economic prosperity of consumer heavily relies on the consumption of commodities related to basic needs. In the times of inflation people can buy less and ultimately, they consume less, and it is why their prosperity is negatively impacted.

11.4.4. The Overall Positive and Negative Effects

Inflation generally impact negatively to the society but it can have some positive aspects as well. In the below both effects are discussed in detail.

11.4.4.1. Negative Effects

- *Hoarding:* people will struggle to convert their money to bundle of goods and services to avoid negative impacts of inflation. This will create the issue of hoarding of food and other goods. There can be creating scarcity of hoarded items.
- Distortion of relative prices
- *Increased risk and higher uncertainties:* there are fluctuation in the business commonly, but with inflation, there are more risks of these happenings due to inconsistency of prices.
- Income diffusion or operation of income redistribution.
- Lenders in the markets will be discouraged due to depreciation of money and they will receive less interest for their money.
- Fixed income group will also be negatively impacted. Inflation will rise but their income will remain fix and they will face ultimately.
- *High consumption ratio:* even at the early stages, inflation is also an issue. Because, people will use more money to buy goods and services as they are expecting more inflation in the near future and this will also cause inflation.
- *Lowers national saving:* Due to elevated inflation rates, saved money will also be consumed to buy goods and services. As their current income is not enough to satisfy their needs.
- *Illusions of making profits:* If firms will invest more, they will lose more, so inflation consideration is necessary before making investment.
- Inflation is also a reason of high tax bracket. Government will charge more tax, i.e., more than one percent, if their income rise following an inflation rise.
- Inflation is also a reason of mal investment. In the era of inflation, data provided by the concerned agencies is less reliable, and hence it causes inconsistencies in investment in the long run.
- Business cycles are also consequence of inflation, as certain firms have to go out of market due to the crisis they face from inflation.

11.4.4.2. Positive Effects of Inflation

It can advantage the people who are liable for the inflation. It profits the initial receivers of the inflated money. As, in the early phases its bad impacts are not in vigor. It is also beneficial for the cartels and it can establish price control set for its own benefits. It can benefit debtors who have to pay back the money with interests, if the inflation rate is more than the fixed interest rates in this way they have to pay back less. Banks are conscious of this issue, as the rates of inflation increases they increase their interest rate as well.

According to some economists, low but consistent inflation rate is good for the economy, low inflation can decrease the harshness of economic recessions. It enables the labor market to adjust down turn sharply, and control the risk, that liquidity trap prevents monetary policy from stabilizing the economy. Monetary agencies control the low and consistent rates of inflation within the economy. Tobin effect claims that a modest rate of inflation can rise the investment in the economy. It causes high economic growth and consistent revenue. Inflation decrease the profits on monetary assets as compared to real assets. Investors will invest their money in the real capital rather than holding it, to avoid the negative impact of inflation.

11.5. Remedial Measures

11.5.1. Stimulating Economic Growth

There would be no inflation, if economic growth and money supply growth are equal. There are number of factors which can impact these both growth rate. For example, investment in market, production, infrastructure, and education can all grow an economy in greater quantity as compare to investment expenditure.

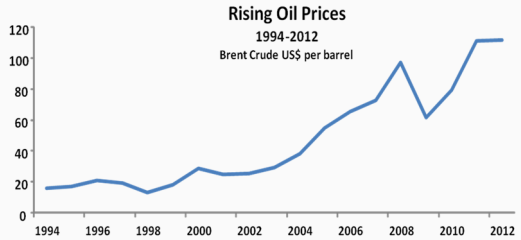
11.5.2. Monetary Policy

One of the most commonly used instrument for reducing the inflation is monetary policy. Usually, State Bank of Pakistan maintain their inter-bank interest rate low, like up to 2 to 3 % annually and inflation rate not more than 6% per year. There should be low, positive and single digit inflation within the economy for smooth flow of business. Several techniques can be employed to control the problem of inflation. Through the tools of monetary policy central banks (SBP) control the high rates of inflation. Oftenly high interest rate and low economic growth works well in these conditions. Some central banks control the inflation at its initial phase while others let inflation go upward first, when it crosses a certain threshold level then they do the needful.

Monetarists focus on keeping the growth rate of money, and using this policy to reduce inflation. On the other hand, Keynesians focus on declining the AD in the era of economic expansions and rising demand in case of recessions to stabilize the inflation. While in the economies, AD are controlled by employing both monetary as well as fiscal policy. In the fiscal policy taxation rate and spending by the government are changed.

Box 11.4 Inflation due to Oil Price Hike

"There has been a gradual increase in the prices of petroleum products. The petrol prices in Pakistan always tend to increase at regular intervals since past many years. The history says that the prices of high-octane petrol in the country is volatile and has fluctuated over time. The average fuel price rose by 100 % from 2008 to 2013 over the past 40 years, historical decompositions suggest that nearly all the fluctuations in oil prices and oil output are due to oil specific shocks.



Impact of Fuel Prices on Other Commodities

- Impact on Food:

Higher oil prices directly lead to increase in food prices. Oil price increases also caused general rise in the costs of fertilizers, food transportation, and industrial agriculture. Food prices have risen by 45% since end-2006. The connection between food and oil is systemic, and the prices of both food and fuel have risen and fallen more or less in sequence in recent years. Modern agriculture uses oil products to fuel farm machinery, to transport other inputs to the farm, and to transport farm output to the ultimate consumer. Oil is often also used as input in agricultural chemicals. Oil price increases therefore put pressure on all these aspects of commercial food systems.

- Impact on Electricity:

Around 30% of the country's Electricity is based on furnace oil. Since electricity is one of the major components of manufacturing cost, this will not only increase the CPI further but would also hurt the competitiveness of our exports. It is high time now that the country should review its energy mix and start making genuine progress for utilizing alternate energy sources like wind and solar and for enhancing the share of hydel power, as continued high reliance on furnace oil is becoming more and more expensive".

Source: *Zuberi (2013)*

11.5.3. Fixed Exchange Rates

It is also a good method for controlling the inflation in an economy. In this criterion, fixed exchange rate is defined for currency of country. Value of currency is tied with the defined value of another currency or occasionally to another measure of value, like gold. This fixed rate is recognized to stabilize the value of a currency. As the worth of the reference money increases and decreases, so does the currency pegged to it. Like this, inflation rate in the fixed exchange rate nation is quantified by the inflation rate of economy the currency is pegged to. Further, this exchange rate limits a state from implementing domestic monetary policy to attain steadiness in the economy.

Under the Bretton Woods agreement, most of the nations had legal tenders that were fixed to the USD. This caused a decrease of inflation in these economies, but also exposed them to the danger of forecasted threats. In 1970s this agreement was broken down and economies steadily gave up fixed exchange rate and they turned to floating exchange rates. Although, in the end of 20th century, some economies again reverted to a fixed exchange rate to control inflation. Method of fixed exchange rate was used to control inflation by many economies in South America in the later part of the 20th century.

11.5.4. Wage and Price Controls

This is another way to control inflation and it was widely used in past. It comes under the incomes policies. These control measures are more effective in the times of war and these are combined with the rationing. These both are not steady and long term but temporary in nature. These measures could have perverse impact on the market. Intentional low prices frequently originate rationing and deficiencies. These can depress upcoming investment that cause further shortages in the future. According to rule of thumb, consumer will buy that commodity more which is underpriced. As an example, bread is priced low for a while, then there will be little bread available in the market. Further, there will be little investment in bread making by the investors if this low price is announced by government.

11.5.5. Cost-of-living allowance (COLA)

The real PP of fixed payments is eroded by inflation but it is also necessary that payments are adjusted for inflation to establish their real worth fix. Employment contracts, pension benefits, and state entitlements are tied with COLA index in many countries, oftenly with CPI. Here, COLA regulates salaries on the basis of variation in a COL index. Salaries are oftenly attuned after each year in low inflation countries. But in the time of hyperinflation these are adjusted more frequently. On the other hand these can be adjusted with COL index that varies with physical boundaries as workers move. These negotiated rises in salary are called COLA or COL rises due to resemblance with outside indexes.

11.6. Inflation, Unemployment and the Phillips Curve

The AD-AS model emphasizes on the prices and real output. The movement of inflation and unemployment are by employing these two indicators could be observed. There is a more direct method of examining inflation and unemployment that is called the Phillips curve. This curve is constructed on AD, AS but it emphasizes on inflation that is measured from variation in prices and unemployment. It is quantified through P variation, and unemployment, which can be associated to production through an inverse relationship. So, similarly AD, AS model differentiates between the SR and LR adjustments. Phillips curve can be described for both scenario, i.e. short run and long run.

Association between production and unemployment can be developed by establishing relationship that is called Okun's law. It fetches a proper correlation between both rates, i.e., change in production and unemployment. As the economic growth takes place in the economies and crosses a normal threshold levels then employment rates go up in an economy.

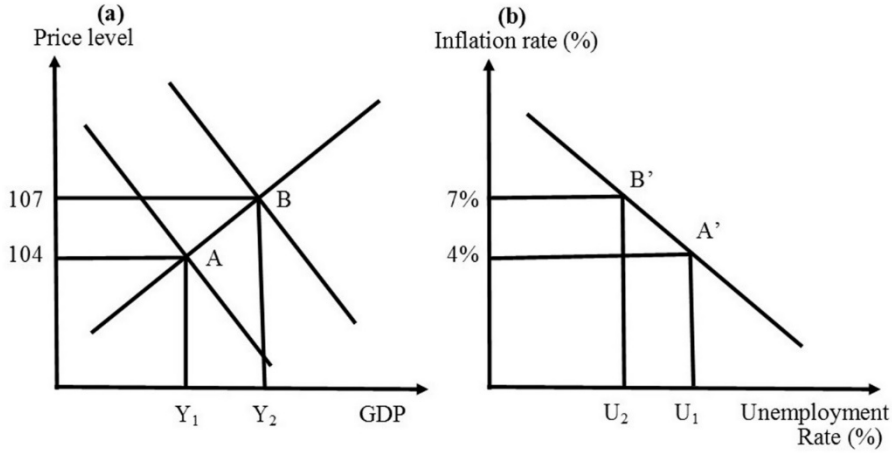


Fig. 11.3 Cost Push Inflation and unemployment

11.6.1. Short- Run (SR) Phillips Curve

It shows the combinations of inflation and unemployment that rises in the short run, as SRAD curve shift with the movement of SRAS curve. As it is discussed previously, a rise in AD in the SR causes more production and elevated P levels. More production mean high rate of employment while the high prices indicate elevated inflation. It was why, inflation and unemployment have not same directions, in the SR.

Figure 11.3 shows the relationship between the AD, AS in section A, and the Phillips curve is depicted in the section B. The equilibrium points A and B in (Section A) correspond to A' and B' in section B, and U_1 and U_2 are the unemployment counterparts of production 'Y_1' and Y_2. In the start, price is 104 and, considering

previous year's price matched with benchmark year (P= 100) and inflation rate is 4 % annually (point A). Consider, AD curve rises and it moves rightward increasing the price to 107 and GDP to Y_2. Due to these variations, unemployment rate declines to U_2, however, inflation increases to 7%, benchmark is same in this case as well. Resultantly, it will move from point A to B. SRAS curve shows a similar shift from A to B. Same way, a descending shift alongside the SRAS causes lower P and a lower real output.

11.6.2. Long- Run Phillips Curve (LRPC)

This curve indicates the association between inflation and unemployment when the actual and expected inflation rate are equal. The LRPC is vertical at the natural unemployment rate Un, as is the LRAS curve vertical at Y (Figure 11.4).

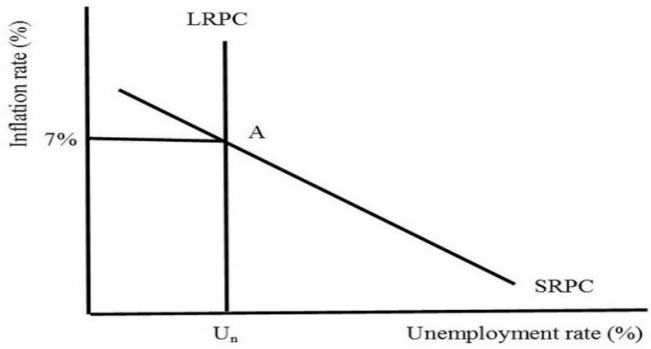


Fig. 11.4
Long- Run
Phillips Curve

11.7. Unemployment

It is second most serious macroeconomic issues that mostly economies face after inflation. These both problems directly affect the people. It is deeply linked with the living conditions of people and availability of employment causes happiness. It is basic goal undertaken by most of the nations.

11.7.1. Types of Unemployment

11.7.1.1. Frictional Unemployment

Employee that have skipped the previous job and seeking for the new one or have begun seeking for their first jobs are frictionally unemployed. In an economy, there are lot of people who are just entered in the pool of labour force for the first time or they have just given up previous jobs and searching for better quality employment. Size of fictional unemployment is different for each economy and it is dependent on the labour market institutions, customs, labour laws, and manpower and employment policies prevailing in the country. It constantly holds in each nation.

11.7.1.2. Structural Unemployment

This type of unemployment happens due to structural variation within the country. It is due to a mismatch between people and jobs. People lose their jobs because they have not required skill for these vacancies.

Box 11.5 Food Inflation Determinants: A case Study of Pakistan

"The problem of food prices in the Pakistan and in fact all over the world has been severe in the last few years. The problem is not very new and the world has witnessed this type of problem since the early 1970s. Recent oil price hike that shifted the policy towards biofuels and some natural calamities increased food prices around the world. Demand and supply side factors that affect food prices in Pakistan were studied in that case study. Per capita income, agriculture output, agricultural subsidies, money supply, and world food prices are identified as the key determinants of food prices in Pakistan. Long-run relationship was analyzed for the period 1970 to 2008 and the result indicated that supply side factors (subsidies and world food prices) have a significant impact on food prices, whereas demand side factors, such as money supply, were the main cause of the increase in food prices in the short as well as the long run. An important conclusion of the paper is that the most significant variable which affects food prices in the long run as well as in the short run is money supply. It is also concluded that subsidies help in reducing food prices in the long run but the impact of subsidy is very small. The negative association of per capita income with food prices implies the Engle Aggregation that the %age of expenditure on food items declines with an increase in income. One of the important variables affecting food prices in the long run is the international price, which raises the domestic price in a country. Also it was found that food prices restore the equilibrium when the system is in disequilibrium. The error correction was statistically significant and showed that market forces play an active role to restore the long-run equilibrium".

Source: *Ahsan et al. (2011)*

These structural variations used to happen in the economies due to improvements in the technology and globalization. Sometimes, distance may cause structural unemployment, like, there is skillful labour force and fulfill the required formalities (qualification and training) but it is far from the work place. In these situation, people are unemployed and vacancies remain unfilled. Due to structural change people lose their work they are depressed. For example, a worker can lose a job in a production

sector because of introduction of robotics applications. If he is not able and has not skills to operate robots she will lose the job and the she will be substituted with a guy having required skills. Attaining new skills and moving to another employment is time taking.

11.7.1.3. Cyclical Unemployment

Variation in the spending by the state can also cause unemployment, it is called cyclical employment. It is demand driven unemployment and can be due to variation in the state spending pattern. An auto worker has to work for more hours in the times of high customer demand but he lay off in the times of recession.

11.7.1.4. Seasonal Unemployment

Unemployment can be seasonal in an economy. In some countries, some of the sectors like farming, aqua-culture and tourism, are seasonal. Unemployment rise during winter months and vice versa. In the tourism-based nations this type of unemployment is much significant.

11.7.2. Minimum Wages

However, these low wages are not the major reason for unemployment but these can impact several groups with specifically high unemployment rates. Minimum-wage laws are enforced to establish the wage levels above the minimum level to equate supply and demand. It increases the amount of labour supplied and decreases the amount of labour demanded.

11.7.3. Costs of Unemployment

People are unemployed due to any reason, face income loss and other socio-economic issues for the long time periods. Economy as whole, face from the problems of unemployment, as production is not at its optimum level. As Okun's Law states, as the production of country increases from a specified normal benchmark, its employment rate starts to increase. The classic adjustment trend of labour employment in the time of recession is as follows.

a) Unit work hour for each worker are defined by the employer, like reducing overtime.
b) Layoffs and firings rise the unemployment, although, quits decline, as labor hold on to their prevailing work.
c) it would be plausible in the time of prolonged recession.

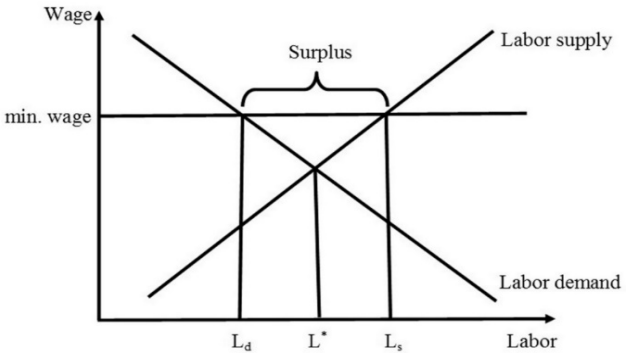


Fig. 11.5 Cost of unemployment

L_d is the amount of labour demanded, Ls is amount of labour supplied, and (Ls-Ld) is the volume of surplus. Here, L*- L_d shows displaced employees, however, L_s - L* is the increased number of job seekers driven by higher wages.

References

Ahsan, H., Z. Iftikhar and M.A. Kemal. (2011). The Determinants of Food Prices: A Case Study of Pakistan. www.pide.org.pk/pdf/Working%20Paper/WorkingPaper-76.pdf Accessed on June 05, 2017.

GOP. (2013). Economic Survey of Pakistan (2012-13). www.finance.gov.pk Accessed on December 06, 2016.

Hashmi, W. and A. Hamdani. (2014). Stagflation: a historical review. https://www.dawn.com/news/1092049 Accessed on December 06, 2016.

McConnel, C.R. and S.L. Brue. (2005). Economics Principles, Problems and Policies. 16th Edition. International Edition. McGraw-Hill/Irwin, New York-10020, USA.

Rosales, J.K. and W. Journell. (2012). Socializing economics: Using practical applications to enliven economic theory. www.socstrp.org Accessed on March 24, 2017.

Zandi, F (2003). C5 Economic Environment of Business. Allama Iqbal Open University, Islamabad, Pakistan.

Zuberi, M.A. (2013). Inflation due to Oil Price Hike. www.brecorder.com Accessed on: March 19, 2016.