UNIT III

KEYNESIAN CONCEPT OF EQUILIBRIUM OF THE ECONOMY

Introduction

"This analysis supplies us with an explanation of the paradox of poverty in the midst of plenty. For the mere existence of an insufficient effective demand may, and often will bring the increase of employment. Moreover the richer the community, wider will tend to be the gap between its actual and its potential production. And therefore the more obvious and outrageous the defects of the economic system." J.K. Keynes. ["The General Theory of Employment, Interest and Money"- Harecurt, Brace and Co. Inc. 193. P. 30-31].

The logical starting point of Keynes" theory of employment is the principle of effective demand. Total employment in a country depends on aggregated or total demand and unemployment result from a deficiency of total demand. As employment increase. Consumption also increase, but by less than the increase in income. If employment level is to be sustained then sufficient demand must be there. This means any gap that arises between income and consumption is filled by real investment. In other words employment cannot increase when investment increases. But investment in matured economics do not increase because of Marginal Efficiency of Capital and because of very poor prospects for further investment. This means aggregate demand or total demand, i.e. C+1 falls short of cannot increase when investment increases. But investment in matured economics do not increase because of Marginal Efficiency of Capital and because of very poor prospects for further investment. This means aggregate demand or total demand, i.e. C+1 falls short of Y (national income) which is supplied in a particular year and this causes reduction in employment. This is the essence of Keynesian theory of employment.

The concept of effective demand can be put in nutshell as follows: It is the level of employment where Aggregate Supply Function becomes equal to Aggregated Demand Function, Aggregate Demand Function refers to consumption expenditure and investment expenditure, i.e. (C+I). Aggregate Supply Function refers to total volume of goods supplied at a particular period of time for given cost conditions and for given price levels. If all the goods supplied in the market are take off or demanded then the level of employment can be maintained at that level without any difficulty and this is the point of effective demand. In other words it is the intersection point of ADF and ASF functions. Let us now see what we mean by ADF.

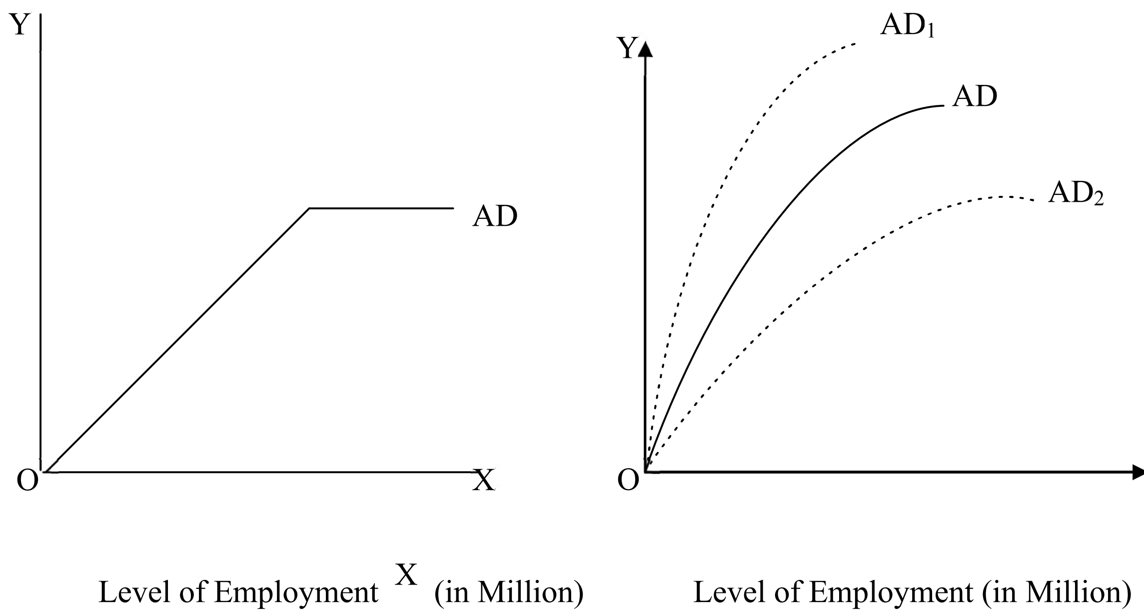
Aggregate Demand Function

The aggregate demand curve of aggregate demand function as Keynes calls it is a schedule of the proceeds expected from the sale of the output resulting from varying amounts of employment. If more labour is employed, more output it produced and the total proceeds are greater. To put it in another way aggregate demand price increase and decrease as amount of employment increase or decrease. Thus "Aggregate Demand Function (ADF) is a schedule of the various amount of money which all the entrepreneurs taken together do expect from the sale of their outputs at varying levels of employment. What the entrepreneurs do expect in turn depends upon the expenditure on consumption and investment. The ADF indicates total incomes at factor cost without including profit. It refers to the minimum expected receipts which all entrepreneurs put together must receive from business in order or continue in business in contrast to this ADF indicates maximum total receipts (i.e., cost of production and profit) including a margin profit.

Aggregate Demand Schedule

Level of Employment (in million men)	Maximum Expected Receipts form the Sales output (in million Rs.)
1	11
2	21
3	30
4	38
5	45

The aggregate demand curve slopes upward to the right establishing the fact that aggregate demand increases with increases in employment in the economy. One special features of aggregate demand curve is that it is not stable. Instability is its characteristic feature.



The two constituent elements of ADF are consumption and investment. According to Keynes consumption is stable in the short run. The most volatile is the level of investment which causes a shift in ADF as shown in the above diagram.

Importance of ADF

1. The ADF refers to the maximum expected receipts and as such depends on the total expenditure of the community on goods and services.
2. The two main constituent elements of ADF re consumption and investment. An income increases, consumption also increase but by less than the increase in income. The entire income is not spent for consumption. Hence there arises a gap between income and consumption, i.e. between aggregate supply and aggregate demand. This must be filled by investment which is the other element in total demand.
3. Investment does not increase once the economy reaches a high level because of the falling tendency of marginal efficiency of capital on the one hand and increasing cost of production on the other. Investment opportunities becomes low. While savings of the community increase because of falling consumption, all these savings are not

converted into investment. Some savings leak out of the economy and cause a reduction in employment and output in subsequent period.

4. Keynes considered only two determinants viz, private consumption and private investment. But post-Keynesians treated government expenditure as an important constituted of aggregate demand. Todays"s government are welfare government and not police states and as such their expenditure are high. It forms an important part of aggregate demand. Some economists go further and include foreign trade also. It exports of a country are greater than import of that country, then money flows in from other countries to this country, causing multiple expansion of income. So this must be treated as another important element of aggregate demand. So we can say that ADF or $Y = C+I+G+(E-M)$. Where Y = Income; C= Consumption, I = Investment, G = Government expenditure and E-M = Income from other countries, i.e., exports-imports.

Aggregate Supply Function

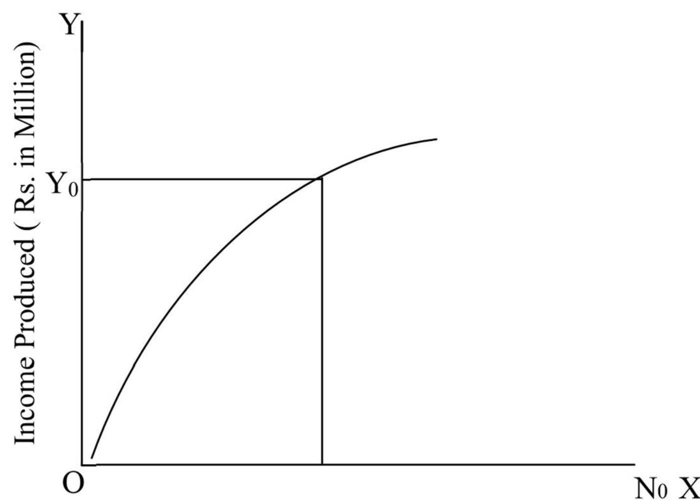
The two basic constituents of effective demand are ADF and ASF. Of the two we have learnt enough on ADF. Now we can pass on to a discussion of aggregate supply function for the economy as a whole which can be defined as follows: "The Aggregate Supply Function (ASF) is a schedule of the various minimum amount of money which the entrepreneurs in the economy taken together must expect to receive from the sale of output at varying levels of employment". Aggregate Supply Function must be distinguished from the supply of a single firm or industry. The supply of a firm or industry means a schedule of various amounts of a commodity which will be supplied at a series of prices. Prices means the amount of money received from the sale of a given physical quantity of output such as one kilograms of rice or a ton of steel. Since the output of the entire economy cannot be expressed in any simple physical unit like kilogram or ton. Keynes uses the amount of labour employed as the measure of output as a whole. So the aggregate supply „price" for the output of given amount of employment is the total sum of money or produced when the amount of labour is employed.

The shape of Aggregate Supple Curve needs some elucidation. The derivation of this curve can be understood by a study of (a) Factors that affect aggregate demand for labour (b) Factors that affect aggregate supply of labour.

(c) Price level

(d) Wage level and

(e) The connection between price level and aggregate supply schedule.



The level of national income that an economy can produce depends on the quantity of its factors of production (labour and capital) and on its level of technology.

Aggregate Production Function = Y = F (K.N.L.T) where „Y‟ stands for national income; i.e., „F‟ for function, „K‟ for tangible capital; „N‟ for human capital: i.e., labour „L‟ and „T‟ for technology. It is reasonable to assume that in the short run capital, land and technology are fixed. Labour alone is variable. Hence Y = f(N). The aggregate production function is depicted in the following diagram:

The shape of the aggregate production curve is concave from below indicating that as more and more workers are combined with the fixed factors of production the additional or marginal worker adds a smaller and smaller amount to the quantity to national income. This means the production function assumes diminishing marginal returns to labour at all levels of employment. For level of employment of labour of N_0 the level of national income is Y_0. But we do not know the level of employment. So the task is to construct a theory that determines employment. This depends on aggregate supply of labour.

Aggregate Supply of Labour

Aggregate supply of labour depends on the individual preference as to how much of the total available time should be devoted to work and how much for leisure.

We assume that division of an individual‟s time between work and leisure will be influenced by the real wage he is offered. The real wage is nothing but money wage divided by price.

W

W —

P

Where „W" stands for real wage, "W" for normal wage or money wages and P" for price level. Since the price determines the purchasing power of money wage, by dividing the nominal wage by price level we get real wage. We also assume that the individuals behave rationally and this means they trade off leisure for work and the extent of this trade depends on the real wages they are offered. At very high level of real wage, many may be willing to sacrifice leisure to earn an income. To derive the aggregate supply of labour curve we simply sum the quantity of labour supply by all economy as a given real wage. But varying the wage offered we can obtain a series of points that constitute the aggregate supply of labour curve S_0.

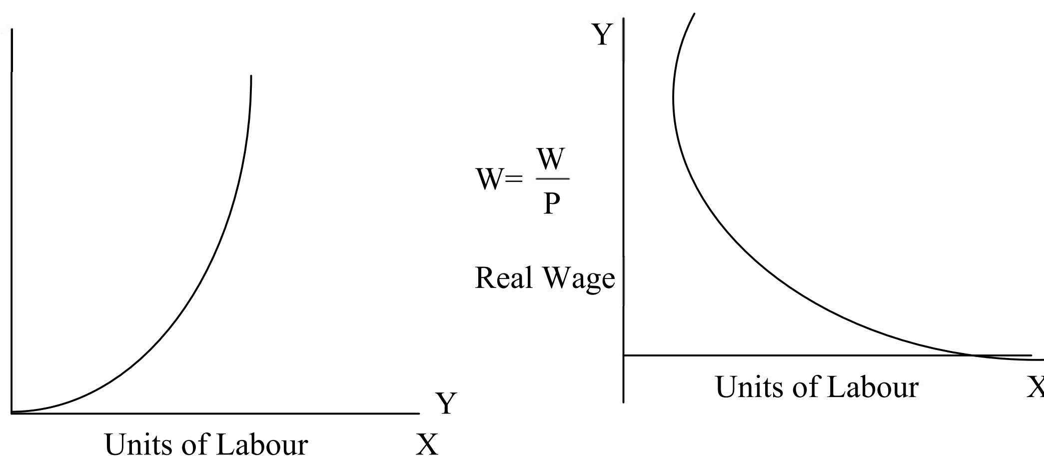


Fig. 8.3

Aggregate Demand for Labour

The aggregate demand for labour, like the aggregate supply of labour is obtained by simply summing up the total number of units of labour demanded by all firms in the economy at various real wages. The aggregate demand curve of labour Dn is a function of real wage is indicated in the above figure 6.3 (b). The higher the real wage the lower will be the demand for labour to avoid high unit costs.

Now let us pass on to a discussion of aggregate supply function. The aggregate supply curve depict the quantity of national income that would be produced at different price levels. We can think of two different aggregate supply curves. Under perfect competition money or nominal wage paid to workers is perfectly flexible upward and downward. The second type of supply curve is based on the assumption that perfect competition exist in all markets except the labour market. Here we assume that the money wage paid to workers is perfectly flexible upward but absolutely rigid downward. This means workers will not accept any reduction in money wages irrespective of the price level and there irrespective of their real wages.

Importance of ASF

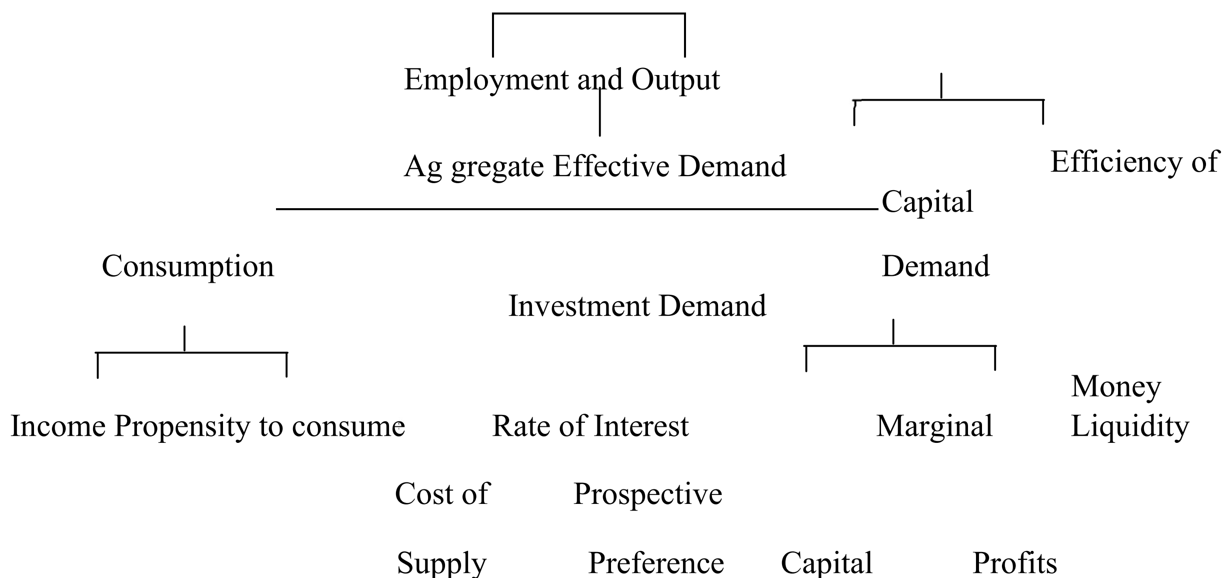
The importance of implications of aggregate supply function in the theory of employment of Keynes can be summarized as follows:

1. Of the two functions, viz, ASF and ADF, ASF is given only secondary importance by Keynes because of its very characteristics. But still it is one of the forces that determine effective demand.
2. In Keynes theory of employment ASF is assumed as given. This is so because he deals with short run and in the short run supply conditions do not alter. Supply conditions depend very much

Summarised Keynes's theory of employment determine the equilibrium level of employment for the following:-

1. Level of output or income of a country depends on the level of employment. Given the capital stock and technology, greater the employment of labour, the higher the level of aggregate output or national income.
2. The level of employment depends on the magnitude of effective demand which is the sum of consumption demand and investment demand at the point where aggregate supply curve intersects the aggregate demand curve.
3. Aggregate supply of an economy depends on physical and technical conditions of production. Since these factors do not change much in the short run, aggregate supply curve remains constant in the short run. Aggregate supply curve slopes upward to the right as level of employment increases. This is because with the increase in labour employment, the greater cost has to be incurred.
4. Aggregate demand in a simple Keynesian model consists of consumption demand and investment demand. Since the consumption demand increases with the increase in labour employment, aggregate demand curve also slopes upward to the right. In the Keynes‟s model, investment demand is regarded as autonomous of changes in income or employment.
5. Consumption demand depend on propensity to consume on the one hand and disposable income on the other. Propensity to consume of a community does not change much in the short run. Therefore, consumption function which relates consumption demand with the level of income remains stable in the short run.

6. Investment demand depends on the rate of interest and marginal efficiency of capital. According to Keynes, rate of interest is determined by supply of money and the state of liquidity preference. Marginal efficiency of capital (i.e., expected rate of profit) depends on the expected future yields or profit expectations of entrepreneurs on the one hand and replacement cost of capital on the other.
7. According to Keynes, while rate of interest is more or less sticky it is frequent changes in profit expectations of the entrepreneurs, that is, changes in marginal efficiency of capital that cause a great deal of fluctuations in investment by entrepreneurs. Investment demand is thus highly volatile and causes recession or depression when it falls, and boom and prosperity when it increases significantly.



John Maynard Keynes is often referred to as the father of macroeconomics. His pioneering work "The General Theory of Employment, Interest and Money" published in 1936 provided a completely new approach to the modern study of macroeconomics. It served as a guide for both macroeconomic theory and macroeconomic policy making during the Great Depression and the period later. The General Theory was a beginning of a new school of thought in macroeconomics which was referred to in later period as Keynesian Revolution in macroeconomic analysis.

The notion of "effective demand" and its influence on economic activity was the central theme in Keynes's Theory of Effective Demand. While refuting the Classical theory which believed in strong general tendency of market mechanism to move output and employment towards full employment, Keynes explained that, in some situations, no strong automatic mechanism moves output and employment towards full employment levels. Keynes was the first economist to advocate the role of government especially fiscal policy, as the primary means of stabilizing the economy.

Meaning of Aggregate Demand

The concept of aggregate demand (AD) refers to the total demand for goods and services in an economy. AD is related to the total expenditure flow in an economy in a given period. It consists of the following:

Consumption demand by the households (C)

Investment demand, i.e., demand for capital goods (I) by the business firms.

Government expenditure (G)

Net income from abroad (X – M).

Thus symbolically,

AD = C + I + G + (X-M)

Keynes's Theory of Aggregate Demand

According to Keynes full employment is not a normal situation as stated in the Classical theory. He argued that economy's equilibrium level of output and employment may not always correspond to the full employment level of income. It is possible to have macroeconomic equilibrium at less than full employment. If current level of aggregate demand (expenditure) is not adequate to purchase all the goods produced in the economy
(I.e. a situation of excess supply) then output will be cut back to match the level of aggregate demand.

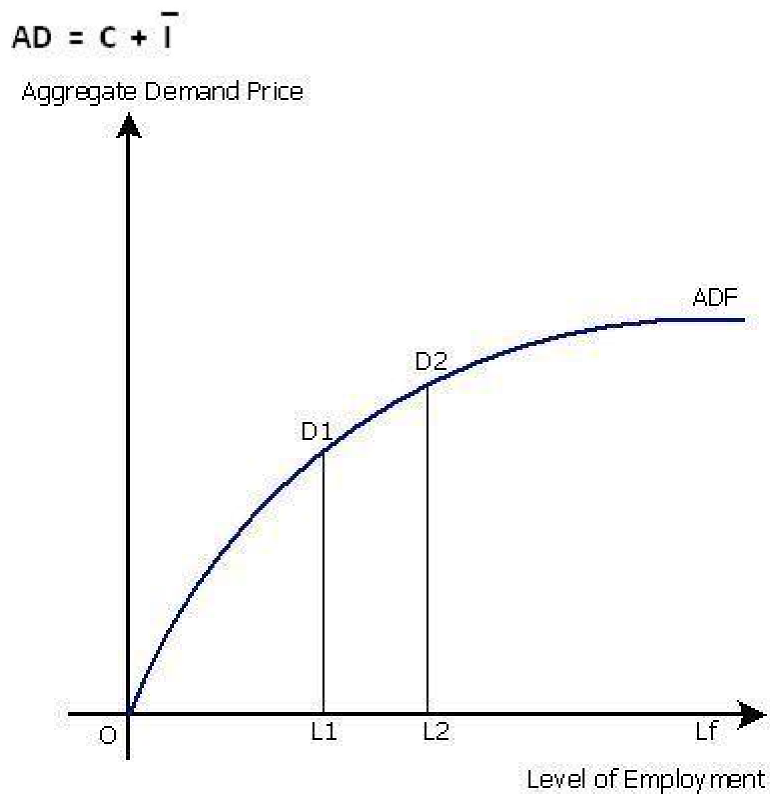
Keynes's theory of the determination of equilibrium income and employment focuses on the relationship between aggregate demands (AD) and aggregate supply (AS). According to him equilibrium employment (income) is determined by the level of aggregate demand (AD) in the economy, given the level of aggregate supply (AS). Thus, the equilibrium level of employment is the level at which aggregate supply is consistent with the current level of aggregate demand. The theory believes that "demand creates its own supply" rather than the Classical claim of "supply creates its own demand".

In the following sections we discuss Keynes' concepts of aggregate demand function, aggregate supply function and finally, the point of effective demand.

Aggregate Demand Function

Aggregate demand or what is called aggregate demand price is the amount of total receipts which all the firms expect to receive from the sale of output produced by a given number of workers employed. Aggregate demand increases with increase in the number of workers employed. The aggregate demand function curve is a rising curve as shown in Fig. 1.

Figure.1: Aggregate Demand Function



It can be seen that total expected receipts is D_1L_1 at OL_1 level of employment. Total expected receipts increase to D_2L_2 with increase in the level of employment to OL_2. OL_f is the full employment level. Initially the aggregate demand function (ADF) rises sharply as increase in the number of employment leads to increase in society's expenditure, thereby, increasing producer's expected sales receipts. There is no much increase in employment, income, expenditure and therefore producer's expected sales receipts as the economy reaches near fullemployment. The ADF curve becomes perfectly elastic (horizontal) as the economy reaches near full-employment.

Aggregate Demand In Keynes" theory of income determination is society"s planned expenditure. In a laissez-faire economy it consists of consumption expenditure (C) and investment expenditure (I).

Thus AD = Planned Expenditure = C + I where,

$C = f(Y_d)$ and Y_d is level of disposable income (Income minus Taxes) I is exogenous in the short run.

The short-run aggregate demand function can be written as

Aggregate Supply Function

Aggregate supply is determined by physical and technical conditions of production. However, these conditions remain constant in the short run. As such, given the technical conditions, output in the short run can be increases only by increasing employment of labour.

Aggregate supply or what is called aggregate supply price is the amount of total receipts which all the firms must expect to receive from the sale of output produced by a given number of workers employed. In other words, aggregate supply price is the total cost of production incurred by producers by employing a certain given number of workers. Obviously, aggregate supply price increases with increase in the number of workers employed. The aggregate supply function curve is a rising curve and at full employment (OL_f) it becomes perfectly inelastic (vertical) as shown in Fig. 2.

Aggregate Supply Function

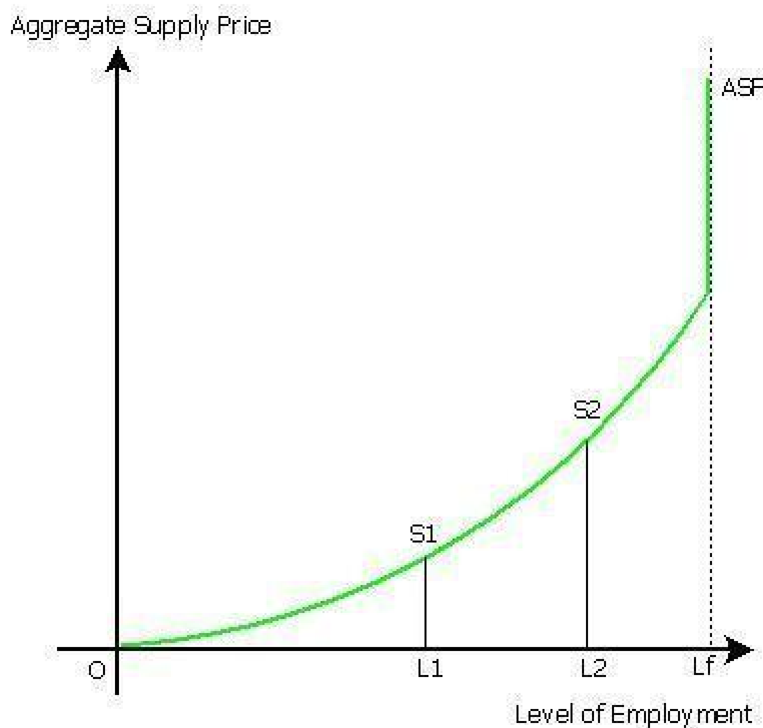


Fig.8.2

It can be seen that aggregate supply price or the cost of production is S_1L_1 at OL_1 level of employment. It increase to S_2L_2 with increase in the level of employment to OL_2. Initially, the aggregate supply function (ASF) rises slowly as labour is abundant thereby leading to slow increase in the cost of production. Labour cost rises sharply as the economy reaches near

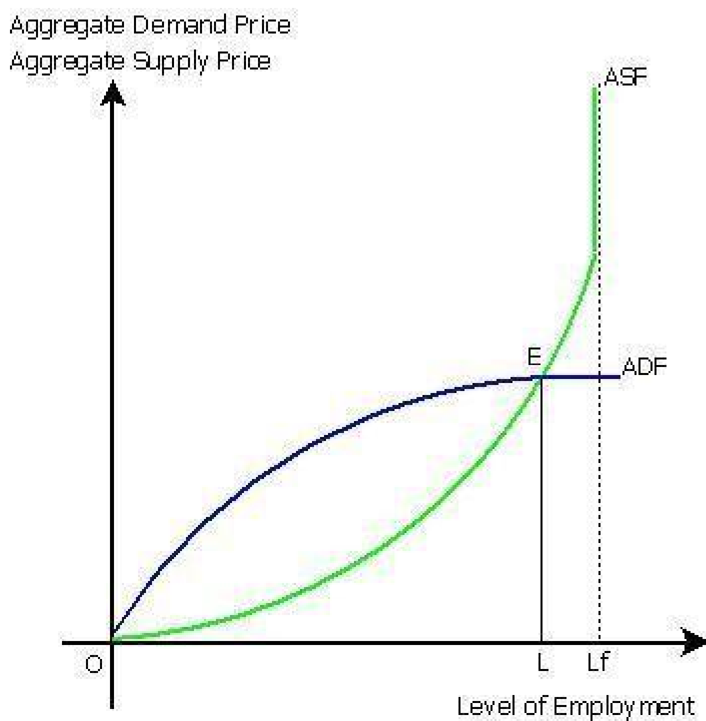
fullemployment. The ASF therefore rises sharply and at full employment (OL_f) it becomes perfectly inelastic (vertical).

Determination of Equilibrium Level of Employment

According to Keynes equilibrium level of employment (income) in the short run is determined by the level of effective demand. The higher the level of effective demand, the greater would be the level of income and employment and vice versa. This is shown in Fig. 3.

Fig.3 shows the ADF and ASF together. As discussed above the ADF shows the amount of total receipts which all the firms expect to receive from the sale of output produced by a given number of workers employed and the ASF shows the amount of total receipts which all the firms must expect to receive from the sale of output produced by a given number of workers employed. Entrepreneurs expand output as long as there are opportunities to make profits.

Determination of Equilibrium Employment



It can be seen that up to OL level of employment, aggregate demand price is greater than aggregate supply price (ADF > ASF). Producers expect greater returns than the cost of production. As such, producers expand output up to OL level of employment. Thus at any level of employment up to OL, there would be expansionary tendency in the economy and therefore rise in the level of employment.

Beyond OL level of employment, aggregate demand price is less than aggregate supply price (ADF < ASF). Producers expect less returns than the cost of production. As such, producers prefer to cut down output. Thus at any level of employment beyond OL, there would be contractionary tendency in the economy and therefore fall in the level of employment.

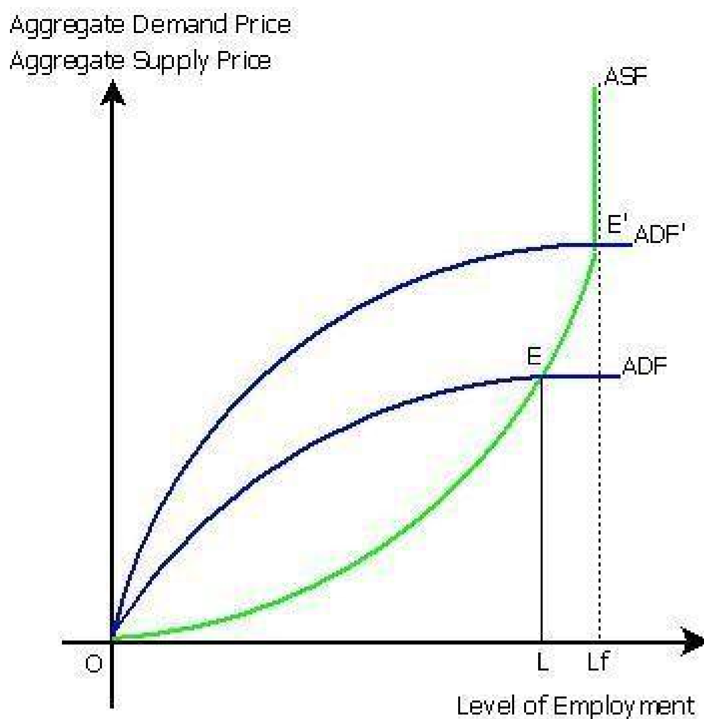
At OL level of employment aggregate demand price equals aggregate supply price (ADF = ASF). Now there is no tendency towards economic expansion or contraction. Thus OL is the equilibrium level of employment. Point 'E' is called the point of effective demand. It represents that level of aggregate demand price that is equal to aggregate supply price and thus reaches short run equilibrium position.

It can be seen that equilibrium point 'E' is established at less-than-full employment equilibrium and there is LL_f amount of involuntary unemployment in the economy. It is important to note that according to Keynes this unemployment is due to deficiency of aggregate demand. At full employment level there exist a gap between the full-employment level of aggregate supply price and the corresponding level of aggregate demand price.

Role of Fiscal Policy in achieving Full-Employment Equilibrium

According to Keynes, full-employment can be achieved by removing the gap between aggregate supply price and aggregate demand price. However, he rejected the Pigouvian wagecut solution to pull the ASF downwards to achieve full-employment. This, according to him, would further lower the aggregate demand, if the income of potential customers is reduced. The economy, in short, will be caught in a vicious circle of high unemployment and low demand. On the other hand, the policy to push the ADF upwards will push the economy into a virtuous cycle of high demand and high employment. This is shown in Fig. 4.

Determination of Full-Equilibrium Employment



It can be seen that the gap between the full-employment level of aggregate supply price and the corresponding level of aggregate demand price is now filled by shifting the ADF upwards to ADF'. The economy is now at full-employment equilibrium point E' and equilibrium employment is OL_f.

Keynes argued that adequate economic stimulus to shift the ADF upwards can be created through:

1. The Monetary Policy: A reduction in interest rates
2. The Fiscal Policy: A rise in government expenditure

However, to Keynes, monetary policy would be less effective under the conditions of economic depression. It is a situation when community's liquidity preference curve is absolutely elastic (horizontal). Therefore, interest rate, which is already at low levels, cannot be lowered further through the expansion of money supply. Thus, expansionary monetary policy would fail to generate economic stimulus by picking up investment. On the other hand, expansionary fiscal policy would be more effective to achieve upwards shift in the aggregate demand and thereby full employment and output. Keynes developed the theory of investment multiplier to explain the impact of government expenditure on income and employment.

Thus, Keynes advocated government's intervention through countercyclical fiscal policies. He suggested expansionary fiscal policy or deficit spending when a nation's economy suffers from recession or is caught in the vicious cycle of high unemployment and low aggregate demand, and contractionary fiscal policy by increasing taxes or cutting back on government outlays to suppress inflation in boom times. He argued that governments should solve problems in the short run rather than waiting for market forces to do it in the long run, because, "in the long run, we are all dead." The short-run aggregate demand function can now be written as:

AD = C + I + G

The above text we have to known Keynes" theory of employment is the principle of effective demand. Total employment in a country depends on aggregated or total demand and unemployment result from a deficiency of total demand. As employment increase. Consumption also increases, but by less than the increase in income. If employment level is to be sustained then sufficient demand must be there. This means any gap that arises between income and consumption is filled by real investment.