UNIT V
CLASSICAL THEORY OF OUTPUT AND EMPLOYMENT (6 HOURS)

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Content

- The Classical Postulates: Say's Law of Market
- Full Employment:
- Demand for and Supply of Labor
- Labor Supply and Money Wages
- Unemployment and Wage Rigidity
- Overall Equilibrium in the Basic Static Model (Goods, Labor, and Money Markets).

The Classical Postulates

- The classical theory of employment views that labor employment is determined in the labor market through the interaction between the supply of labor by the worker and the demand for labor by the employer.
- Involuntary unemployment is not possible because markets are always clear through wage and price adjustments.

Say's Law of Market

- Jean-Baptiste Say (1767-1832, France)
- Say was a liberal French economist and businessman who argued in favor of competition, free trade, and lifting restraints on business.
- He is best known for Say’s law also known as the law of the market which he popularized.

Say's Law of Market

Say's law states that:

- Supply creates its own demand and over-production is impossible.
- The law is one of the **THREE** assumptions forming the foundation of the macroeconomic theory of classical economics:
  - The free market activity would generate full employment
  - Flexible prices
  - Saving-investment equality

Assumptions of Say's Law

- 1. **Free Market Economy:** The economic system is of a free market nature. Perfect competition succeeds in both the commodity and factor markets. Product and factor prices and their quantities to be exchanged are determined through the interaction between demand and supply.

Assumptions of Say's Law

- 2. **No Government Intervention:** There is an absence of government intervention in the automatic working of the economy. Government intervention prevents the efficient and optimum allocation of resources.

Assumptions of Say's Law

- 3. **Expandable Market Size:** The size of the market is flexible enough for expansion. It expands with the increase in the volume of products offered in exchange.

Assumptions of Say's Law

- **4. The capability of the Economy:** The free market economic system and its price mechanism provide room for the growing labor force (population) and increase in capital. It forces these economies to operate at the "Full Employment" or "Potential GDP" level.

Assumptions of Say's Law

- 5. **Flexibility in Internal Prices:** Product prices, labor wages, and interest rates on saving investment are all flexible both in upward and downward directions. This is sufficient to bring equilibrium in the labor market, money market, and product market.

Assumptions of Say's Law

- 6**. Role of Money:** Money is used as a medium of exchange to simplify the transaction of goods and services.

Assumptions of Say's Law

- 7. **No Leakages in Money Use**: The circular flow of money between different economic units continues without any leakages. Economic units use money either to consume or for investment; there is no hoarding of money.

Assumptions of Say's Law

- 8. **Long run Time:** Classical economists' main interest was not in short-run fluctuations but in the relationship between the rate of profit, income distribution, and the level of output over the long run. The equilibrium process of the economy is perceived from the long-run point of view. The economy tends towards the full employment equilibrium in the long run.

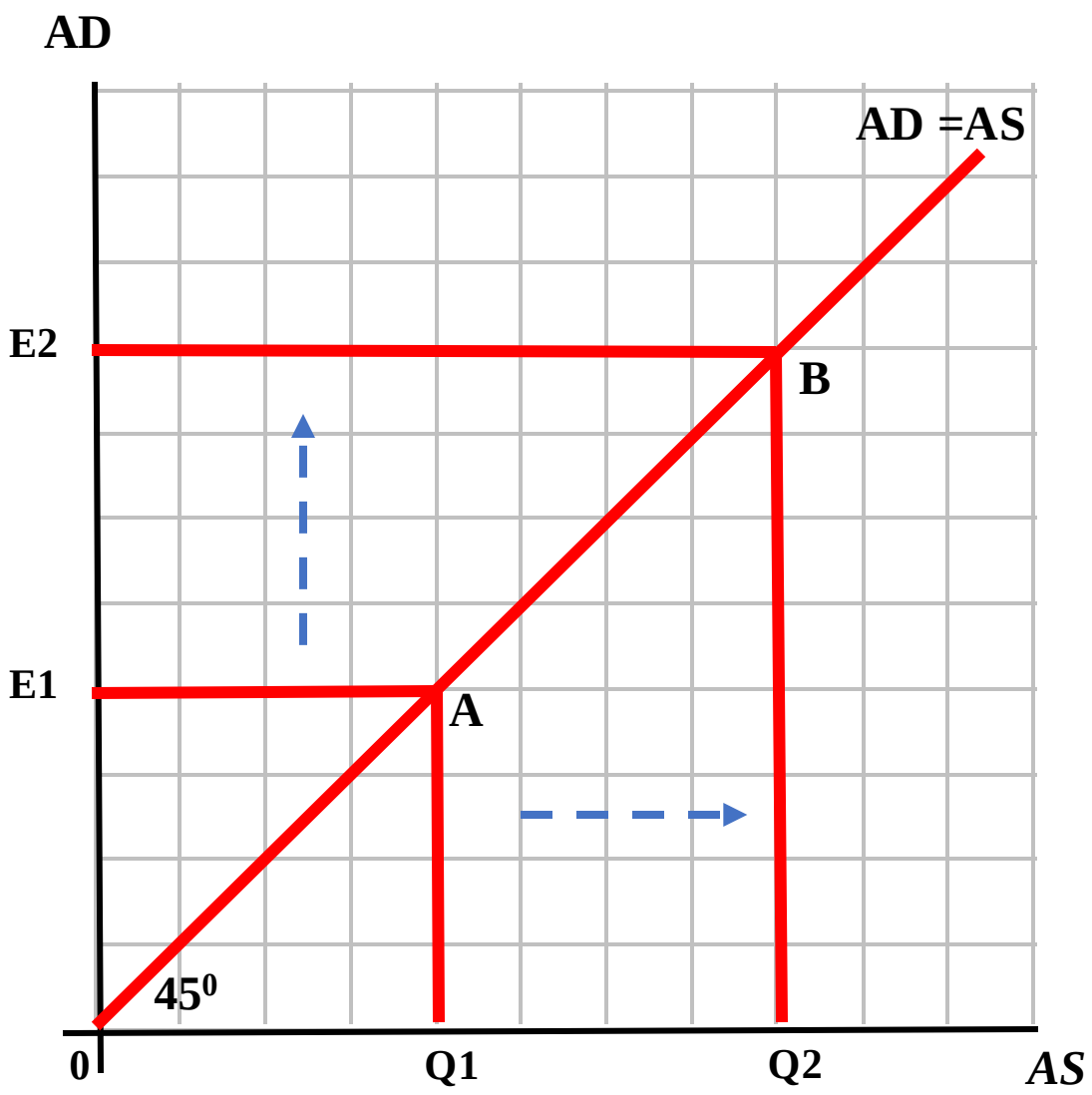
Say's Law in a Money Economy

- Say's law in a money economy depends upon two conditions.
- The **First condition** is that the total production of goods and services creates an amount of money income equal to the cost of production of the goods and services produced.
- The aggregate cost equals aggregate income.

Say's Law in a Money Economy

- The **Second condition** is that the total aggregate income earned from production activities is spent to purchase needs satisfying other goods and services.
- So aggregate income always equals aggregate expenditure.

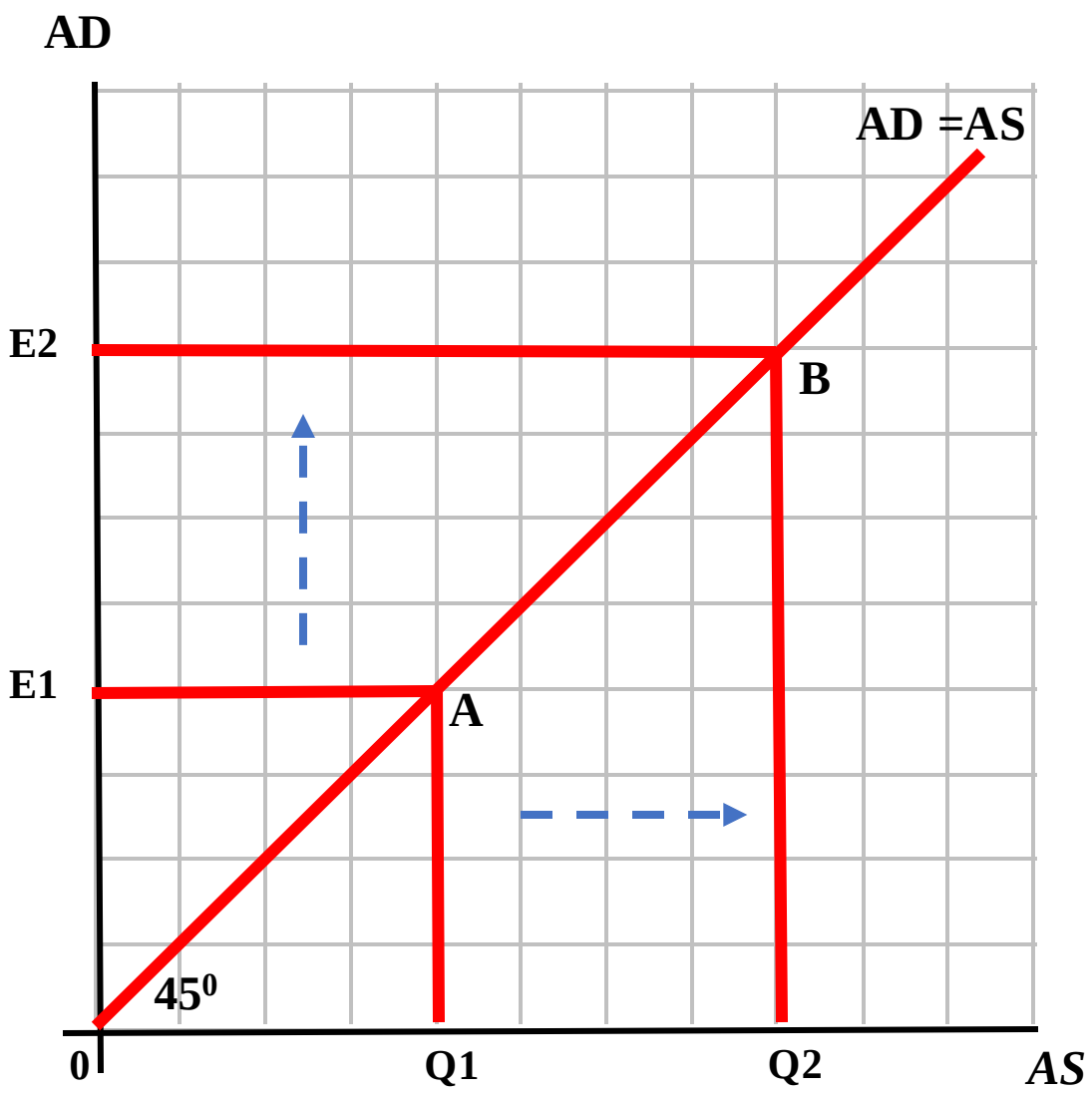
Say's Law in a Money Economy



Aggregate demand and Aggregate supply:

In the Figure, aggregate supply or aggregate income is represented along the horizontal axis (X-axis) and aggregate demand or aggregate expenditure is measured along the vertical axis (Y-axis).

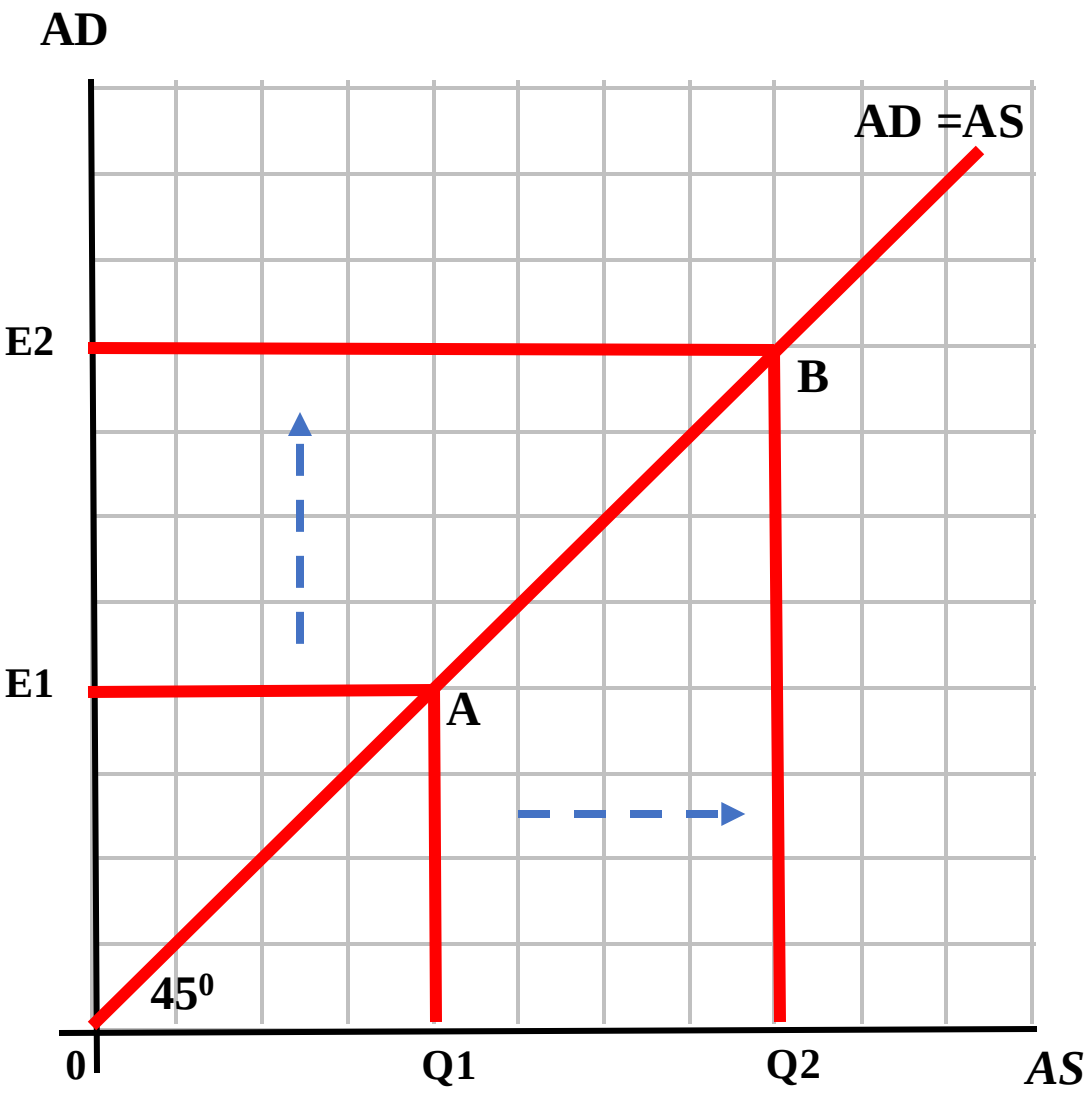
Say's Law in a Money Economy



Aggregate demand and Aggregate supply:

Every point on the 45^0 lines starting from the origin indicates equal distances from the horizontal and vertical axes because the line is equally inclined to both axes.

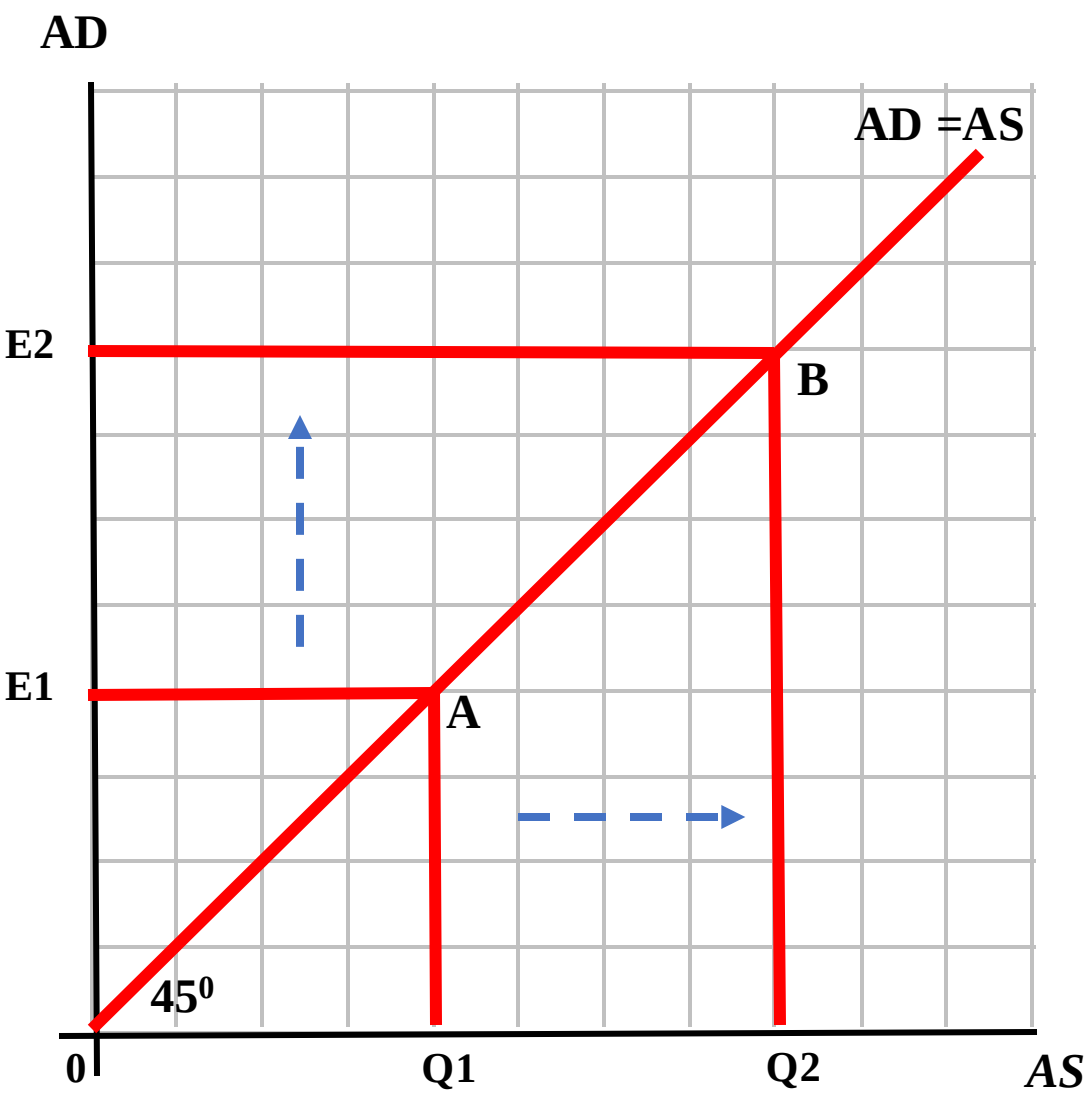
Say's Law in a Money Economy



Aggregate demand and Aggregate supply:

Therefore, aggregate supply and aggregate demand at all points of the 45^0 line are equal. For example, at point A, aggregate supply OQ1 is equal to aggregate demand OE1.

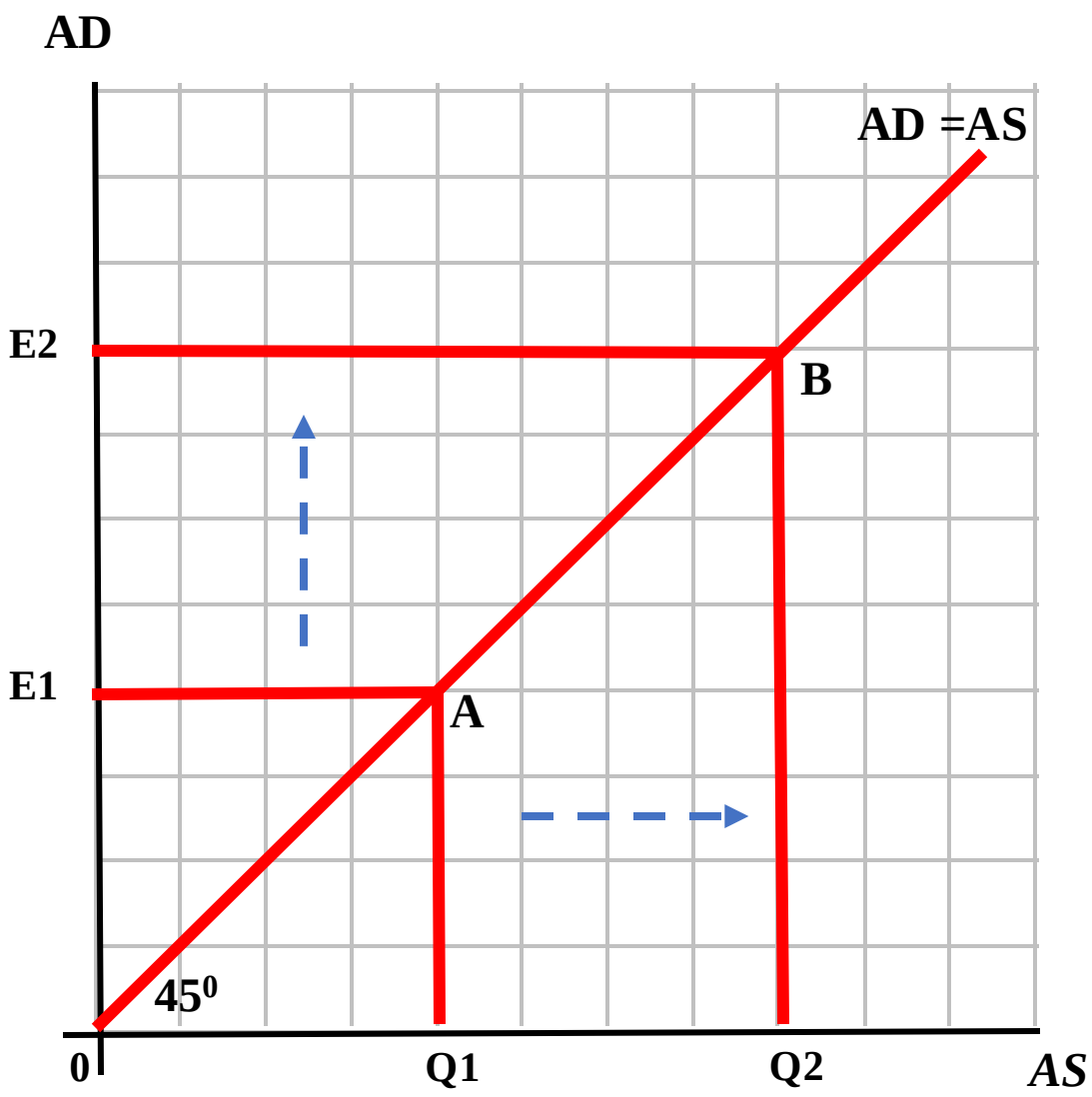
Say's Law in a Money Economy



Aggregate demand and Aggregate supply:

The movement from A to B on the 45^0 line shows that as aggregate supply increases to OQ2, aggregate demand also increases to OE2 and at point B, aggregate supply equals aggregate demand, that is, at point B, OQ2 OE2.

Say's Law in a Money Economy



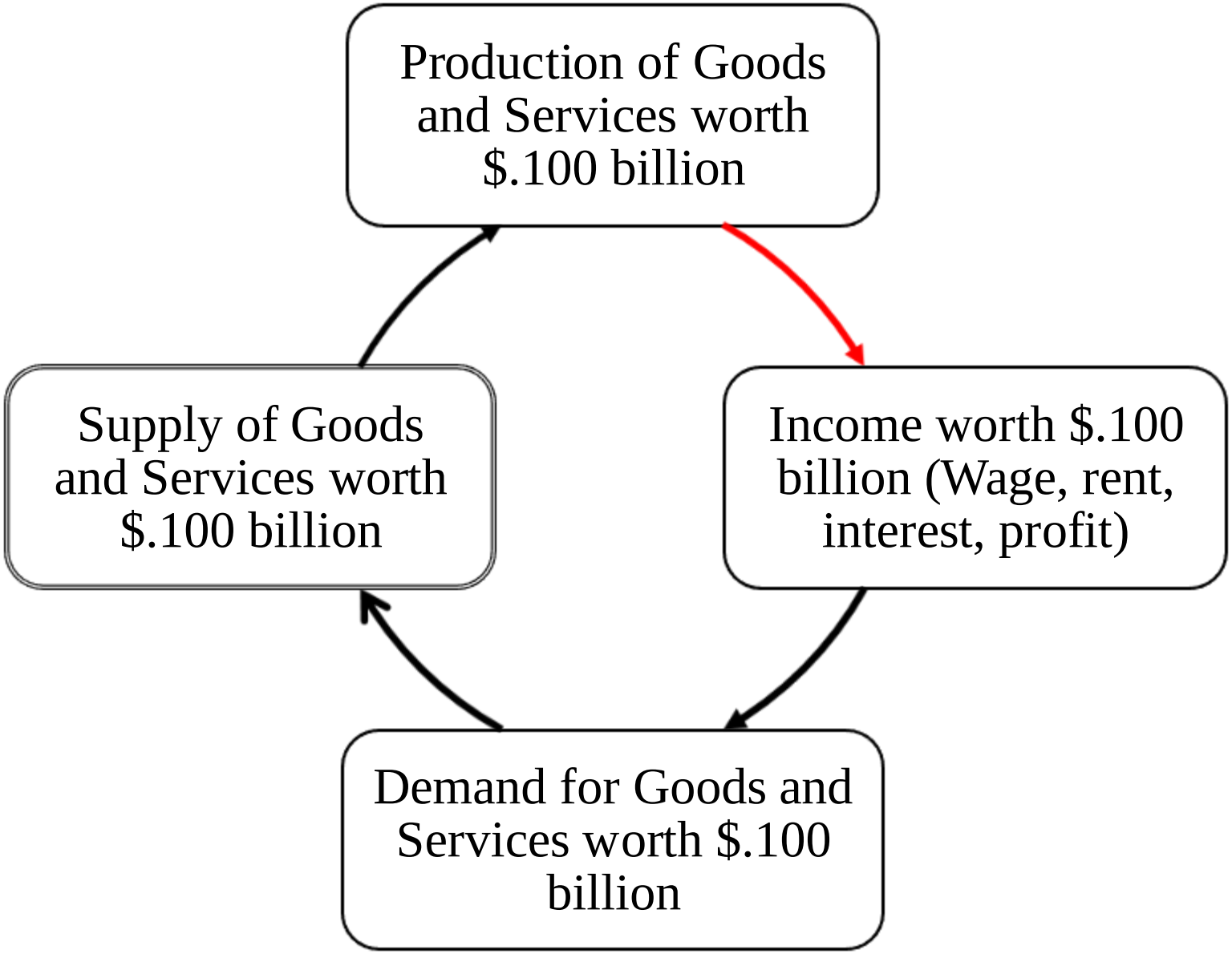
Aggregate demand and Aggregate supply:

Say's law implies that the change in aggregate supply and aggregate demand are also equal (Q1Q2 = E1E2). Because aggregate demand and aggregate supply are always equal; there is no possibility of general over-production or general unemployment in the classical system.

Say's Law in terms of Aggregate demand and Aggregate supply

- In the Figure, aggregate supply or aggregate income is represented along the horizontal axis (X-axis) and aggregate demand or aggregate expenditure is measured along the vertical axis (Y-axis).
- Every point on the 45^0 lines starting from the origin indicates equal distances from the horizontal and vertical axes because the line is equally inclined to both axes.
- Therefore, aggregate supply and aggregate demand at all points of the 45^0 line are equal. For example, at point A, aggregate supply OQ1 is equal to aggregate demand OE1.
- The movement from A to B on the 45^0 line shows that as aggregate supply increases to OQ2, aggregate demand also increases to OE2 and at point B, aggregate supply equals aggregate demand, that is, at point B, OQ2 OE2.
- Say's law implies that the change in aggregate supply and aggregate demand are also equal (Q1Q2= E1E2). In view of the fact that aggregate demand and aggregate supply are always equal; there is no possibility of general over-production or general unemployment in the classical system.

Working of Say's Law of Market



Working of Say's Law of Market

- The theory is that the money supply is the most important determinant of the nation of goods and services and the price level.
- Market forces are laissez-faire, and no policy or natural law is the methodology.
- **J B Say** believes supply creates its demand or income determines expenditure: Ep = f(Y)
- Ep = Y = W + i + r + **π** + sp + ibt + cca
- **Y** = income, $\mathbf{E_p}$= planned expenditure, **w** = wage, **i** = rent, **r** = rate of interest on capital, **π** = undistributed profit, **ibt** = indirect business tax, **cca** = depreciation, **sp** = income earned by sales proprietors.

Working of Say's Law of Market

- **Say used** a long run time frame. In the long run consumption and saving ratio will be at an equilibrium level. And in the long run, velocity is assumed to be stable.
- **Say believe** that the future is certain or calculable and believe money is to be spent.
- **Say's law:** Supply creates its own demand and stock adjustments. Consumption and saving are based on the marginal propensity to consume wealth.

Keynes Disagree with Monetarist

Issue	Keynesianism	Monetarism
View of the private economy	Potentially unstable	Stable in long run at natural rate of unemployment
Cause of observed instability of the private economy	Investment plans unequal to saving plans (Changes in AD); AS shocks	Inappropriate monetary policy
Appropriate macro policies	Active fiscal and monetary policy	Monetary rule

Keynes Disagree with Monetarist

Issue	Keynesianism	Monetarism
How changes in the money supply affect the economy	By changing the interest rate, which changes investment and real GDP	By directly changing AD, which changes GDP
View of the velocity of the money	Unstable	Stable
How fiscal policy affects the economy	Changes AD and GDP via the multiplier process	No effect unless money supply changes
View of cost-push inflation	Possible (wage-push, AS shock)	Impossible in the long run in the absence of excessive money supply growth

Employment and Output Determination under Classical Theory

- The major feature of the classical theory is its explanation of the labor market in addition to money and product market analysis.
- The classical theory uses labor demand, labor supply, and production function in explaining the process of employment determination.

Assumptions of Classical Theory of Employment

a) Perfect competition occurs in the both product market (the market for goods and services) and the factors or resources market.

b) Prices are determined by the market forces of demand and supply; individuals and firms are price takers, not price setters.

c) Workers, consumers, and entrepreneurs are motivated by rational self-interest. They are guided by the optimization motive. Producers want to maximize profit and consumers want to maximize satisfaction or utility.

Assumptions of Classical Theory of Employment

d) People do not experience money illusion. They understand the difference between real and nominal values.

e) Market equilibrium through adjustments in wage, price, and interest rate.

f) There is a sufficient market for goods and services in the economy. Supply creates its own demand.

Production Function and Supply of Aggregate Output

- The aggregate output or GDP of an economy is technically described by a production function.
- A production function shows how the output is obtained from the use of inputs like labor and capital.
- From a macroeconomic perspective, the production function explains that aggregate output in an economy is a function of labor employed by all firms with the given stock of capital and given level of technology.

Production Function and Supply of Aggregate Output

- In a short period, firms cannot increase all inputs to increase output.
- Some of the factors like physical capital (e.g., machine, equipment, building) and technology (both managerial and production technologies) are kept constant.

Production Function and Supply of Aggregate Output

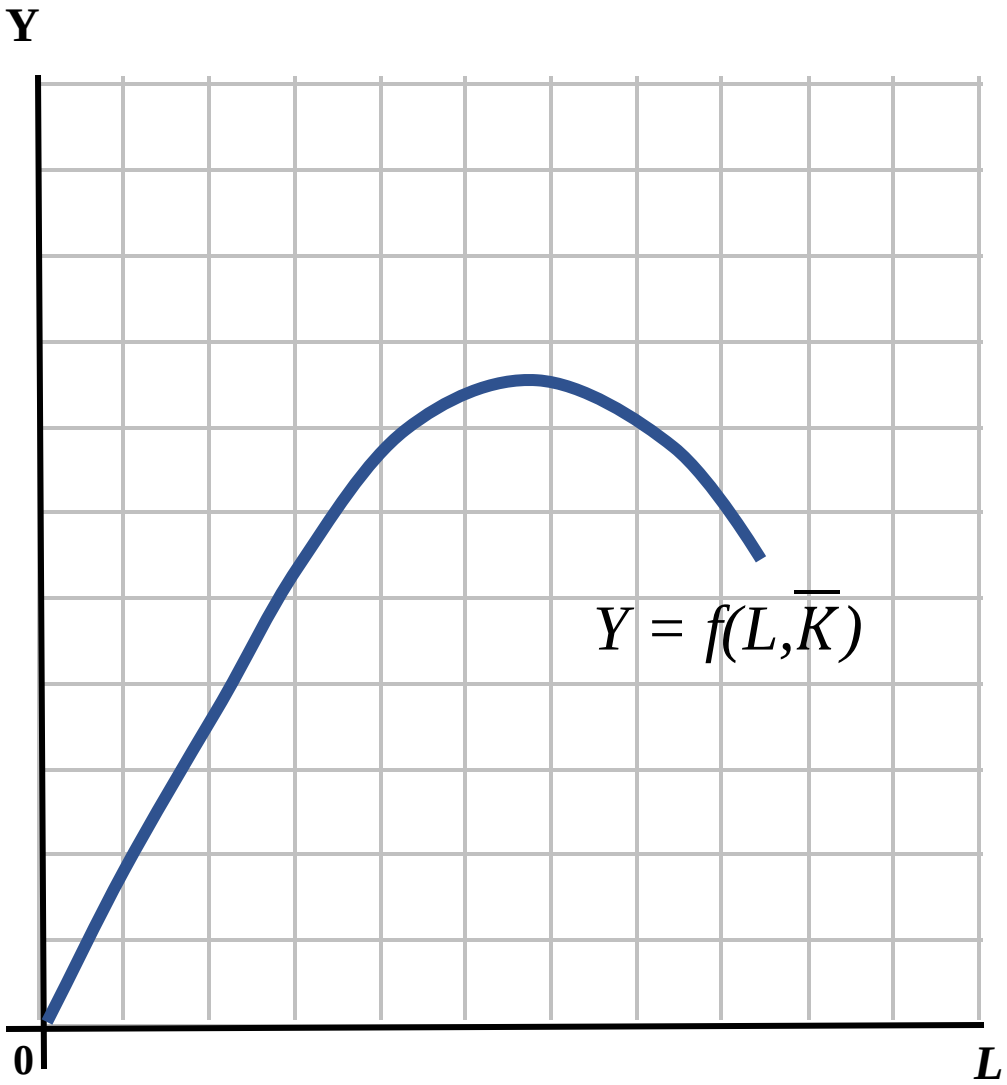
- So, the short-run production function with some factor's constant is mathematically expressed as:

$$Y = f(L, \overline{K})$$

Where, Y= real output or GDP, K-capital input, L-labor input (labor employment) technology. The bar over a variable K denotes that the quantity is assumed to be fixed. The fixed technology factor in the production function is assumed fixed for the period under analysis.

Production Function Exhibiting the Law of Diminishing Return of the Variable Factor, Labor

- The production function is graphically represented in Figure the vertical axis of the figure measures output (Y) and the horizontal axis represents the variable input (labor in this analysis).



Production Function

- The production function is curved downward.
- This shape of the production function reflects the law of diminishing returns (or the law of variable proportions).
- This law of production states that each additional unit of the variable factor (in the present case labor) brings smaller and smaller additions to output; the marginal product of the variable factor declines with more and more use of it with other fixed factors.

Full Employment

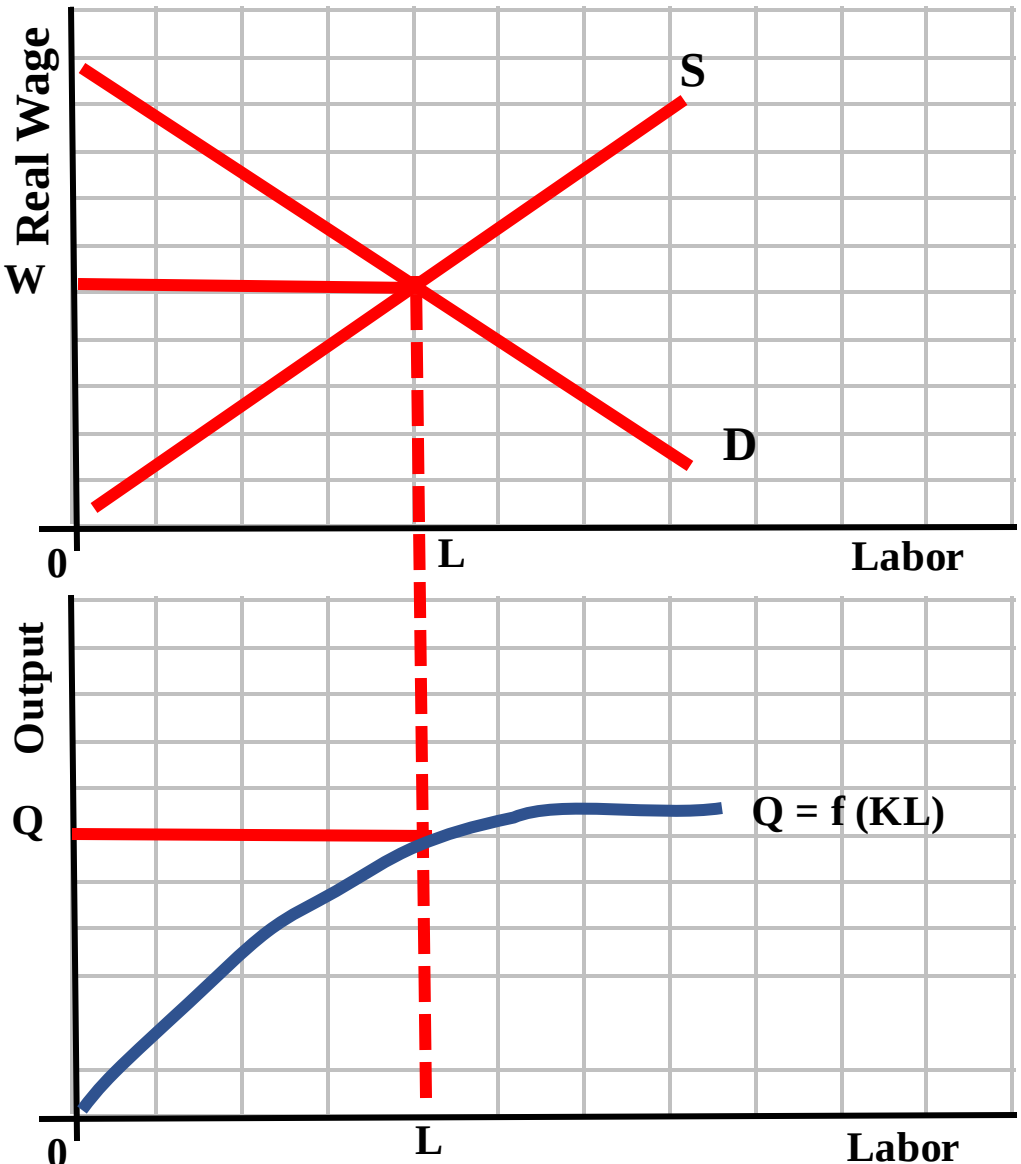
- Classical theories are believed in long-run periods without inflation.
- There is a full employment situation.
- Perfect competition in the labor market, money, and product markets.
- There are homogeneous laborers.
- Ready to work at the existing wage rate.
- The total output of the economy is parts of consumption and investment expenditure.

Full Employment

- Money is the medium of exchange.
- No technological change.
- Prices and wages are flexible in nature.
- Saving is equal to investment.
- The law of diminishing marginal returns is applicable to the agriculture sector.

Full Employment Level: Labor Market Equilibrium

- When the labor market is in equilibrium, we can determine the level of employment and the real wage rate.
- Supply of labor increases when the raise in the wage rate.
- full employment succeeds at the equilibrium real wage rate.



Output Determination

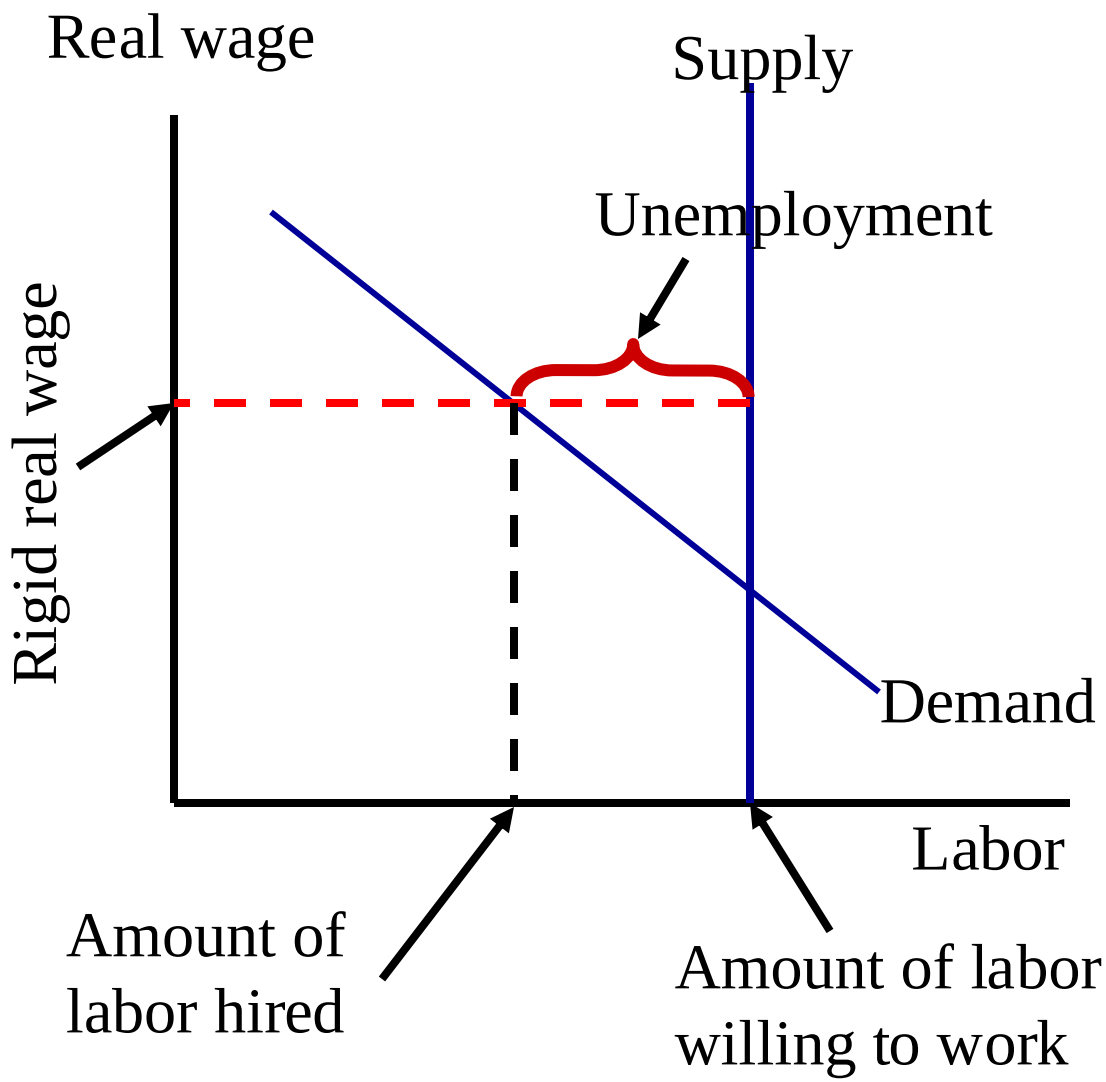
- Full employment is a general characteristic of a capitalist economy.
- The level of employment refers to the equilibrium of demand and supply of labor in the economy.
- Production is a function of the number of laborers.
- The equilibrium level of aggregate output and employment is given by the production function and labor demand and supply function respectively.
- Saving is equal to investment, so unemployment for a short period in the economy, but can adjust forces and restore full equilibrium.
- Aggregate demand is equal to aggregate supply (Full employment level)

Output Determination

- W/P In the classical model, employment depends on the real wage rate.
- The ratio of the nominal wage rate to the general price level.
- So the firm will reach the point of optimal purchase of labor by equating MPL with the real wage rate.
- W/P = MPL (marginal productivity of labor) till full employment position achieved.

Unemployment from Real Wage Rigidity

If the real wage is stuck above the equilibrium level, then there aren't enough jobs to go around.



Unemployment from Real Wage Rigidity (fixed)

- Wage is stuck above the equilibrium level, then there aren't enough jobs to go around.
- Then, firms must control the rare jobs among workers.
- **Structural unemployment**: the unemployment resulting from real wage rigidity and job rationing.

Equilibrium in the Basic Static Model

- Goods
- Labor, and
- Money Markets

Goods Market Equilibrium

- Then aggregate demand for goods and services, using the expenditure approach, is defined as:

$$\boldsymbol{Y^d = C^d + I^d + G_0},$$

- C^d = demand for consumption goods
- I^d = demand for investment goods
- G_0 = exogenous (taken as given) government spending on goods and services.
- Modeling the aggregate demand for goods and services thus requires modeling the demand for consumption goods and the demand for investment goods. However, since desired national saving is defined as $\boldsymbol{S^d = Y^d - C^d - G_0}$
- On modeling saving behavior instead of consumption behavior.

Goods Market Equilibrium

- The aggregate supply of goods in the economy, *AS*, is determined by the interaction of the production function with the labor market. That is, $AS = Y$ = full employment output.
- Equilibrium in the market for goods and services occurs when the aggregate demand for goods and services, defined as $AD = Y^d = C^d + I^d + G_0$, is equal to the aggregate supply of goods and services (real GDP), *Y*. In other words, the *goods market equilibrium* condition is

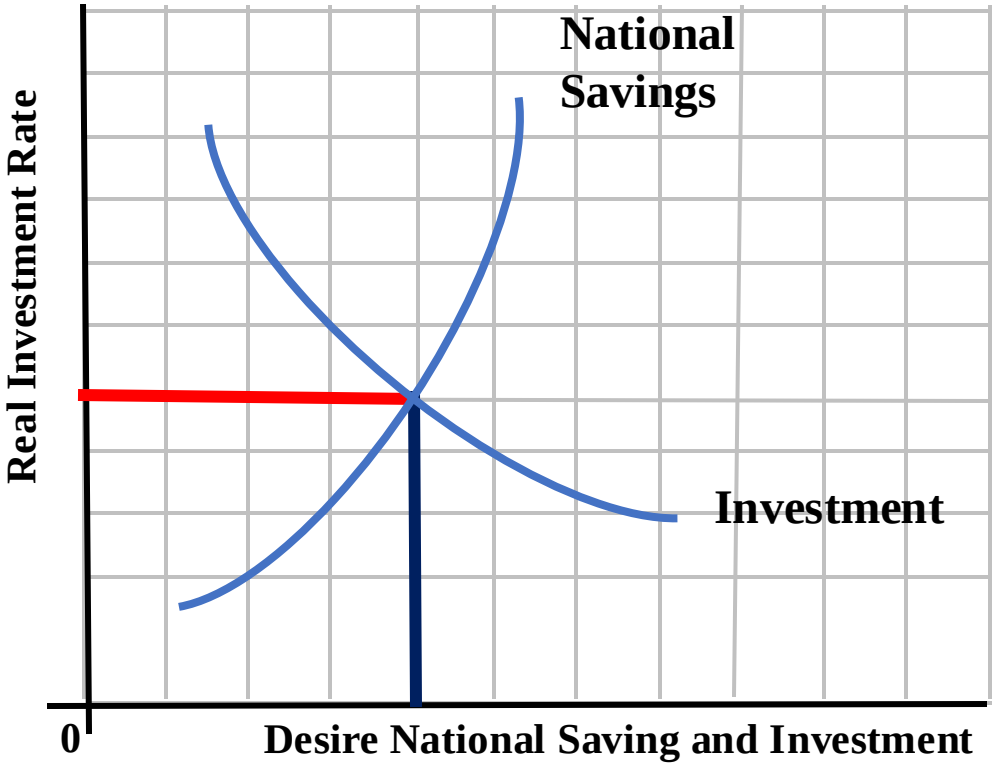
$$\boldsymbol{Y^d = Y = C^d + I^d + G_0.}$$

Goods Market Equilibrium

- In an economy without a foreign sector, **equilibrium in the market for goods and services if desired national saving is equal to desired investment expenditure.**
- This equilibrium condition in a savings-investment diagram relates both desired national savings and investment as functions of the real interest rate.

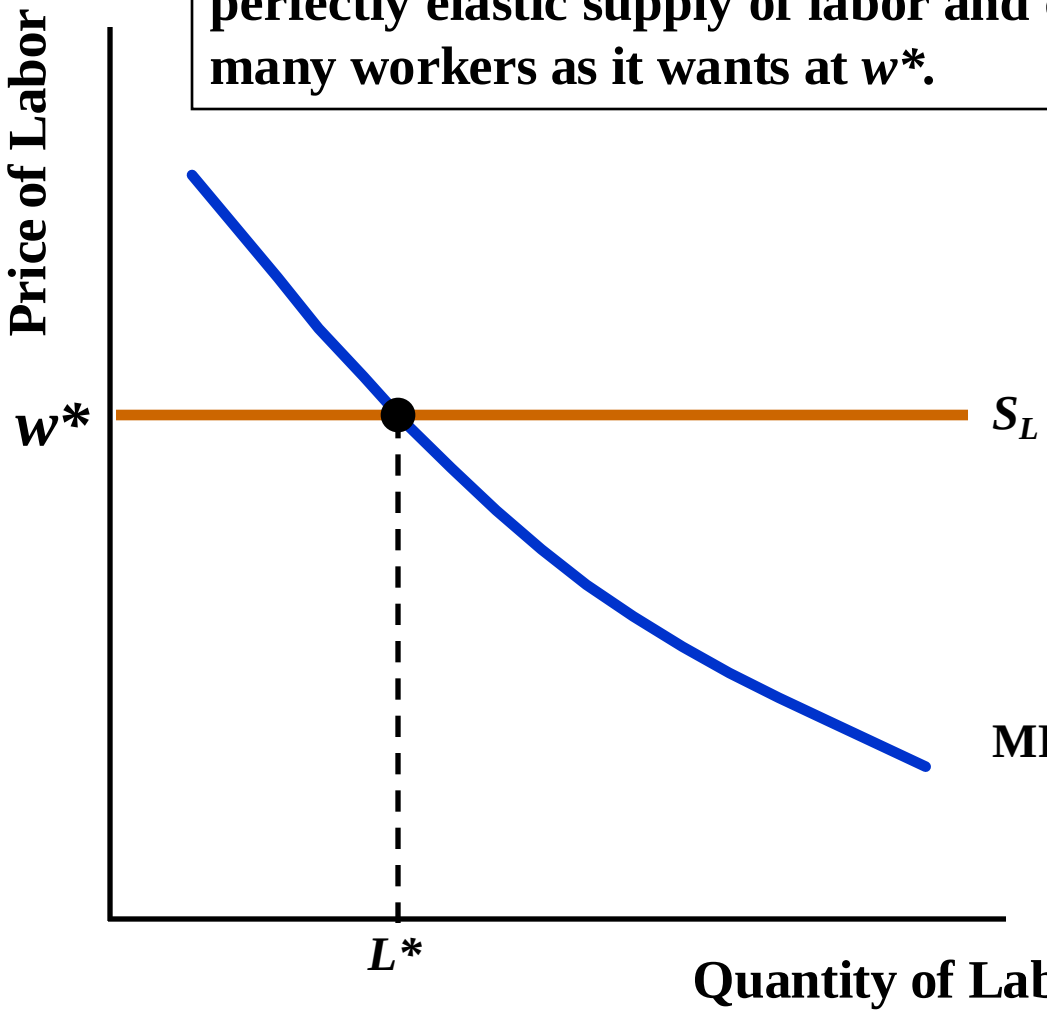
Goods Market Equilibrium

- Equilibrium in the goods market can be expressed in two equivalent ways: **desired national saving is equal to desired investment**; $AS = AD$.
- The graph at right shows that the real **interest rate plays a key role in determining goods market equilibrium.**



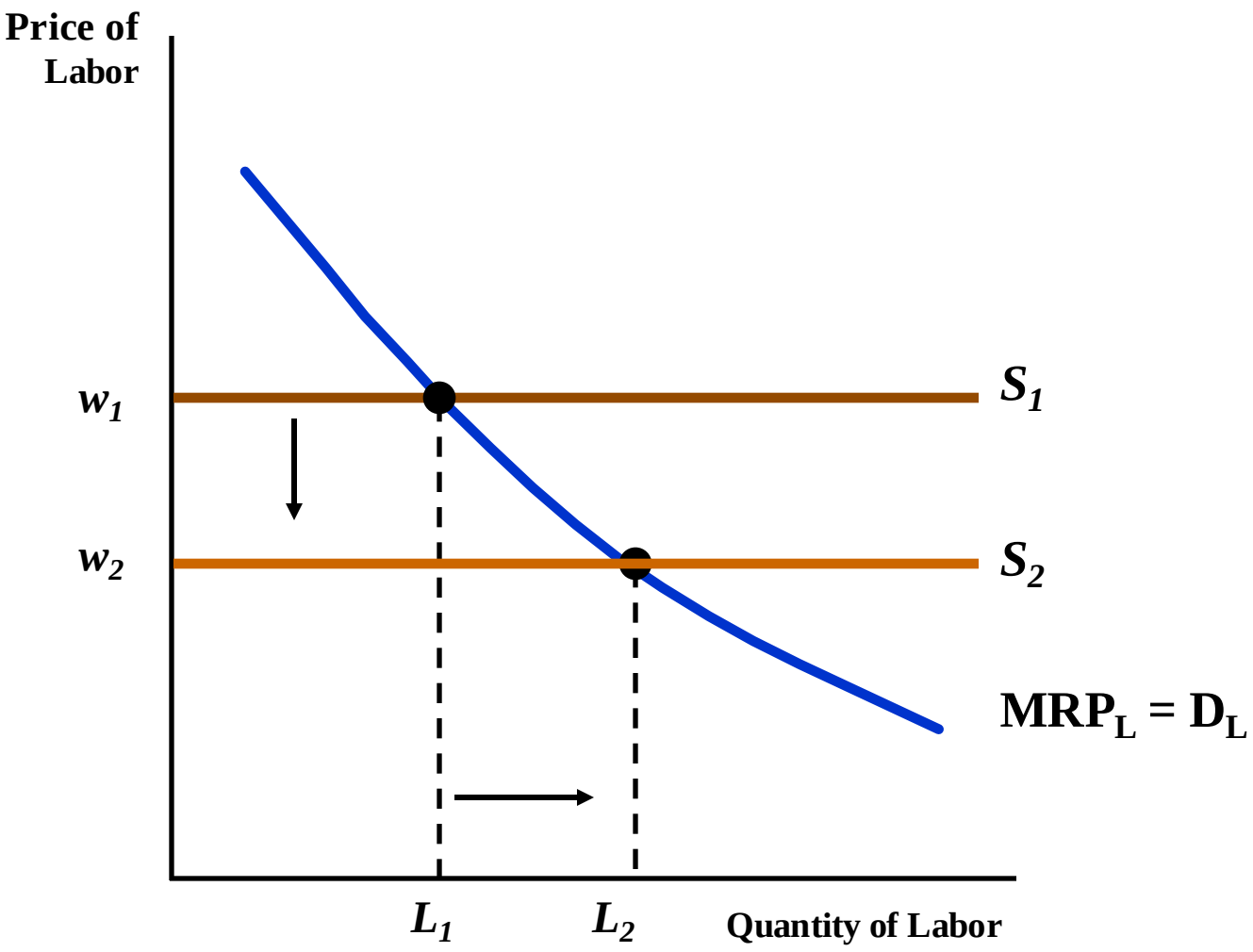
Labor Market Equilibrium

In a competitive labor market, a firm faces a perfectly elastic supply of labor and can hire as many workers as it wants at *w.**



The profit-maximizing firm will hire *L units of labor at the point where the marginal revenue product of labor is equal to the wage rate.**

Labor Market Equilibrium: A Shift in the Supply of Labor

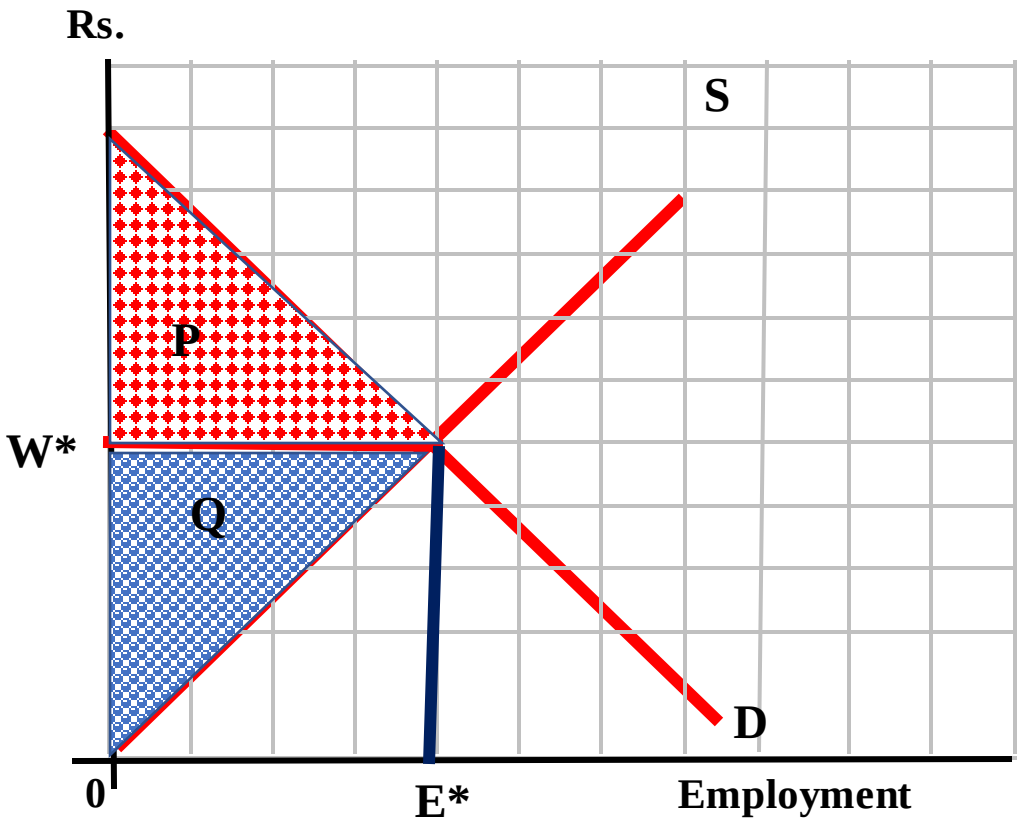


When the supply of labor facing the firms is S_1, the firm hires L_1 units of labor at wage w_1.

But when the market wage rate decreases and the supply of labor shifts to S_2, the firm maximizes its profit by moving along the demand for labor curve until the new wage rate w_2 is equal to the marginal revenue product of labor. As a result, L_2 units of labor are hired.

Labor Market Equilibrium

The labor market is in equilibrium when supply equals demand; E* workers are employed at a wage of w*. In equilibrium, all persons who are looking for work at the going wage can find a job. P gives the producer surplus; Q gives the worker surplus. A competitive market maximizes the gains from trade, or the sum P Q.

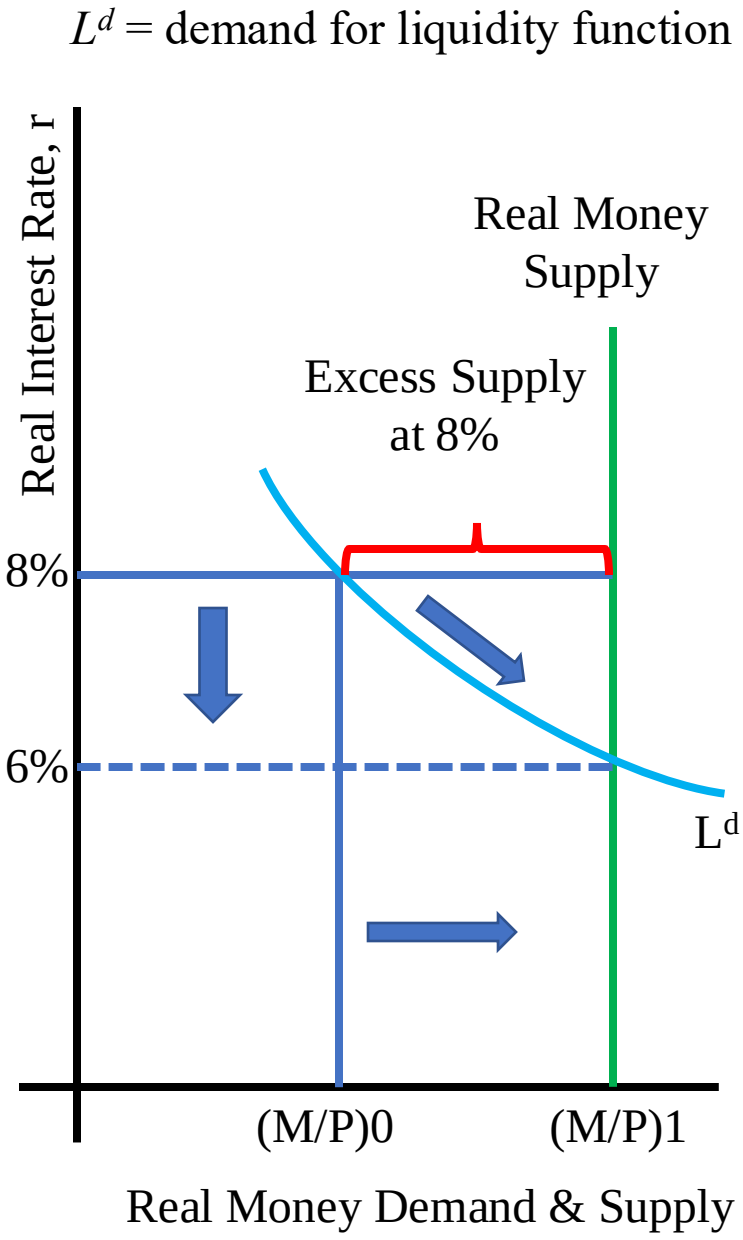


Money Market Equilibrium

- This theory expresses how the supply of money determines the aggregate price level in the economy.
- MV = PT (GDP)
- M= the quantity of money
- V= velocity of circular money
- Y= aggregate income (GDP)
- P= the aggregate price level
- Classical economists assumed that the aggregate output(Y) remains constant in the short run due to the assumption of full employment, constant technology, and price-wage flexibility.

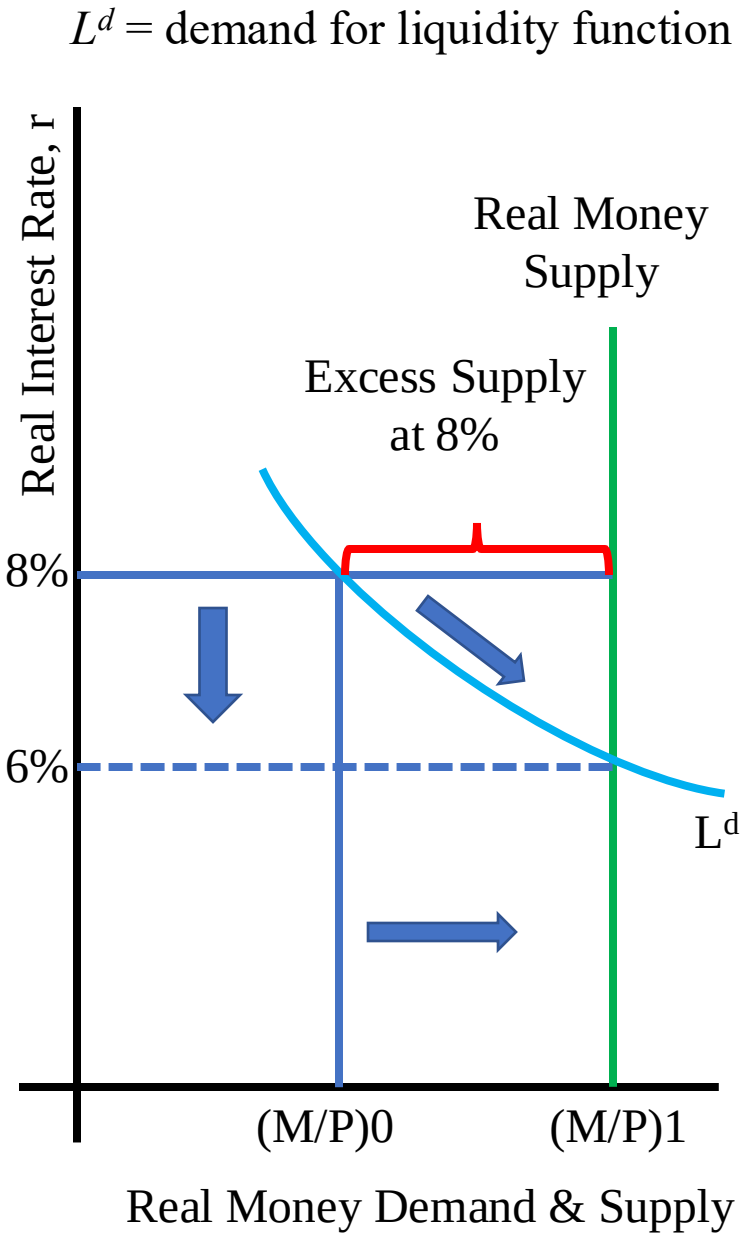
Money Market Equilibrium

- Real money demand and the real money supply as functions of the real interest rate are illustrated in the graph.
- Real money demand is graphed holding fixed real income and expected inflation.
- The real money supply is equal to the nominal amount of M1, denoted M_0, divided by the fixed aggregate price level, P_0.
- The money supply is based on the value of the real interest rate.
- Real money demand and real money supply intersect when the real interest rate is 6%.



Money Market Equilibrium

- This is the value of the real interest that equates money demand with the money supply and establishes equilibrium in the money market.
- When the money market is in equilibrium there are no economic forces acting on the economy to alter the real interest rate.
- If the real interest rate were 8% then the demand for real balances would be greater than the fixed supply of real balances.
- In this case, there is an excess supply of money in the money market.
- Individuals are holding more money than they would like given the high real interest rate.



Money Market Equilibrium

- Accordingly, individuals will attempt to rebalance their portfolios; i.e. they will try to get rid of money by buying bonds (our generic non-money asset).
- In doing so the demand for bonds increases and so the price of bonds increases.
- Because bond prices are inversely related to the interest rate on bonds, the increased price of bonds lowers the real return on bonds (holding expected inflation fixed).
- Therefore, the excess supply of money at *r = 8%* (dis-equilibrium in the money market) leads to economic forces that act to lower the real interest rate.
- These forces cease to operate when the real interest falls to r = 6% where the demand for real balances is equal to the supply of real balances

THANK YOU