1. Definition, functions, types and measure of money.

Answer:

**Definition of money**: money is the stock of assets that can be readily used to make transactions.

**Functions of money**:

* Store of value
* Unit of account
* Medium of exchange

**Types of money:**

* fiat money: the money which have no intrinsic value because it is established as money by the government decree
* Commodity money: Earlier in the past, societies were using commodity with some intrinsic value as money. The most widespread commodities were gold, silver and copper.

Measure of money:

* C: currency with public and banking system
* M1: C + demand deposits+ travelers checks + other checkable deposits
* M2: M1 + retail money market mutual fund balances + saving deposits + small time deposits
1. Explain quantity theory of money with the help of suitable diagram and equations. Derive classical aggregate demand curve from quantity theory of money

Answer

***Quantity theory of money:***

The ***quantity theory of money*** has its roots in the work of the early monetary theorists- David Hume (1711-1776). This theory is based on the assumption that people hold more money to buy goods and services. In other words, money is demanded for transaction purpose only. The more money people need for transactions, the more money they hold. Thus the quantity of money in an economy is related to the number of dollars exchanged in transactions.

The relation between transaction and money is expressed in the following equation, called the quantity equation:

 Money *X* Velocity = Price *X* Transactions

 M V = P T

Where,

T- total number of transactions during some period of time (number of times in a year that goods and services are exchanged for money)

P- general price level

M- quantity of money

V- transactions velocity of money. It measures the rate at which money circulates in the economy. In other words, velocity tells us the number of times a currency changes hands in a given period of time.

The problem with the equation of quantity theory of money is that the number of transactions is difficult to measure. In order to solve this problem, the number of transactions are replaced by the total output of the economy Y.

 M V = P Y

 ***Classical aggregate demand curve from quantity theory of money***

In order to derive classical aggregate demand curve from quantity theory of money, we need to make the additional assumption that the velocity of money (V) is constant. The assumption of constant velocity of money is not completely unrealistic assumption, in fact it is very close to reality. However, the velocity changes if money demand function changes. For example, with the introduction of ATM, people reduced their average holding of money, which resulted in increase in the velocity of money.

The classical aggregate demand curve plots combinations of aggregate price level (P) and output (Y) consistent with the quantity theory equation PY=MV̅̅, for a given money supply (M) and fixed velocity (V̅̅).

 Where, the leftward aggregate demand curve is corresponding to M=300 and V=5, while the rightward demand curve is corresponding to M=600 while keeping V constant at 5. An increase in the money supply shifts the aggregate demand curve to the right. It is also clear from the curve that for a fixed level of output, any increase in the M will result in proportionate increase in the price (see when Y= 600, increase in money supply only results in increase in price).

1. Explain the determinants of demand for money and equilibrium in the money market. Derive money demand function.

**Demand for money:** This is the amount of money people want to hold, and denoted by Md. The demand for money in the economy as a whole is just the sum of all the individual demands for money by the people in the economy.

**Determinants of demand for money:**

1. Money is demanded for transaction and precautionary purposes. The money which we hold for transactions doesn’t pay any interest. They are in terms of currency, coins, bills and checkable deposits. The overall level of transactions in the economy are hard to measure, but it is likely to be roughly proportional to the nominal income of the economy. If nominal income were to increase by 10%, it is reasonable to think that the amount of transactions in the economy would also increase by roughly 10%.

MT = $Y

1. Money can be spent on the purchase of bonds. Bonds pay a positive interest rate (i) but they can’t be used for transactions. Higher the investment in bonds, lower will be the money left for transactions. The investment in bonds depend on the rate of interest i.e. higher the rate of interest, higher will be the investment in bonds. On the contrary, demand for money will be negatively related to rate of interest.

Though there are many types of bonds but for simplicity we assume only one type of bond in the economy. We also assume that buying or selling of bonds implies some cost, for example, a phone call to a broker or transaction fees etc. The demand for money depends negatively on the rate of interest. This is captured by the function L(i)

In this way the relation between the total demand for money, nominal income, and the interest can be shown by following equation:

Md = $Y L(i)

It can be shown by the following diagram. This diagram shows that an increase in income shifts money demand curve to the right. These two curves are horizontally parallel, since both of them have been drawn for a given level of income.

1. Determine the equilibrium in the money market. Examine the effect of change in money demand and money supply on the money market equilibrium.

**Equilibrium in the money market**: If the central bank supplies an amount of money equal to MS (800). The equilibrium in the money market requires the money supply be equal to money demand i.e. Md = MS, thus, in the equilibrium:

MS = $Y L(i)

Money supply curve is vertical line since it is independent of the rate of interest. The equilibrium can be shown by the following diagram:

**Effect of a change in nominal income:**

An increase in the nominal income increases the transactions which increases the demand for money at any interest rate. As a result, the money demand curve shifts to the right, which further raises the rate of interest. The reason is that at the initial rate of interest, the demand for money exceeds the supply. An increase in the rate of interest is needed to decrease the amount of money people want to hold and to reestablish the equilibrium.

**Effect of increase in money supply**:

The figure below shows the effect of an increase in the money supply on the rate of interest. It shows that an increase in the money supply shifts the money supply curve to the right. As a result rate of interest decreases. The decrease in the interest rate increases the demand for money, so it equals the larger money supply.