MONETARY THEORY AND POLICY

WEEK 2-THE THEORIES OF MONETARY POLICY

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In this topic, we will discuss the following theories-

(1) Fisher's Transactions Approach
(2) The Cambridge Cash Balance Theory
(3) Keynes' Theory
(4) Tobin Portfolio Approach
(5) Boumol's Inventory Approach
(6) Friedman's Theory.

1. FISHER'S TRANSACTIONS APPROACH

According to his theory of money demand, Fisher and other classical economists emphasized the role of money as a medium of exchange—that is, as a means of paying for commodities and services. All business dealings that involve the purchase of commodities, services, raw materials, or assets call for payment of money as the transaction's consideration.

The value of the goods, services, and assets sold must be equal to the value of the money paid for them in order for accounting identity to occur, or value paid must match value received. Therefore, at any given period, the total value of all commodities, services, or assets sold must equal the sum of the volume of transactions times their average price. As a result, the sum of all transactions is PT.

The value of money flow, on the other hand, is equal to the nominal quantity of money supply M times the typical number of times the quantity of money in circulation is used or exchanged for transaction purposes. This is because the value paid and the value of money flow used to purchase goods, services, and assets are identically equal. The term "transactions velocity of circulation" (abbreviated V) refers to the typical frequency with which a unit of currency is utilized for transactions involving goods, services, and assets.

Symbolically, **Fisher's equation of exchange** is written as under:

MV = PT ...(1)

Where, M = the quantity of money in circulation

V = transactions velocity of circulation

P = Average price

T = the total number of transactions.

By definition, the identity represented by equation (1) above is true. The aforementioned identity was changed into a theory of money demand by Fisher, however, by making some assumptions regarding the variables V and T.

Fisher claims that the nominal amount of money M is set by the central bank of a nation and is therefore viewed as an exogenous variable that is expected to be a given amount in a specific time period.

Additionally, the number of transactions in a period depends on national income; the higher the national income, the more transactions are necessary. Fisher also believed that there was complete resource utilization across the economy, therefore the amount of fully utilized resources determines the level of national revenue.

As a result, under the premise that resources are fully utilized, the volume of transactions T is fixed in the short term. The velocity of circulation (V) must also be constant and be unaffected by M, P, and T. This is the most crucial supposition that makes Fisher's equation of exchange a theory of money demand.

This is due to his belief that institutional and technological aspects of the transaction process impact the velocity of circulation of money (V). Since the short-term variations in

these institutional and technological elements are minimal, the transactions' velocity of circulation of money (V) was assumed to be constant.

Money market equilibrium

The Money market is in equilibrium, when the nominal quantity of money supply is equal to the nominal quantity of money demand.

In other words, for **money market to be in equilibrium**:

Ms = Md

where Ms is fixed by the Central Bank of a country.

With the above assumptions, **Fisher's equation of exchange in (1) above can be rewritten as**

Md = PT/V

or Md = 1/V. PT ...(2)

Thus, **according to Fisher's transactions approach, demand for money depends on the following three factors:**

(1) The number of transactions (T)

(2) The average price of transactions (P)

(3) The transaction velocity of circulation of money(V)

It has been pointed out that Fisher's transactions approach represents some kind of a mechanical relation between demand for money (Md) and the total value of transactions (PT). Thus Prof. Suraj Bhan Gupta says that in Fisher's approach the relation between demand for money Md and the value of transactions (PT) "betrays a mechanical relation between it (i.e., PT) and Md as PT represents the total amount of work to be done by money as a medium of exchange. This makes demand for money (Md) a technical requirement and not a behavioural function".

Empirical research problems

When employed for empirical study, Fisher's transactional approach to the demand for money has some significant issues. First, Fisher's transactions approach includes both transactions arising from sales and purchases of capital assets, such as securities, shares, land, etc., in addition to those involving present production of goods and services. Even if Y is assumed to stay constant due to the full employment assumption, T should not be assumed to remain constant due to the regular fluctuations in the values of these capital assets.

The second issue with Fisher's method is that it is challenging to identify and establish a general price level that encompasses both currently produced products and services and capital assets.

2. THE CAMBRIDGE CASH BALANCE THEORY

Cambridge economists Marshall and Pigou proposed the Cambridge Cash Balance theory of money demand. In contrast to Fisher's transactions method, which focused on the use of money as a medium of exchange, this Cash Balance theory of demand for money emphasizes the role of money as a store of value or wealth.

It is important to note that the exchange function of money eliminates the necessity for barter trade and resolves the issue of two demands occurring at the same time that the barter system cannot handle. However, the role of money as a store of value emphasizes

the importance of people using their money as a general purchasing power for a length of time after the sale of a good or service at a later date.

The objective of Marshall and Pigou's analysis was what influences people's desire to keep cash holdings. Despite the fact that they understood that the demand for money is determined by the current interest rate, an individual's wealth, expectations for future prices, and the future rate of interest, they still held the view that changes in these variables remained constant or were proportional to changes in an individual's income.

Thus, they put forward a view that an individual's demand for cash balances (i.e., nominal money balances) is proportional to the nominal income (i.e., money income).

Thus, according to their approach, **aggregate demand for money can be expressed as:**

Md = kPY

Where, Y = real national income

P = average price level of currently produced goods and services

PY = nominal income

k = proportion of nominal income (PY) that people want to hold as cash balances

Criticism of the theory

Critics have noted that the Cambridge theory of the desire for cash balances does not officially incorporate additional factors such as interest rates, wealth, and predictions about future prices. The theory continues to ignore these other factors. Keynes, a fellow Cambridge economist, was the one who changed the direction of monetary theory by highlighting the impact of interest rates on the demand for money.

The fact that the income elasticity of demand for money may differ from unity is another criticism leveled at this hypothesis. The Cambridge economists did not offer a theoretical justification for why it is equal to one. Additionally, there is no empirical basis for the idea that the desire for money is elastic to income as a unit.

Furthermore, the price elasticity of demand is not always equal to unity. The demand for money may actually alter non-proportionally as the price level changes. These objections, however, target the cash balance approach's mathematical formulation, namely

Md = kPY.

They do not contest the significance of the connection between the level of income and the demand for money. There is considerable evidence from empirical research that have been done thus far that there is a significant and consistent relationship between the need for money and level of income.

3. KEYNES' THEORY

Keynes developed a theory of money demand that plays a significant role in his monetary theory. It's important to remember that Keynes utilized the concept of liquidity preference to describe the desire to hold money. What Keynes refers to as a person's *"liquidity preference"* determines how much of his income or resources he will keep in the form of real money (cash or non-interest-paying bank deposits) and how much he will part with or lend. The desire of the general people to hold cash is known as liquidity preference.

Demand for Money or Motives for Liquidity Preference: Keynes' Theory

A person's propensity for liquidity is influenced by a number of factors. Why, while they may earn interest by lending money or purchasing bonds, should they keep their assets liquid or in the form of ready money? The desire for liquidity arises because of three motives:

(i) The transactions motive,

(ii) The precautionary motive, and

(iii) The speculative motive.

1. The Transactions Demand for Money

The transactions motive has to do with the need for money or the requirement for money balances for the ongoing dealings of people and businesses. To "bridge the gap between the receipt of money and its expenditure," people keep cash on hand. In other words, because receiving money and receiving payments may not always coincide, consumers maintain money or cash balances for transactional needs.

People often receive their paychecks once a week or once a month, but their expenses are constant. As a result, it is kept on hand in a certain quantity to make current payments. This sum will vary according on the individual's income level, the frequency of revenue receipts, and the prevalent payment systems in society.

To satisfy a variety of daily necessities, businesspeople and entrepreneurs must also preserve a percentage of their resources in the form of cash. They constantly need money to pay for supplies and transportation, pay employees' salaries and other current costs experienced by any commercial firm.

The amount of money held for this purpose of business will be greatly influenced by the turnover (i.e., the volume of trade of the firm in question). In general, the amount of

money required to meet current expenses will increase as turnover increases. It is important to note that the usage of money as a medium of exchange causes the motivation for desire for money in transactions (i.e., means of payment).

Since individuals must spend money on goods and services during the receipt of income and its usage as payment for goods and services, the amount of money held for this purpose relies on the degree of an individual's income.

Due to his low salary, a poor man will have less money available for trades. A wealthy person, on the other hand, will typically retain more cash on hand for transactions because his outlays are generally higher.

People hold money in order to make purchases of goods and services, hence there is a demand for actual cash balances. A person needs to hold more cash on hand to buy a given amount of products at a higher price level. If the price level doubles, the person will need to have twice as much money on hand to purchase the same number of things. Therefore, rather than nominal balances, the need for money balances is for actual balances.

Keynes contends that the demand for money in a transaction is unaffected by the interest rate and only depends on real income. However, it has recently been observed empirically and in line with the theories of Tobin and Baumol transactions' desire for money also depends on the rate of interest.

The opportunity cost of holdings in money can be used to explain this. There is a cost associated with holding assets as cash balances. The interest that is lost when holding money balances as opposed to other assets is the cost of holding money balances. The opportunity cost of holding money as opposed to non-money assets increases with the interest rate.

The economies of both individuals and corporate entities depend on their ability to carefully manage their cash balances by investing money in short-term income-producing non-monetary assets such as bonds. Therefore, at all income levels, people and businesses will hold less money when interest rates are higher.

2. Precautionary Demand for Money

The need for people to keep cash on hand in case of unforeseen emergencies is referred to as the precautionary motive for holding money. People keep a certain amount of money on hand to cover the risk of accidents, illness, unemployment, and other unforeseen dangers. The quantity of money needed for this reason will vary depending on the person's psyche and the circumstances of his or her life.

3. Speculative Demand for Money

The desire to keep resources liquid in order to profit from market fluctuations regarding potential changes in interest rates is the root of the populace's speculative incentive (or bond prices). The idea of retaining money for speculative purposes was a revolutionary and new Keynesian concept. Money held for speculative purposes serves the same purpose as money held for precautionary purposes as a store of value. However, it is a money vault used for a different reason. The cash held under this motive is used to make speculative gains by dealing in bonds whose prices fluctuate. If bond prices are expected to rise which, in other words, suggests that businesspeople will buy bonds to sell when their values rise and that the rate of interest is anticipated to decline. However, if bond prices are anticipated to decline, meaning that interest rates are anticipated to increase, businessmen will sell bonds to protect their investment.

Businessmen keep cash on hand to speculate on the likely future changes in bond prices (or the rate of interest) with the aim of making profits because nothing is certain in the dynamic world where estimates about the future course of events are made on a fragile premise.

Less money will be held under the speculative motive at a higher current rate of interest and more money will be held under this motive with a lower current rate of interest due to assumptions about future changes in the rate of interest.

This relationship between money held for speculative purposes and the current rate of interest is inverse because, at a lower rate of interest, holding onto money results in less loss than lending or investing it, whereas, at a higher current rate of interest, cash balance holders would lose more by holding onto their money.

A function of the current rate of interest, the demand for money under speculative incentive rises as the rate of interest decreases and declines as it rises. As a result, the demand for money under this motive decreases as the rate of interest increases. The liquidity preference curve (LP) slopes downward and to the right, indicating that demand for money for speculative purposes decreases when interest rates rise and vice versa. Because more money would have been lent out or used to buy bonds at a high current rate of interest, less money would have been maintained in inactive balances.

Liquidity Trap

The liquidity trap refers to the region of the liquidity preference curve with absolute liquidity preference. This is so that the increase in the money supply doesn't become locked in the liquidity trap and prevent the rate of interest from affecting the amount of investment. Keynes argues that the liquidity trap is to blame for monetary policy's inability to lift the economy out of a recession.

The ability of the demand for money to satisfy the speculative motivation depends more on assumptions about future changes in interest rates than it does on the current rate of interest. The entire demand for money or liquidity preference for speculative motivation will alter proportionately if expectations for the future rate of interest fluctuate.

Therefore, the speculative demand for money will increase and the entire liquidity preference curve for speculative purpose will shift upward if the public expects the rate of interest to be greater (i.e., bond prices to be lower) in the future than had been previously believed.

Aggregate Demand for Money: Keynes' View

If the total demand of money is represented by Md we may refer to that part of M held for transactions and precautionary motive as M1 and to that part held for the speculative motive as M2. Thus **Md= M1 + M2.** According to Keynes, the money held under the transactions and precautionary motives, i.e., M1, is completely interest-inelastic unless the interest rate is very high.

The amount of money held as M1, that is, for transactions and precautionary motives, is mainly a function of the size of income and business transactions together with the contingencies growing out of the conduct of personal and business affairs.

We can write this in a functional form as follows:

M1 = L1(Y) ...(i)

where ;

Y stands for income,

L1 for demand function, and

M1 for money demanded or held under the transactions and precautionary motives.

The above function implies that money held under the transactions and precautionary motives is a function of income.

On the other hand, according to Keynes, money demanded for speculative motive, i.e., M2 as explained above, is primarily a function of the rate of interest.

This can be written as:

M2 = L2(r) ...(ii)

Where;

r stands for the rate of interest,

L2 for demand function for speculative motive.

Since total demand of money Md = M1 + M2, we get from (i) and (ii) above

Md = L1(Y) + L2(r)

Thus, according to Keynes' theory of total demand for money is an additive demand function with two separate components. The one component, $L_1(Y)$ represents the transactions demand for money arising out of transactions and precautionary motives is an increasing function of the level of money income. The second component of the demand for money, that is, $L_2(r)$ represents the speculative demand for money, which depends upon rate of interest, is a decreasing function of the rate of interest.

Critique of Keynes' Theory:

Keynes marked a substantial shift from the traditional theory of money demand, which focused solely on the transactional demand for money, by including the speculative demand for money. The speculative demand for money theory put out by Keynes has been refuted.

Keynes' speculative need for money has as its fundamental flaw the way it imagines people holding all of their assets in either cash or bonds. Given that people retain their financial capital in a mix of bonds and cash, this appears utterly implausible. This led Tobin, Baumol, and Friedman to propose the portfolio approach to demand for money.

The wealth portfolio comprises of cash, bonds bearing interest, stocks, tangible assets, etc. The current theories of money demand established by Baumol and Tobin also demonstrate that money retained for transaction purposes is interest elastic, in contrast to Keynes' theory, which holds that the demand for money for transaction reasons is insensitive to interest rates.

Additionally, modern economists have disputed Keynes' additive form of the demand for money function, $Md = L_1(Y) + L_2(r)$. It has been noted that money only represents one asset, not a variety of assets. Even while holding money may serve multiple purposes, there may be more than one reason to do so. As a result, the need for money cannot be split between two or more distinct departments that operate independently of one each other.

Tobin and Baumol both contend that the demand for money in transactions is influenced by the interest rate. Others have explained that the increase in speculative demand for money is a consequence of total wealth or assets. Even speculative demand for money,

aside from the interest rate, will depend on the level of income if income is used as a proxy for overall wealth.

In view of all these arguments, the Keynesian total demand for money function is written in the following modified form:

Md = L(Y,r)

where it is conceived that demand for money function (Md) is increasing function of the level of income, it is a decreasing function of the rate of interest. The presentation of the demand for money function in the above revised and modified form, Md = L (Y, r) has been a highly significant development in monetary theory.

4. TOBIN'S PORTFOLIO APPROACH

According to American economist James Tobin, individuals need maintain a portfolio of assets that includes both bonds and cash in order to behave rationally. He correctly assumes that individuals prefer greater wealth to lesser wealth in his analysis. He contends that an investor must decide how much of his portfolio of financial assets to hold in the form of cash (which bears no interest) and bonds carrying interest.

Individuals' portfolios may also include riskier assets like stocks. Tobin asserts that when confronted with a variety of safe and dangerous assets, people diversify their portfolios by holding a well-balanced mix of both safe and risky assets. He emphasizes how the person exhibits risk aversion in their behavior. They do this by pointing out how the person's actions demonstrate risk aversion. According to Keynes' theory, a person's wealth is held in either all cash or all bonds, depending on his projection of the future interest rate. Tobin, however, asserts that people are unsure of the interest rates of the future.

A wealth owner will be earning a high average return but taking on more risk if he choose to hold a larger percentage of riskier assets like bonds in his portfolio. Tobin contends that a risk-averse person would not choose a portfolio that contained all hazardous bonds or a higher percentage of them.

A person who, in contrast, only maintains safe and risk-free investments like cash (in the form of currency and demand deposits in banks) will be taking nearly no risk but will also receive little return, which will prevent the expansion of his wealth. Because of this, most people choose a mixed, diversified portfolio of cash, bonds, and stocks, with each person choosing a somewhat different ratio of risk to reward.

It's vital to remember that until he gets a better average return on them, a person won't want to hold any hazardous assets, like bonds. People who want both safety and a reasonable return strike a balance between the two and hold a mixed and balanced portfolio that includes money (a safe and riskless asset) and risky assets like bonds and shares. However, the exact balance or mix varies between different people depending on their attitude toward risk and the trade-off they make between risk and return.

Tobin's Liquidity Preference Function:

Tobin developed his liquidity preference function, which shows how the demand for money and the rate of interest are related. This function measures the preference for holding wealth in the form of money, which is a secure and "riskless" asset. He contends that as the rate of interest rises (i.e., the rate of return on bonds), wealth holders will generally be enticed to store a larger percentage of their wealth in bonds and consequently maintain less cash.

In other words, with a greater rate of interest, they will hold more bonds in their portfolio because they will have less need to hold money (i.e., liquidity). At a lower rate of interest, however, they will hold more cash and fewer bonds in their portfolio.

This means, like Keynes' speculative demand for money, in Tobin's portfolio approach demand function for money as an asset (i.e., his liquidity preference function curve) slopes downwards where on the horizontal axis asset demand for money is on the X axis and interest rate is on the Y axis.

This downward-sloping liquidity preference function curve shows that the asset demand for money in the portfolio increases as the rate of interest on bonds falls. In this way Tobin derives the aggregate liquidity preference curve by determining the effects of changes in interest rate on the asset demand for money in the portfolio of individuals. Tobin's

liquidity preference theory has been found to be true by the empirical studies conducted to measure interest elasticity of the demand for money.

Evaluation:

The constraint of Keynes' theory of liquidity preference for speculative purpose, according to which people hold all of their wealth in either cash or bonds, has been removed by Tobin's method. Tobin's method, which assumes that people simultaneously hold bonds and money but do so in varying proportions and at various rates of interest, results in a continuous liquidity preference curve.

Furthermore, Tobin's analysis of simultaneously holding cash and bonds is not predicated on Keynes' incorrect assertion that interest rates will only go in one direction, but rather on the unavoidable uncertainty surrounding the direction in which interest rates will rise.

It is important to note that Tobin's portfolio approach, which holds that an individual's preference for liquidity (i.e., demand for money) is determined by their attitude toward risk, can be applied to the problem of asset selection when there are multiple alternative assets, not just the two of cash and bonds, to address this issue.

5. BAUMOL'S INVENTORY APPROACH

Baumol focused on the transactional need for money and proposed a novel explanation to replace Keynes' speculative demand for money. From the perspective of inventory control or inventory management, which is akin to the inventory management of commodities and materials by business firms, Baumol explains the transactions' demand for money.

According to Baumol, people also keep an inventory of money since doing so enables transactions (i.e., purchases of goods and services), just as businesspeople keep inventories of commodities and materials to assist transactions or exchange in the context of changing demand for them.

Maintaining an ideal inventory of commodities is necessary to minimize costs in light of the expenses associated with retaining stocks of goods. Similar to this, people need to

keep an adequate amount of money on hand for transactions. When individuals have cash on hand for transactions, they also incur costs.

They pay a price for these inventory because they have to forfeit the interest they could have earned if they had kept their money in bonds, fixed deposits, or savings accounts. The expense of retaining money for transactional purposes is the loss of interest revenue. In this way, Baumol and Tobin emphasized how the demand for money in transactions is influenced by the interest rate.

It should be highlighted that when we refer to money, we mean cash and demand deposits, both of which are quite safe and risk-free yet pay no interest. Bonds, on the other hand, pay interest or a return but come with risk and the potential for capital loss if wealth holders decide to invest in them. However, according to Baumol, saving deposits in banks are relatively risk-free and also pay interest.

Therefore, Baumol questions why someone would hold money (such as cash and demand deposits) as opposed to storing their money in safe savings accounts that also yield interest. He asserts that individuals prefer to carry cash on them since it is more convenient and can be utilized for transactions involving goods and services.

It should be highlighted that when we talk about money, we're talking about cash and demand deposits, which are quite safe and risk-free yet pay no interest. Bonds, on the other hand, pay interest or a return, but they are hazardous and might result in capital loss if wealthy people invest in them. However, saving deposits in banks, in Baumol's opinion, are both relatively risk-free and pay interest.

Therefore, Baumol queries why a person maintains money (i.e., cash and demand deposits) as opposed to preserving his wealth in saving accounts, which are both safe and yield interest. He asserts that individuals prefer to carry cash on them since it is more convenient and can be used to make purchases more simply than other forms of payment.

Transactions Demand for Money Baumol-Tobin Approach

It will be observed from the square root rule given above that transactions demand for money varies directly with the income (Y) of the individuals. Therefore, the higher the level of income, the greater the transactions demand for money at a given rate of interest.

It will be known from the square root rule that optimum money holding for transactions will increase less than proportionately to the increase in income. Thus, transactions demand for money, according to Baumol and Tobin, is function of both rate of interest and the level of income.

Mtd = f(r, y)

Where

Mtd stands for transactions demand for money,

r for rate of interest and

Y for the level of income.

5. FRIEDMAN'S THEORY

Friedman, a well-known proponent of monetarism, proposed the demand for money function, which is a key component in his restatement of the quantity theory of money and prices. According to Friedman, the most significant and stable function of macroeconomics is the money demand function.

He views money as one form of asset that wealthy people might use to preserve some of their fortune. Business organizations consider money as a capital good or a factor of production that they combine with the labor of other productive assets or other factors, such as other productive assets, to produce goods and services. Therefore, in Friedman's view, people hold money in exchange for the services it offers.

It should be mentioned that one benefit of money is that it functions as a universal purchasing power that can be easily used to the purchase of products and services. He does not discriminate between speculative and transactional need for money, nor does he take any reasons for retaining money into account. According to Friedman, the demand for money is just an application of the general notion of demand for capital assets.

Money offers services and returns, much as other capital assets. He examines the numerous elements that affect the demand for money and extrapolates the function of the

demand for money from this examination. Keep in mind that the real return on money is represented by the value of the things and services that money can buy.

It is evident that the actual yield of money in terms of the things and services it can buy will depend on the cost of those products and services. Bonds are an other kind of asset besides cash that people can hold their riches in. Bonds are financial instruments that generate a nominally fixed stream of interest income. Bond yield refers to the interest rate on the coupon as well as any projected capital gains or losses as a result of anticipated changes in the market rate of interest.

Another type of asset that can be used to hold wealth is equity or shares. The dividend yield, anticipated capital gain or loss, and anticipated changes in price level all affect the yield from equity.

Stocks of durable consumer goods and producer goods are the fourth way people can hold money. These goods also generate income, but it comes in the form of goods rather than cash. As a result, the fundamental yield from commodities is implicit. Friedman does, however, take into account an explicit yield from commodities in the form of the anticipated rate of change in their price over time.

Friedman's nominal demand function (Md) for money can be written as:

Md = f(W, h, rm, rb, re, P, ΔP/P, U)

As demand for real money balances is nominal demand for money divided by the price level, demand for real money balances can be written as:

Md/P = f(W, h, rm, rb, re, P, ΔP/P, U)

where

Md stands for nominal demand for money

Md/P for demand for real money balances

W stands for wealth of the individuals

h for the proportion of human wealth to the total wealth held by the individuals

rm for rate of return or interest on money

rb for rate of interest on bonds

re for rate of return on equities

P for the price level

ΔP/P for the change in price level (i.e. rate of inflation)

U for the institutional factors.

1. Wealth (W):

The amount of an individual's wealth is a key component in determining the demand for money (W). Friedman considers both human wealth and human capital in his definition of wealth in addition to non-human wealth such as bonds, shares, and money that have varying rates of return. Friedman defines human wealth as the worth of a person's current and future wages. Contrarily, non-human wealth can be simply turned liquid, or transformed into money.

It is difficult to replace human wealth in this manner. As a result, since human wealth is an illiquid component of wealth, the demand for money function has taken this ratio of human wealth to non-human wealth into account.

The amount of money that a person needs directly relates to his overall wealth. Under fact, an individual's overall net worth serves as the maximum amount of money they can store, similar to how the consumer's budget is constrained in the theory of demand. An individual will require more money for transactions and other uses the wealthier he is.

A nation's need for money for transactions and other uses will rise as it becomes wealthier. Since human wealth is significantly less liquid than non-human wealth, Friedman has

suggested that as the share of human wealth in total wealth rises, there will be a higher demand for money to offset the illiquidity of human capital.

2. Rates of Interest or Return (rm, rb, re):

The three interest rates that Friedman takes into account to assess the demand for money are rm, rb, and re. The personal rate of interest on money is rm. Keep in mind that money held in cash or demand deposits does not earn interest.

However, money held in saving and fixed deposit accounts earns a specific rate of interest, and rm specifies this rate of interest in the money demand function. Given the various rates of interest or return, the demand for money increases as the own rate of interest rises.

A person will weigh the rate of interest on money against the rates of interest (or return) on bonds and other assets when determining how much of his fortune to hold in the form of cash. The interest or return foregone by not holding these other types of assets is the opportunity cost of having money.

The opportunity cost of holding money will rise when rates of return on bonds (rb) and stocks (re) rise, which will decrease demand for money holdings. As a result, the rate of interest (or return) on bonds, stocks, and other similar non-money assets is inversely correlated with the demand for money.

3. Price Level (P):

The demand for money balances is also determined by the price level. People will need a greater nominal money balance to complete the same number of transactions, or to make the same number of purchases of goods and services, at a higher price level.

As previously said, wealth (W) is the most significant factor influencing demand for money. If income (Y) is employed as a stand-in for wealth (W), then nominal income is provided by Y.P, which becomes a significant factor influencing demand for money. Here, Y denotes real income (i.e., income measured in terms of goods and services), and P denotes price level.

The demand for money will increase as the price level increases, and it will decrease as the price level decreases. Actually, people change their nominal money balances (M) to get the real money balance (M/P) they want.

4. The Expected Rate of Inflation (ΔP/P):

People will desire less money holdings if they anticipate increasing inflation rates. This is due to the fact that inflation lowers the value of their cash balances in terms of their ability to spend it on goods and services.

There will be a negative rate of return on investment if the rate of inflation is higher than the nominal rate of interest. As a result, when consumers anticipate rising inflation, they are more likely to invest their cash in goods or other non-inflationary assets. On the other hand, if people expect a fall in the price level, their demand for money holdings will increase.

5. **Institutional Factors (U):**

Institutional factors such as mode of wage payments and bill payments also affect the demand for money. Several other factors which influence the overall economic environment affect the demand for money. For example, if recession or war is anticipated, the demand for money balances will increase.

Besides, instability in capital markets, which erodes the confidence of the people in making profits from investment in bonds and equity shares, will also raise the demand for money. Even political instability in the country influences the demand for money. To account for these institutional factors Friedman includes the variable U in his demand for money function.

Simplifying Friedman's Demand for Money Function

A major problem faced in using Friedman's demand for money function has been that due to the non-existence of reliable data about the value of wealth (W), it is difficult to estimate the demand for money. To overcome this difficulty Friedman suggested that since the present value of wealth or W= Yp/r (where Yp is the permanent income and r is

the rate of interest on money.), permanent income Yp can be used as a proxy variable for wealth.

Incorporating this in Friedman's demand for money function we have:

Md = (Yp, h, rm, rb, re, P, ΔP/P, U)

If we assume that no price change is anticipated and institutional factors such as h and U remain fixed in the short run and also all the three rates of interest return are clubbed into one, Friedman's demand for money function is simplified to

Md = f(Ypr)

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