II MA ECONOMICS

MONETARY ECONOMICS

UNIT 2

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CONTENT of Unit 2

MILTON FRIEDMAN’S QUANTITY THEORY

1. Introduction to Quantity Theory
2. Friedman’s Quantity Theory
3. Demand Function
4. Keynesian Theory and Friedman’s Theory – a comparison and critical evaluation

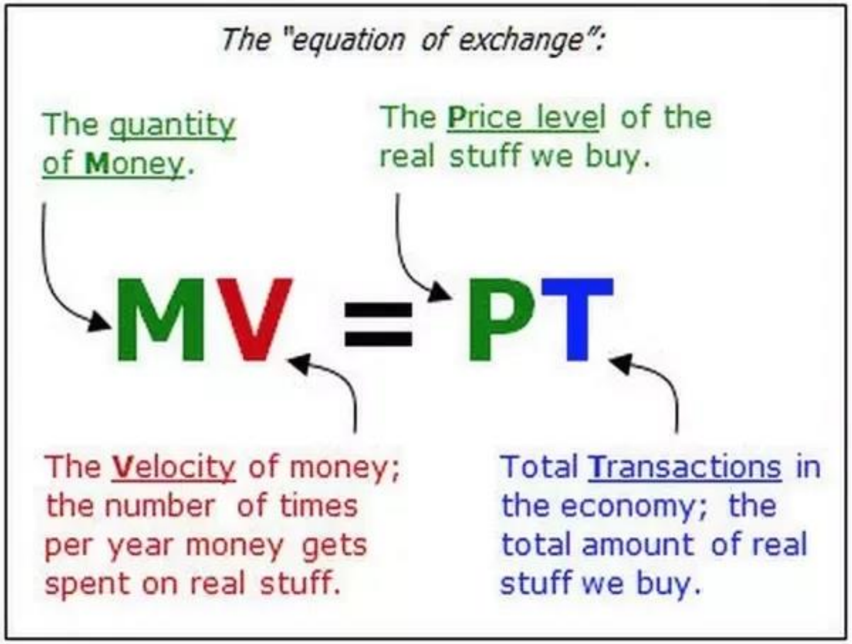
WHAT IS QUANTITY THEORY of MONEY ?

- It refers to the theory of money which explains the relationship as well as the nature of the relationship between the quantity (amount) of money in the economy and the level of prices of goods and services sold in the economy.

- It also explains situations related to inflation including its various types.

- It gives a picture of the velocity of circulation of money in the economy.

- **Originally formulated by Polish Mathematician Nicolaus Copernicus in 1517**



What does the Quantity Theory of Money (QTM) say?

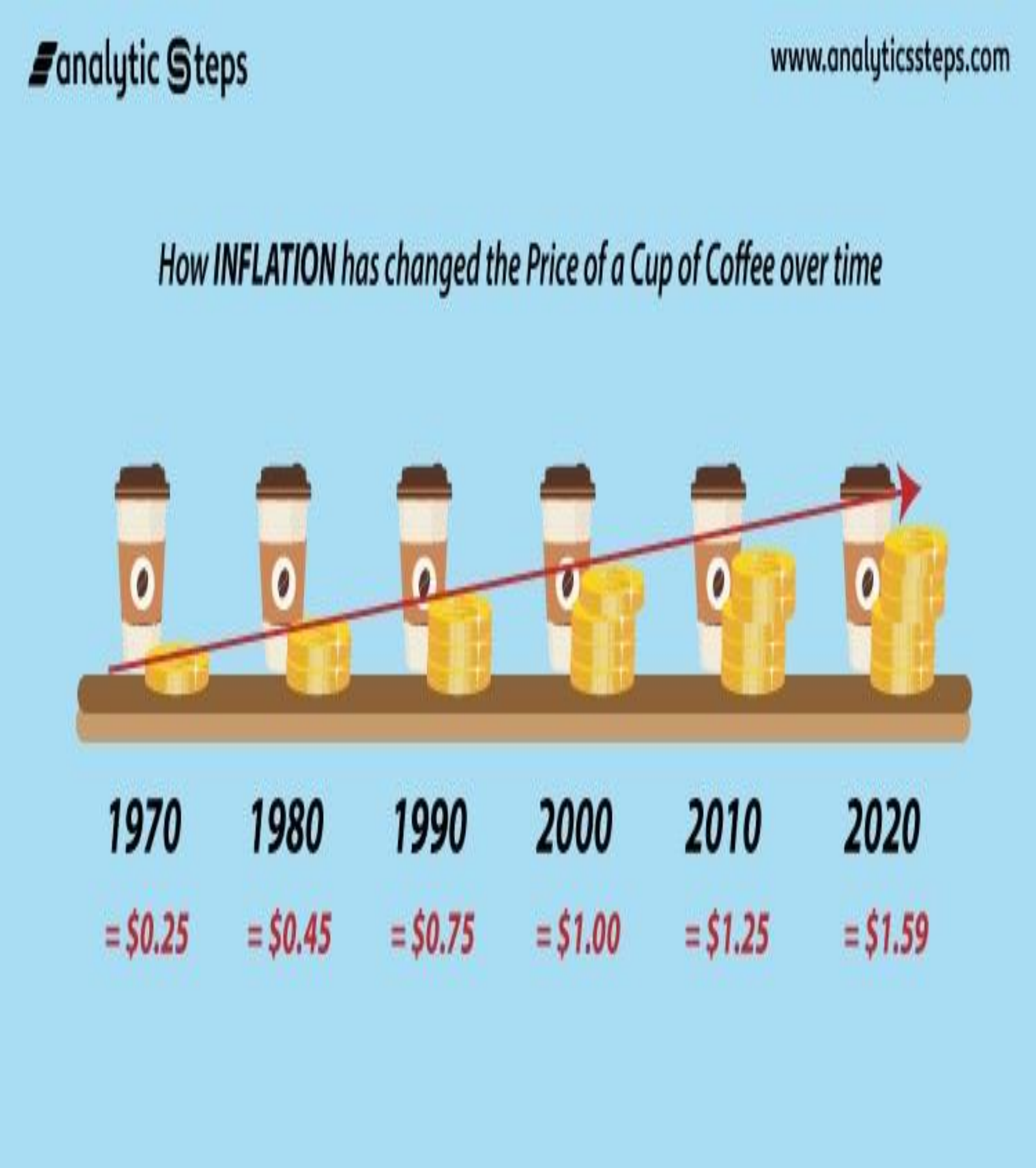
If the amount of money in an economy doubles, other things remaining constant, price levels will also double. Eventually this will lead to inflation which is a measure of the rate of rising prices of goods and services in an economy.

How does inflation come about?

- Forces that influence the supply and demand of any commodity also influence the supply and demand of money.
- An increase in the supply of money decreases the value of money and the buying capacity (purchasing power) of money decreases.
- The prices of goods and services increases as a means of adjusting for the decrease in the value of money.
- As a result inflation sets in.

This means –

- When supply of money increases, the general price level also increases in proportion to the increase in supply of money.
- A change in the money supply results in either a change in price levels or a change in the supply of goods and services or both.
- The value of money is determined by the amount of money supply in the economy. Value of money is always inversely proportional to the amount of money supply in an economy.


analytic Steps
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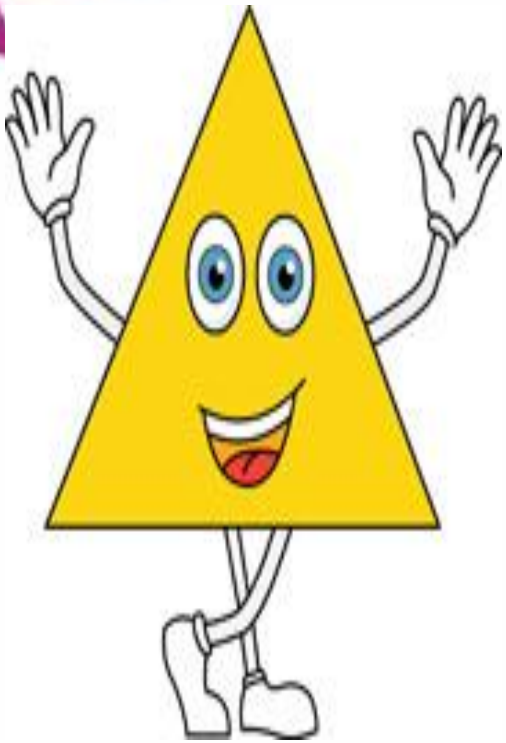
How INFLATION has changed the Price of a Cup of Coffee over time
1970
= $0.25
1980
= $0.45
1990
= $0.75
2000
= $1.00
2010
= $1.25
2020
= $1.59


MONEY SUPPLY
Economic KPI


Value of money falls
Prices Rise

SIGNIFICANCE OF QTM IN MONETARY ECONOMICS



- In Monetary Economics, the chief method of achieving economic stability is through controlling the supply of money via the monetary policy.

- A well designed monetary policy will foster economic growth.

Milton Friedman's QTM

Milton Friedman Quantity Theory of Money

- Quantity Theory of Money-published in 1956
- Descends from Copernicus
- Defied Keynes' theories from the 1930's
- Most noted for his Monetarist argument against Keynesian-Quantity Theory of Money, and Policy Lag
- Friedman presented evidence to resurrect the quantity theory of money

Introduction

- Milton Friedman, born July 31, 1912, was an American economist, statistician and writer who taught at the University of Chicago for more than three decades. In 1976 he received the Nobel Memorial Prize in Economic Sciences for his research on consumption analysis, monetary history and theory and the complexity of stabilization policy.

“I think the internet is going to be one of the major forces for reducing the role of government. The one thing that’s missing but that will soon be developed, is a reliable e-cash”

-Milton Friedman

Nobel Prize winning Economist (1976)

- The traditional QTM was discarded by later economists after the publication of Keynes's *General Theory of Employment, Interest and Money in 1936.*
- Milton Friedman later developed a more relevant version of the QTM connecting and integrating it with the general price theory. Thus *"The Quantity Theory of Money – A Restatement"* was published by him in 1956.
- TO HIM **MONEY DOES MATTER** –he considered money as an asset or capital good that had its own demand because it satisfied the wants of its holders.
- Friedman says that the **restated quantity theory of money is "in the first instance" a theory of the demand for money** and not a theory of output, or of money income or of the price level. **(Assumption 1)**

DISTINCTION BETWEEN THE TWO TYPES OF DEMAND FOR MONEY (Assumption 2)

Transaction

Medium of Exchange

Asset

Temporary abode of purchasing power (part of wealth)

Friedman treats the demand for money just like the demand for any durable consumer good or service.

(Assumption 3)

Friedman believes that each form of wealth has its own characteristics and a different yield or return. **(Assumption 4)**

Friedman's demand for money (M_d) function[1]

Friedmans' M_d function is the single most important element of the new and improved version of the Quantity theory (also called "Monetarism," and the "New Classcial economics, Part I).

[1]Milton Friedman. "The Quantity Theory of Money: A Restatement," in Studies in the Quantity Theory of Money. Chicago: University of Chicago Press, 1956

The wealth holders distribute their total wealth among its various forms so as to maximise utility from them. They distribute the assets in such a way that the rate at which they can substitute one form of wealth for another is equal to the rate at which they are willing to do so.

The cost of holding various assets except human capital can be measured by the rate of interest on various assets and the expected change in their prices.

WEALTH IN DIFFERENT FORMS according to FRIEDMAN

- In the broad sense, wealth includes all sources on Income/consumable services.
- By 'income' Friedman refers to 'aggregate nominal permanent income' which is the average expected yield on wealth during its lifetime.

Wealth has five forms

1. Money – broadest sense includes currency, demand deposits and time deposits which yield interest – making money a luxury good that gives a real return in the form of security, convenience etc., that can be measured in terms of the general price level. **(P)**
2. Bonds – a claim to a time stream of payments that are fixed in nominal units (fixed money value of the bond/price of the bond at the time of its purchase)

3. Equities – claim to a time stream of payments that are fixed in real units (in terms of current prices)
4. Physical goods and non-human goods – inventories of the producer and consumer durables.
5. Human capital – productive capacity of human beings – labour income.

Therefore according to Friedman the **current value of total wealth** is – the present discounted value of the expected income flows from these five forms of wealth and it is expresses as –

$$\mathbf{W} = \frac{y}{r}$$

Where, 'W' stands for current value of total wealth
'y' stands for total flow of expected income from the five forms of wealth and
'r' stands for the interest rate.

W is called as capitalized income by Milton Friedman

MAJOR DETERMINANTS OF DEMAND FOR MONEY
4 FACTORS/VARIABLES

1. Total wealth

Means 'budget constraint' – the total wealth that must be divided among various form of assets. This division is done with the help of income that is considered as the index of wealth. Friedman considers income as a substitute for wealth.

2. Division of wealth between human and non-human forms

- Major source of wealth is the 'productive capacity' of human beings called 'human wealth'.
- Converting human wealth into non-human wealth and vice versa is done by using current earnings to purchase non-human wealth or by using non-human wealth to finance the acquisition of skills (education & training).
- The ratio of human to non-human wealth or ratio of wealth to income is represented by Friedman as ***'w'.***

3. Expected rates of return on money and other assets

This includes the rate of return on currency, demand deposits, time deposits that yield interest which can be measured.

The nominal rate of return on other form of assets has two parts –

a) Interest on bonds, dividends on equities and cost of storage of physical assets
b) Changes in the prices of these assets which become very important under conditions of inflation or deflation

4. Other variables/factors

a) Utility attached to the services of money determines its liquidity
b) Tastes and preferences of asset holders
c) Trading in capital goods by the ultimate wealth holders

Such factors that determine the demand function for money are denoted by Friedman as ***'u'***

Thus Friedman says there are four factors which determine the demand for money. They are: price level, real income, rate of interest and rate of increase in the price level.

- Changes in the price level cause direct and proportional changes in the demand for money, changes in real income create direct but more than proportional changes in the demand for money.

- The rate of interest and the rate of increase in the price level constitute the cost of holding cash balances. If money is kept in the form of cash, it does not earn any income. But if the same money is lent out, it could earn some income in the form of interest to the owner. There is an inverse relationship between the rate of interest and the demand for money.

- The rate of increase in the price level also influences the demand for money. There is an inverse relationship between the rate of increase in the price level and the demand for money.

- When the price level increases at a high rate, the cost of holding money will increase. The people would like to hold smaller cash balances. The demand for money will decline. On the other hand when the price level increases at a low rate, the cost of holding money will decline and the demand for money increases.

MILTON FRIEDMAN'S DEMAND FUNCTION

On the basis of the above assumptions and formulations, Friedman has derived a demand function for an individual wealth holder – $\frac{M}{P} = f(y, w; R_{m,} R_{b,} R_{e,} g_{p,u})$

Where, M = total stock of money demanded

P = price level

y = real income

w = fraction of wealth in non-human form

R_m = expected nominal rate of return on money

R_b = expected rate of return on bonds & expected changes in their prices

R_e = expected nominal rate of return on equities & expected changes in their prices

g_p = expected rate of change of prices of goods & services

u = *variables other than income that may affect utility*

In Friedman's modern quantity theory of money, the supply of money is independent of demand for money. Due to the actions of the monetary authorities, the supply of money changes, whereas the demand for money remains more or less stable. It means that the amount of money which people want to have as cash or bank deposits is more or less fixed to their permanent income.

If the central bank purchases securities, people who sell securities to the central bank receive money and this leads to an increase in their cash holdings. The people will spend this excess money partly on consumer goods and partly by purchasing assets. This spending will reduce their cash balances and at the same time there is a rise in the national income.

On the other hand, when the central bank sells securities, the money holding of the people reduces, in relation to their permanent income. Therefore, they will try to increase their cash partly by reducing their consumption and partly by selling their assets. This will reduce national income. Thus in both cases the demand for money remains stable.

If the demand for money is given, it is possible to predict the effects of changes in the supply of money on expenditure and income. If the economy is at less than full employment level, an increase in the supply of money raises the expenditure, output and employment levels. But this is possible only in the short run (because other factors will become operational in bringing down the economy back to less than full employment level).

Graphical explanation of Friedman’s restated QTM

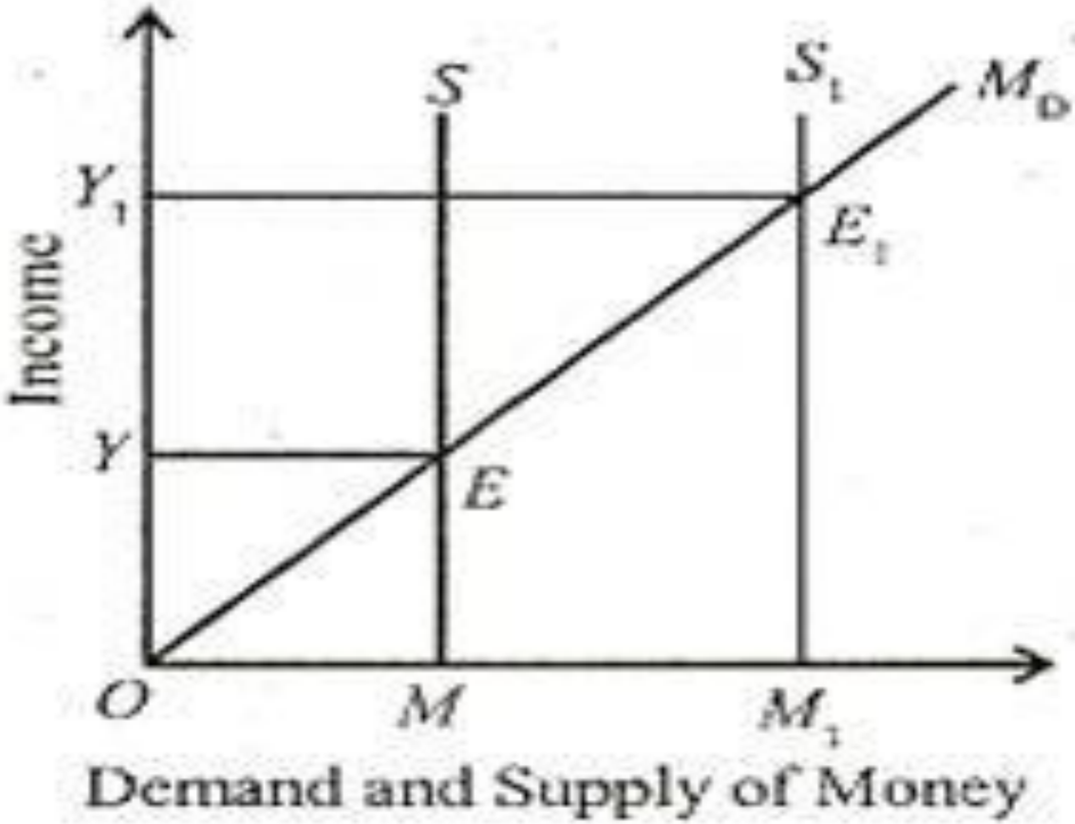


Fig. 68.2

Where,

- OM_D is the demand curve for money – it responds to variation in income
- MS is the supply curve of money – it is perfectly income inelastic
- MS intersects OM_D at E the point of equilibrium and income is OY.
- Let us suppose that money supply increases – then MS curve shifts to the right as M_1S_1. Here money supply is greater than money demanded and total expenditure increases, as a result demand for goods also increases until new equilibrium is established at $E_1$with increase in income from OY to OY_1.
- The new equilibrium E_1 is at a higher level which represents a higher level of income OY_1.

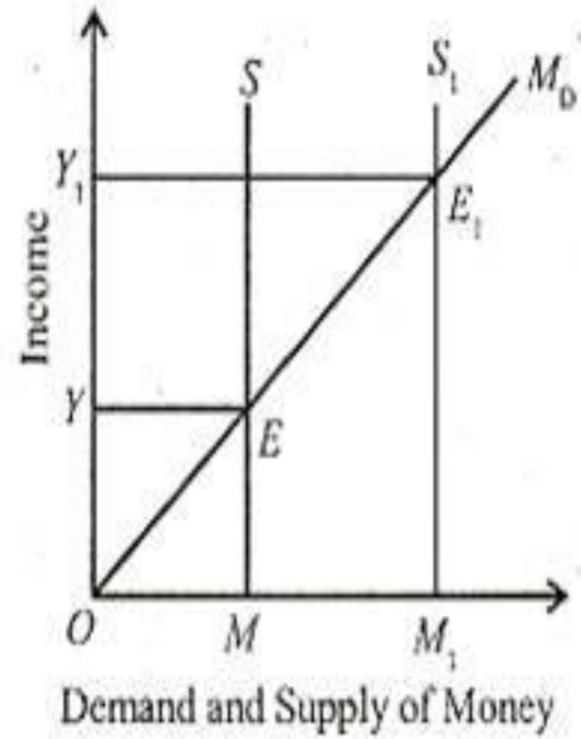


Fig. 68.2

If the economy is operating at less than full employment level, an increase in the supply of money will raise output and employment with a rise in total expenditure. But this is only possible in the short run.

- Thus Friedman presents the quantity theory as the theory of the demand for money and the demand for money is assumed to depend on asset prices or relative returns and wealth or income. He shows how a theory of the stable demand for money becomes a theory of prices and output.
- As the demand for money changes in response to changes in its determinants, it follows that substantial changes in prices or nominal income are almost invariably the result of changes in the nominal supply of money.

1. **Very Broad Definition of Money**
   Friedman has been criticised for using the broad definition of money which not only includes currency and demand deposits (M1) but also time deposits with commercial banks (M2). This broad definition leads to the obvious conclusion that the interest elasticity of the demand for money is negligible. If the rate of interest increases on time deposits, the demand for them (M2) rises. But the demand for currency and demand deposits (M1) falls. Friedman's analysis is weak in that he does not make a choice between long-term and short-term interest rates.

2. Money not a Luxury Good

Friedman regards money as a luxury good because of the inclusion of time deposits in money. This is based on his finding that there is higher trend rate of the money supply than income in the United States. But no such ‘luxury effect’ has been found in the case of England.

3. More Importance to Wealth Variables

In Friedman’s demand for money function, wealth variables are preferable to income and the operation of wealth and income variables simultaneously does not seem to be justified. As pointed out by Johnson, income is the return on wealth, and wealth is the present value of income.

4. Money Supply not Exogenous

Friedman takes the supply of money to be unstable. The supply of money is varied by the monetary authorities in an exogenous manner in Friedman’s system. But the fact is that in the United States the money supply consists of bank deposits created by changes in bank lending. Bank lending, in turn, is based upon bank reserves which expand and contract with (a) deposits and withdrawals of currency by non-bank financial intermediaries; (b) borrowings by commercial banks from the Federal Reserve System; (c) inflows and outflows of money from and to abroad: and (d) purchase and sale of securities by the Federal Reserve System. The first three items definitely impart an endogenous element to the money supply. Thus the money supply is not exclusively exogenous, as assumed by Friedman. It is mostly endogenous.

5. Ignores the Effect of Other Variables on Money Supply

Friedman also ignores the effect of prices, output or interest rates on the money supply. But there is considerable empirical evidence that the money supply can be expressed as a function of the above variables.

6. Does not consider Time Factor

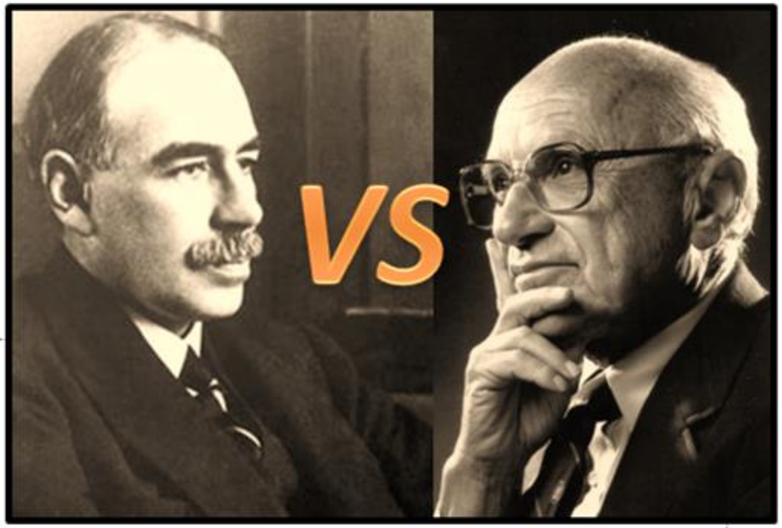
Friedman does not tell about the timing and speed of adjustment or the length of time to which his theory applies.

7. No Positive Correlation between Money Supply and Money GNP

Money supply and money GNP have been found to be positively correlated in Friedman's findings. But, according to Kaldor, in Britain the best correlation is to be found between the quarterly variations in the amount of cash held in the form of notes and coins by the public and corresponding variations in personal consumption at market prices, and not between money supply and the GNP.

Despite these criticisms, “Friedman’s application to monetary theory of the basic principle of capital theory—that is the yield on capital, and capital the present value of income—is probably the most important development in monetary theory since Keynes’s General Theory. Its theoretical significance lies in the conceptual integration of wealth and income as influences on behaviour.”

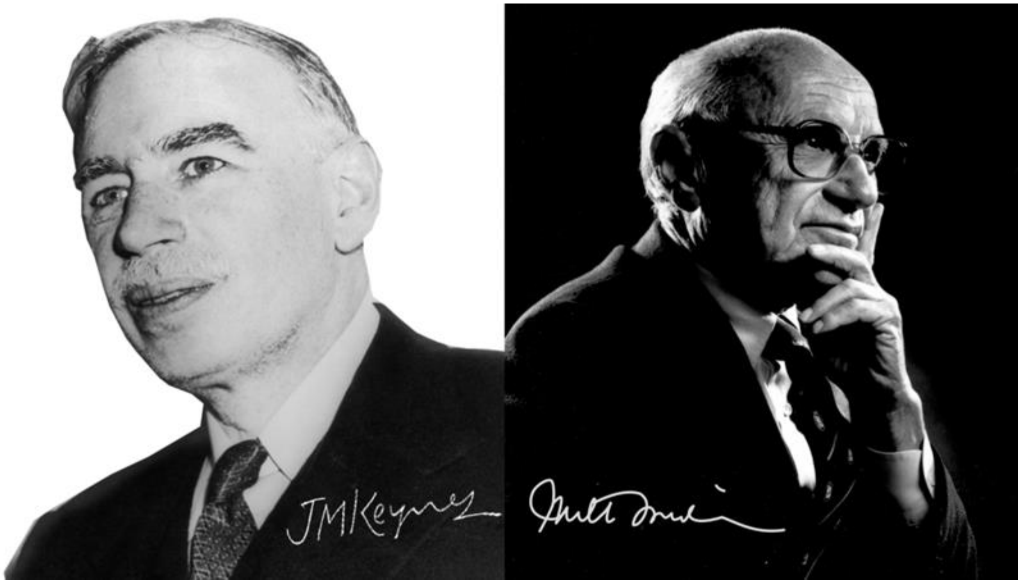

Cuartos de final
Keynes
UEFA
CHAMPIONS
de
Economistas
Friedman



- Monetarist Economics is Milton Friedman's direct criticism of the Keynesian theory, formulated by John Maynard Keynes.
- The difference between these theories is that Monetarist Economics involves the control of money in the economy, while Keynesian economics involves government expenditures.
- Monetarists believe in controlling the supply of money that flows into the economy while allowing the rest of the market to fix itself. In contrast, Keynesian economists believe that a troubled economy continues in a downward spiral unless an intervention drives consumers to buy more goods and services.

- Friedman neglects Keynesians' classification of the motives for holding money (according to Keynes people demand mosey for three motives: the transaction motives, the precautionary motives, and the speculative motives) and the corresponding components demand for money.

- Milton Friedman gives more importance to ultimate wealth-holders and discusses less about business enterprises. To the ultimate wealth-holders or wealth-owning units in the economy, money is one kind of asset, one way of holding wealth.



Friedman Vs Keynes Demand Function

Friedman's demand for money function differs from that of Keynes's in many ways

- Friedman uses a broader definition of money than that of Keynes in order to explain his demand for money function. He treats money as an asset or capital good capable of serving as a temporary abode of purchasing power. Keynesian definition of money consists of demand deposits and non-interest bearing debt of the government.
- Friedman postulates a demand for money function quite different from that of Keynes. The demand for money on the part of wealth holders is a function of many variables. These are Rm, the yield on money; Rb, the yield on bonds; Re, the yield on securities; gp, the yield on physical assets; and u referring to other variables. Keynesian theory, the demand for money as an asset is confined to just bonds where interest rates are the relevant cost of holding money.

There is also the difference between the monetary mechanisms –

- According to Keynes, monetary changes affect economic activity indirectly through bond prices and interest rates. The monetary authorities increase the money supply by purchasing bonds which raises their prices and reduces the yield on them. Lower yield on bonds induces people to put their money elsewhere, such as investment in new productive capital that will increase output and income. In Friedman's theory monetary disturbances will directly affect prices and production of all types of goods since people will buy or sell any asset held by them. Friedman emphasises that the market interest rates play only a small part of the total spectrum of rates that are relevant.

- There is the difference between the two approaches with regard to the motives for holding money balances. Keynes divides money balances into "active" and "idle" categories. The former consist of transactions and precautionary motives, and the latter consist of the speculative motive for holding money. On the other hand, Friedman makes no such division of money balances. Money is held for creation of different assets and wealth.

- Friedman introduces permanent income and nominal income to explain his theory. Permanent income is the amount a wealth holder can consume while maintaining his wealth intact. Nominal income is measured in the prevailing units of currency. It depends on both prices and quantities of goods traded. Keynes, on the other hand, does not make such a distinction.

Permanent income is the money which people will spend at a level consistent with their expected long-term average income. The level of expected long-term income then becomes thought of as the level of "permanent" income that can be safely spend.

Nominal income is income that is not adjusted for changes in purchasing power (the amount of goods or services that one can afford with the income) owing to inflation. It is the current actual amount of income.

CONCLUSION

Basic features of Friedman's theory:

- Conceptual integration of Income and Wealth. Wealth is a means to earn income; and special emphasis on Human Wealth which was neglected so far.
- Introduction of Permanent Real Income i.e. expected yield on wealth. The demand for money is the function of Permanent Real Income.
- The term money has been used in a wider sense as currency, demand deposits and time deposits are included.
- To ensure price stability the supply of money should increase slightly more than that of the growth rate.
- In cash balance approach only cash balance or the bank's cash reserve was the main factor taken into account but here all types of assets are taken into account.


THINK BIG.
TRUST
YOURSELF
AND MAKE
IT HAPPEN


THANK
YOU
ALL