Introduction
CHAPTER 1
INTRODUCTION

Over the past two decades the relationship between money supply, inflation, and economic growth have drawn extensive attention of macro economists, policy makers and the central bankers of both developed and developing countries. The issues are whether money supply leads to inflation and inflation is necessary for economic growth. The issue is originally evolves from the controversial notion between structuralize and monetarists. The structuralists argue that inflation is necessary for economic growth whereas monetarist argue the opposite i.e. inflation as determintal to economic growth. In this connection, Mundell and Tobin predict a positive relationship between the Rate of Inflation and Rate of Capital Accumulation, which in turn implies a positive relationship to the rate of economic growth. Since money and capital are substitutable, an increase in the rate of Inflation increase capital accumulation by shifting portfolio from money to capital and there by stimulating higher rate of economic growth. The opposite argument is that inflation restricts economic growth largely by reducing the efficiency of investment rather then its level. Thus, one expects a close relationship between money supply and inflation on the one hand and inflation and economic growth on the other hand.

1.1 SUPPLY OF MONEY

Supply of money means the total quantity of money available with the public for spending. Individuals and business firms operating in the economy are included in the term public. Thus, the governments, the central bank and commercial banks are not public and therefore the cash balances held by them are not included in the money supply. Money supply is a stock concept when viewed with reference to a particular point of time. It is a flow concept when viewed over a period of time. As a stock, it comprises of the total currency notes, coins and demand deposits with the banks, held by the public. Since money supply can be used and spent several times during a period of time it becomes a flow. The number of times, a unit of money changes hands during a given period of time is its velocity of circulation. Thus, for a given period of time, the flow of money supply can be known by multiplying the given stock of money by its velocity of circulation.
1.2 DEMAND FOR AND SUPPLY OF MONEY

In the marketability of the several commodities and services there prevail considerable variations. There are goods for which it is not hard to discover applicants ready to disburse the highest recompense which, under the given state of affairs, can perhaps be obtained, or recompense only slightly smaller. There are other goods for which it is extremely difficult to discover a customer quickly, even if the vendor is ready to be content with compensation much smaller than he could reap if he could discover another aspirant whose demand is more intense. It is these variations in the marketability of the several commodities and services which created indirect swap. A man who at the instant cannot acquire what he wants to get for the conduct of his own household or business, or who does not yet know what type of goods he will require in the uncertain future, comes nearer to his ultimate goal if he exchanges a less marketable good he wants to deal against a more marketable one. It may also occur that the physical properties of the merchandise he wants to provide absent (since, for example, its perish ability or the costs incurred through its storage or same conditions) impel him not to wait longer. Sometimes he may be prompted to hurry in giving absent the good concerned because he is afraid of a deterioration of its market value. In all such cases he improves his own situation in acquiring a more marketable good, even if this good is not appropriate to satisfy directly any of his own requires.

A medium of swap is a good which people acquire neither for their own consumption nor for employment in their own manufacture behaviors, but with the intention of exchanging it at a later date against those goods which they want to exploit either for consumption or for manufacture. Money is a medium of swap. It is the mainly marketable good which people acquire because they want to offer it in later acts of interpersonal swap. Money is the thing which serves since the usually carried and commonly used medium of swap. This is its only function. All the other functions which people ascribe to money are merely scrupulous characteristics of its primary and sole function, that of a medium of swap. Media of swap are economic goods. They are scarce; there is a demand for them. There are on the market people who desire to acquire them and are ready to swap goods and services against them. Media of swap have value in swap. People create sacrifices for their acquisition; they pay "prices" for them. The peculiarity of these prices lies merely in the information that they cannot be expressed
in conditions of money. In reference to the vendible goods and services we speak of prices or of money prices. In reference to money we speak of its purchasing domination with regard to several vendible goods.

There exists a demand for media of swap because people want to stay a store of them. Every member of a market community wants to have a definite amount of money in his pocket or box, a cash holding or cash balance of a definite height. Sometimes he wants to stay a superior cash holding, sometimes a smaller; in exceptional cases he may even renounce any cash holding. At any rate, the immense majority of people aim not only to own several vendible goods; they want no less to hold money. Their cash holding is not merely a residuum, an unspent periphery of their wealth. It is not an unintentional remainder left in excess of after all intentional acts of buying and selling has been consummated. Its amount is determined through a deliberate demand for cash. And since with all other goods it is the changes in the relation flanked by demand for and supply of money that bring in relation to the changes in the swap ratio flanked by money and the vendible goods.

Every piece of money is owned through one of the members of the market economy. The transfer of money from manages of one actor into that of another is temporally immediate and continuous. There is no fraction of time in flanked by in which the money is not a section of an individual's or a firm's cash holding, but presently in “circulation.” It is unsound to distinguish flanked by circulating and idle money. It is no less faulty to distinguish flanked by circulating money and hoarded money. What is described hoarding is a height of cash holding which — just as to the personal opinion of an observer — exceeds what is deemed normal and adequate. Though, hoarding is cash holding. Hoarded money is still money and it serves in the hoards the similar purposes which it serves in cash holdings described normal. He who hoards money considers that some special circumstances create it expedient to accumulate a cash holding which exceeds the amount he himself would stay under dissimilar circumstances, or other people stay, or an economist censuring his action believes suitable. That he acts in this method powers the configuration of the demand for money in the similar method in which every "normal" demand powers it.

Several economists avoid applying the conditions demand and supply in the sense of demand for and supply of money for cash holding because they fear confusion
with the current terminology since used through the bankers. It is, in information, customary to call demand for money the demand for short-condition loans and supply of money the supply of such loans. Accordingly one calls the market for short-condition loans the money market. One says money is scarce if there prevails a tendency toward a rise in the rate of interest for short-condition loans, and one says money is plentiful if the rate of interest for such loans is decreasing. These manners of speech are therefore firmly entrenched that it is out of the question to venture to discard them. But they have favored the spread of fateful errors. They made people confound the notions of money and of capital and consider that rising the quantity of money could lower the rate of interest lastingly. But it is precisely the crassness of these errors which creates it unlikely that the terminology suggested could make any misunderstanding. It is difficult to assume that economists could err with regard to such fundamental issues.

Others maintained that one should not speak of the demand for and supply of money because the aims of those challenging money differ from the aims of those challenging vendible commodities. Commodities, they say, are demanded ultimately for consumption, while money is demanded in order to be given absent in further acts of swap. This objection is no less invalid. The exploit which people create of a medium of swap consists eventually in its being given absent. But first of all they are eager to accumulate a sure amount of it in order to be ready for the moment in which a purchase may be accomplished. Precisely because people do not want to give for their own requires right at the instant at which they provide absent the goods and services they themselves bring to the market, precisely because they want to wait or are forced to wait until propitious circumstances for buying seem, they barter not directly but indirectly by the interposition of a medium of swap. The information that money is not worn out through the exploit one creates of it and that it can render its services practically for an unlimited length of time is a significant factor in the configuration of its supply. But it does not alter the information that the appraisement of money is to be explained in the similar method since the appraisement of all other goods: through the demand on the section of those who are eager to acquire a definite quantity of it.

Economists have tried to enumerate the factors which within the entire economic organization may augment or decrease the demand for money. Such factors are: the population figure; the extent to which the individual households give for their
own requires through autarkic manufacture and the extent to which they produce for other people's requires, selling their products and buying for their own consumption on the market; the sharing of business action and the resolution of payments in excess of the several seasons of the year; organizations for the resolution of claims and counterclaims through mutual cancellation, such since clearinghouses. All these factors indeed power the demand for money and the height of the several individuals' and firms' cash holding. But they power them only indirectly through the role they play in the thoughts of people regarding the determination of the amount of cash balances they deem suitable. What decide the matter are always the value judgments of the men concerned. The several actors create up their minds in relation to they consider the adequate height of their cash holding should be. They carry out their settlement through renouncing the purchase of commodities, securities, and interest-bearing claims, and through selling such assets or conversely through rising their purchases. With money, things are not dissimilar from what they are with regard to all other goods and services. The demand for money is determined through the conduct of people intent up acquiring it for their cash holding.

Another objection raised against the notion of the demand for money was this: The marginal utility of the money element decreases much more gradually than that of the other commodities; in information its decrease is therefore slow that it can be practically ignored. With regard to money nobody ever says that his demand is satisfied, and nobody ever forsakes an opportunity to acquire more money provided the sacrifice required is not too great. It is so impermissible to believe the demand for money since limited. The extremely notion of an unlimited demand is, though, contradictory. This popular reasoning is entirely fallacious. It confounds the demand for money for cash holding with the desire for more wealth since expressed in conditions of money. He, who says that his thirst for more money can never be quenched, does not mean to say that his cash holding can never be too big. What he really means is that he can never be rich sufficient. If additional money flows into his hands, he will not exploit it for an augment of his cash balance or he will exploit only a section of it for this purpose. He will expend the surplus either for instantaneous consumption or for investment. Nobody ever keeps more money than he wants to have since cash holding.
The insight that the swap ratio flanked by money on the one hand and the vendible commodities and services on the other is determined, in the similar method since the mutual swap ratios flanked by the several vendible goods, through demand and supply was the essence of the *quantity theory of money*. This theory is essentially an application of the common theory of supply and demand to the special example of money. Its merit was the endeavor to explain the determination of money's purchasing domination through resorting to the similar reasoning which is employed for the account of all other swap ratios. Its shortcoming was that it resorted to a holistic interpretation. It looked at the total supply of money in the Volkswirtschaft and not at the actions of the individual men and firms. An outgrowth of this erroneous point of view was the thought that there prevails a proportionality in the changes of the — total — quantity of money and of money prices. But the older critics failed in their efforts to explode the errors inherent in the quantity theory and to substitute a more satisfactory theory for it. They did not fight what was wrong in the quantity theory; they attacked, on the contrary, its nucleus of truth. They were intent upon denying that there is a causal relation flanked by the movements of prices and those of the quantity of money. This denial led them into a labyrinth of errors, contradictions, and nonsense. Contemporary monetary theory takes up the thread of the traditional quantity theory since distant since it starts from the cognition that changes in the purchasing domination of money necessity be dealt with just as to the principles applied to all other market phenomena and that there exists a relationship flanked by the changes in the demand for and supply of money on the one hand and those of purchasing domination on the other. In this sense one may call the contemporary theory of money an improved diversity of the quantity theory.

1.3 MONEY AND PRICES

**Quantity Theory of Money**

In monetary economics, the quantity theory of money is the theory that money supply has a direct, proportional connection with the price stage. For instance, if the currency in circulation increased, there would be a proportional augment in the price of goods. The theory was challenged through Keynesian economics, but updated and reinvigorated through the monetarist school of economics. While mainstream economists agree that the quantity theory holds true in the extensive run, there is still conflict in relation to the its applicability in the short run. Critics of the theory argue
that money velocity is not stable and, in the short-run, prices are sticky, therefore the direct connection flanked by money supply and price stage does not hold. Alternative theories contain the real bills doctrine and the more recent fiscal theory of the price stage.

**Origins and Growth of the Quantity Theory**

The quantity theory descends from Copernicus, followers of the School of Salamanca, Jean Bodin, and several others who noted the augment in prices following the import of gold and silver, used in the coinage of money, from the New World. The “equation of swap” relating the supply of money to the value of money transactions was stated through John Stuart Mill who expanded on the thoughts of David Hume. The quantity theory was urbanized through Simon Newcomb, Alfred de Foville, Irving Fisher, and Ludwig von Mises in the latter 19th and early 20th century, while it had been argued against through Karl Marx. The theory was influentially restated through Milton Friedman in response to Keynesianism.

For example, Bieda argues that Copernicus's observation amounts to a report of the theory, while other economic historians date the detection later, to figures such since Jean Bodin, David Hume, and John Stuart Mill. Historically, the largest rival of the quantity theory was the real bills doctrine, which says that the issue of money does not raise prices, since extensive since the new money is issued in swap for assets of enough value.

**Equation of Swap**

In its contemporary shape, the quantity theory builds upon the following definitional connection

\[ M.V_T = \sum_i (p_i.q_i) = p^Tq \]

Where

- \(M\) is the total amount of money in circulation on standard in an economy throughout the era, say a year.
- \(V_T\) is the transactions velocity of money, that is the standard frequency crossways all transactions with which an element of money is spent. This reflects availability
of financial organizations, economic variables, and choices made since to how fast people turn in excess of their money.

- \( p_i \) and \( q_i \) are the price and quantity of the transaction.
- \( p \) is a column vector of the \( p_i \), and the superscript is the transpose operator.
- \( q \) is a column vector of the \( q_i \).

**Decline of Money-supply Targeting**

An application of the quantity-theory style aimed at removing monetary policy since a source of macroeconomic instability was to target a consistent, low development rate of the money supply. Even, practical identification of the relevant money supply, including measurement, was always somewhat controversial and hard. Since financial intermediation grew in complexity and sophistication in the 1980s and 1990s, it became more therefore. Since a result, some central banks, including the U.S. Federal Reserve, which had targeted the money supply, reverted to targeting interest rates. But monetary aggregates remain a leading economic indicator. With "some proof that the linkages flanked by money and economic action are robust even at relatively short-run frequencies."

**Criticisms**

John Maynard Keynes criticized the quantity theory of money in *The Common Theory of Employment, Interest, and Money*. Keynes had originally been a proponent of the theory, but he presented an alternative in the *Common Theory*. Keynes argued that price stage was not strictly determined through money supply. Changes in the money supply could have effects on real variables like output. Ludwig von Mises agreed that there was a core of truth in the Quantity Theory, but criticized its focus on the supply of money without adequately explaining the demand for money. He said the theory "fails to explain the mechanism of differences in the value of money".

**Keynes' Theory of Money and Prices**

The traditional quantity theory of money and the quantity equations do not illustrate how a transform in the quantity of money reacts upon the price stage. Keynes tries to tackle this aspect of the trouble in his Common Theory through a restatement of the quantity theory. In doing therefore, he tried to integrate the theory of money with
the theory of employment. To Keynes, the effect of changes in the quantity of money on the price stage (in turn, the value of money) should be visualized by the inter-related effect on the wage rate, income, investment, employment, etc. Therefore, an augment in the quantity of money will have no affect whatsoever on prices, therefore extensive since there is any unemployment, and that employment will augment in exact proportion to any augment in effective demand brought in relation to the through the augment in the quantity of money. While, since soon since full employment is reached, wage rate and price will augment in exact proportion to the augment in effective demand. Hence, Keynes enunciated the quantity theory of money since follows: "Therefore extensive since there is unemployment, employment will transform in the similar proportion since the quantity of money." To elucidate this point, Keynes first believes the effect of changes in the quantity of money on the quantum of effective demand; the augment in effective demand is supposed to be spent partly in raising the quantity of employment and partly in raising the stage of prices. Therefore, Keynes conceived a term where prices rise slowly since employment increases, instead of prices growing in proportion to the quantity of money, which is true in a term of full employment, since assumed through the classical theorists.

Keynes stressed that there is no direct link flanked by money supply and price stage, but there is a series of causal links flanked by the two. Changes in the quantity of money first affect the rate of interest, which in turn, affects the investment function and the stage of effective demand and consequently the volume of employment and output. Say, if money supply increases with a given demand for money, the rate of interest will fall. Given the marginal efficiency of capital, a fall in interest rate will induce an augment in investment. With an augment in investment expenditure the stage of effective demand will go up. Increased investment leads to an augment in the stage of employment, output, and income. There is a multiplier effect involved in the procedure of income propagation, based on the phenomenon of marginal propensity to consume and consequent changes in the flow of consumption expenditure. Therefore extensive since there is sufficient of unemployed labour and capital possessions, an augment in the quantity of money would, in this method, lead to augment in real income or output (that is, T in conditions of Fisher's equation of swap) rather than price stage. In short, the common stage of prices will not rise since output increases on explanation of augment in money supply, therefore extensive since there are efficient unemployed
possessions of every kind accessible. But, since output increases, a series of bottlenecks will be successively reached, where the supply of scrupulous commodities ceases to be elastic and their prices tend to rise sharply. After a full employment level is reached, an augment in the quantity of money spends itself entirely in raising the price stage because, an augment in effective stage caused through the increased quantity of money would not be to augment the volume of employment and output.

Hence, its full effect will be on raising the stage of prices. Therefore, every augment in the quantity of money is associated with an exactly proportionate augment in he price stage and vice versa under full employment circumstances. Keynes further stressed that Fisher's quantity theory of money, in conditions of the equation of swap (MV = PT), holds well only in a state of full employment. Keynes' restatement of the quantity theory spots a great improvement in excess of the Fisherian adaptation, in the sense that he views the role of money in the causal procedure via consumption, investment, liquidity preference, and the rate of interest. Through formulating the quantity theory of money, he maintains that there is an extreme complexity of the connection flanked by prices and the quantity of money, in contrast to the easy immediate connection discovered in the quantity equations given through Fisher and through the Cambridge economists. Keynes holds the old fallacy that prices are determined directly through the quantity of money. He illustrates that prices are determined directly through the quantity of money and are convinced indirectly by the effect of changes in the quantity of money upon the rate of interest, which is one of the three strategic variables determining the stage of output and employment. (The original efficiency of capital and the propensity to consume are the other two variables).

Keynes, in short, viewed that changes in P do not affect M directly but they do therefore indirectly by a host of strategic factors, such since the rate of interest, stage of investment, employment, income and output. Just as to Keynes, the quantity theory of money would be valid if the elasticity of money prices is unity. Though, no such direct connection could exist flanked by the quantity of money and the price stage, except in a full-employment phenomenon. Therefore extensive since there is unemployment, employment will transform in the similar proportion since the quantity of money; when there is full employment, prices will transform in the similar proportion since the quantity of money. That means, therefore extensive since there is any
unemployment, an enough augment in \( M \) can always bring in relation to the full employment; a further augment in \( M \) will be reflected in the rise of \( P \). This is illustrated. \( M \) rises from zero to \( OM \), real output rises up to \( OF \), at full employment stage of the given possessions. A further rise in \( M \) leads to a proportionate rise in \( P \) since depicted through \( FP \) the price curve. However a price rise is measured a post full-employment phenomenon, throughout the transition era, though, before full employment is reached, with an augment in \( M \), \( P \) may rise, however not proportionately due to the following causes:

- Increased bargaining domination of workers leading to a rise in wages and a high Cost of manufacture;
- Operation of the law of diminishing returns, causing rising costs;
- Bottlenecks in manufacture, such since shortage of raw materials, domination Cuts, lack of adequate transport, and immobility of factors; and
- Heterogeneity of factors, especially labour elements which differ in ability and efficiency.

In this reformulation, Keynes' great merit lies in integrating the theory of money with the theory of value. He showed that prices rise because of a rise in the cost of manufacture, and the cost of manufacture rises due to the inelasticity of supply of output and employment in the short era. Again, Keynes successfully integrated the theory of money with the theory of output. He pointed out that, in information, the theories of value and money are juxtaposed, by the theory of output or employment. This happens because changes in the quantity of money, by reacting on the effective demand for investment, via the changes in the rate of interest, transform the stage of employment and output and, by reacting on the cost of manufacture, affect the prices or the value of money. Therefore, Keynes, in his restatement of the theory, provided the missing link in the old quantity theory of money. The traditional theory missed the point that the quantity of money extras power on the rate of interest, which, in turn, reacts upon output and employment.

They viewed a direct connection flanked by the quantity of money and the price stage with the omission of a factor, such since the rate of interest. Keynes has, through reformulating the quantity theory, corrected this grave error of the traditional quantity theorists. In short, Keynes' theory of money and prices has the merit of providing the procedure of causation and identifying factors determining the price stage or the value
of money, giving due respect to the role played through the rate of interest which was neglected through the traditional economists. He integrates the theory of money with the theory of value, which were wrongly separated through traditional theorists. We may conclude that Keynes formulated quantity theory is at once larger and a bigger guide to practical policies than the old theory. For it stresses the truth that an augment in money supply is inflationary only after full employment is reached; therefore, inflation should not be feared at all under circumstances of big-level unemployment since is generally establish throughout a depression. The theory suggests cheap money policy to be followed to overcome a depression. Though, Keynes' reformulation of the quantity theory is not without its imperfections. Its largest shortcomings are:

- It fails to give a complete account of a price rise before full employment is reached through the economy. In scrupulous, inflationary tendencies in undeveloped countries, such since India, cannot be well explained through the theory.
- The theory has therefore several qualifications that its usefulness since a leading proposition of monetary theory has become doubtful.
- Keynes' theory of money and prices is too common. It fails to analyze the sectional price behaviour of interrelationship flanked by money supply and prices.

Nevertheless, it should be admitted that Keynes' theory of money and prices is definitely larger to the old quantity theory as it recognizes the real phenomenon of unemployment equilibrium in the economy.

1.4 APPROACHES TO THE MEASURES OF MONEY SUPPLY

Broadly speaking, there are four alternative approaches regarding the measures if money supply. These are given below:

**Traditional Approach:**

The traditional approach emphasises the medium of exchange function of money. According to this approach, money supply is defined as currency with public and demand deposits with commercial banks. Demand deposits are the current accounts of depositors in a commercial bank. The traditional approach is analytically superior because it provides the most liquid and exact measure of money supply. The central
bank can have better control over the money supply if it includes currency and demand deposits of banks alone. But, this approach limits money supply to a very narrow area.

**Monetarist Approach**

The Chicago School led by Milton Friedman includes in money supply currency plus demand deposits plus time deposits. Time deposits are fixed deposits of the banks which earn a fixed rate of interest depending upon the period for which the amount is deposited. According to Friedman money is defined as "anything that serves the function of providing a temporary abode of purchasing power." Money can act as a temporary abode of purchasing power if it is kept in the form of cash, demand deposits or any other asset which is close to currency, i.e., time deposits. This approach lays emphasis on the store of value function of money and provides a broader measure of money.

**Gurley and Shaw Approach**

Gurley and Shaw further widened the scope of money supply by including in its constituents currency plus demand and time deposits of banks plus the liabilities of non-banking intermediaries. The liabilities of non-banking intermediaries cover saving bank deposits, shares, bonds, etc. and are close substitutes to money.

**Radcliff Committee Approach**

Radcliffe Committee approach or liquidity approach provides much wider view of the concept of money supply. In this approach, the concept of money supply is viewed in terms of general liquidity of the economy. Money supply covers "the whole liquidity position that is relevant to spending decisions." The spending is not limited to the amount of money in existence. It is related to the amount of money people think they can get hold of whether by receipts of income, by disposal of assets or by borrowing. Thus, according to this approach, money supply includes cash, all kinds of bank deposits, deposits with other institutions, near-money assets and the borrowing facilities available to the people. The practical difficulty with this liquidity approach is that the money supply in this wider sense cannot be successfully measured because the degree of liquidity of different constituents of money supply varies considerably. Moreover, most of the constituents remain outside the control of central bank and thus restrict the effective implementation of monetary policy.
1.5 VELOCITY OF CIRCULATION OF MONEY

The total money supply in an economy is affected to a very large extent by the velocity of circulation of money. An increase in the velocity of circulation of money will increase the money supply and a decrease in it will decrease the money supply. The velocity of circulation of money can be of two types: (i) transactions velocity and (ii) income velocity. The number of times a unit of money is used in effecting total transactions is referred to as transaction velocity.

The number of times a unit of money is used in making payments for final goods and services is known as income velocity of circulation of money. Income velocity of circulation of money. Income velocity of money is the ratio of market value of the final goods and services (p_y) and the supply of money.)

Thus,

\[ V = \frac{p_y}{M} = \frac{Y}{M} \]

Where Y is the real money.

The transactions velocity of circulation of money would be larger than the income velocity of circulation of money because the former relates to the transactions of all types of goods-finished and intermediate and the latter relates to the transactions of only final goods.

The following factors affect the velocity of money:

Supply of Money

If the supply of money is more than the requirements of the economy, the velocity of circulation of money will be higher and, when the supply of money is less than the requirements of the economy, the velocity of money in circulation would be lower.

Value of Money:

The velocity of money is high during inflation when value of money decreases because people will like to part with money as soon as possible. Similarly, during deflation, when the value of money rises, the velocity of money is low because people like to keep money with them.
Credit Facilities

The growth of credit institutions also affects the velocity of circulation of money. If the lending and borrowing facilities expand, then the velocity of circulation of money increases.

Growth of Trade.

Any increase in the volume of trade will lead to an increase in the number of transactions and hence the velocity of circulation of money will increase.

Frequency of Transactions:

With the increase in the frequency of transactions, the number of payments and receipts increases and, as a result, velocity of money increases. Similarly, with the decrease in the frequency of transactions, the velocity of money decreases.

Changes in the Price Level:

During inflation the velocity of circulation of money increases because people like to part with their money as soon as possible. On the contrary, during deflation the velocity of circulation of money decreases because people like to keep money with them.

Business conditions:

Velocity of circulation of money will be low if business is vertically integrated.

Payment System:

If the settlements of the bills for goods take place frequently and if the payment of wages of labour is made frequently then the velocity of circulation of money will increase.

Business Integration:

If business is vertically integrated, the velocity of money will be less and if business is vertically disintegrated, the velocity of money will increase.
Propensity to Consume:

The higher the propensity to consume, the higher will be the velocity of circulation of money and vice versa. Lower propensity to consume means higher savings, which affect the velocity of circulation of money. Higher the savings, the lesser would be the velocity of circulation of money.

Regularity of Income:

If people receive their income at irregular intervals, the velocity of circulation of money would be very low, because people would like to hold more cash with them to meet unexpected expenditure.

Distribution of Income:

If the distribution of income is equal, the velocity of circulation of money would be higher because the propensity to consume in the case of poor people is greater. If the distribution of income is unequal then the velocity of circulation of money will be low, because rich people have a low propensity to consume.

Liquidity Preference:

If people have greater preference foe keeping cash balances, the velocity of circulation of money would be high and if their preference for cash balances is low then the velocity would be low.

Means of Transport and Communications:

The more developed are the means of transport and communications, the more quick would be the trade transactions and higher will be the velocity of circulation of money and vice versa.

Size of population:

Larger population will lead to an increase in the velocity of circulation of money and vice versa.
1.6 INFLATION

Inflation is commonly understood to be a situation in which prices of goods and services and all other commodities go on rising substantially and at a faster pace. It results in decline of purchasing power i.e. a state in which the value of money is falling. There are various approaches to concept falling. There are various approaches to concept of inflation. Some consider it as a phenomenon of rising prices while others consider it as a monetary phenomenon.

1.7 THEORIES OF INFLATION:

There are many theories of inflation. They can be classified into demand pull theories and cost pull theories.

➢ Demand Pull Inflation:

Demand-pull inflation arises when the aggregate demand exceeds the level of currently available output. According to the proponents of this school of thought, demand-pull inflation is a phenomenon of “too much money chasing too few goods.” It takes place when the demand for goods and services exceeds their available at the existing prices.

There are three main approaches to the phenomenon of demand-pull inflation:

(a) Classical or traditional quantity theory approach
(b) Modern quantity theory approach and
(c) Keynes’ approach

(a) Traditional Quantity Theory Approach:

According to traditional quantity theories, inflation usually meant what is today known as hyper-inflation or a complete loss of confidence in currency, resulting in the astronomical price and perhaps complete monetary collapse. According to this approach, an increase in the money stock, other things being equal, would cause an equiproportionate rise in the general price level. In other words, the rate of inflation will be the same as the rate of increase in money stock. Thus, inflation continues as fast as the money expands and when expansion in money supply comes to a halt, inflation also stops.
(b) Modern Quantity Theory Approach

This approach is due to prof. Friedman, who does not believe in the traditional quantity theory in the rigid and extensive form. The modern quantity theory does not assume that economy remains normally at full employment level or that velocity of money is stable. But even recognizing both output and velocity as variables, this approach regards inflation as the result of excessive expansion in money supply. According to this theory, there is a stable function of money in real terms. In this function, rate of inflation also occurs as a cost of holding real cash balances. Given the demand function of money the rate of change of money stock determines the rate of inflation. This approach, although useful in explaining hyper-inflations, fails to explain ‘suppressed inflations, and creeping inflations’. This approach views inflation as imposing a tax on holdings of real balances.

(c) Keynesian Approach

Modern quantity theories felt that changes in the level of money income can be better predicted from the changes in the money stock, but the Keynesians think that changes in income can be more accurately predicted from the changes in the level of autonomous investment. Once the full employment is reached, output cannot increase and therefore, any rise in money income after that leads to rise in prices only. According to Keynesians, excess demand is the hallmark of inflation. Thus, Keynesian approach is similar to the quantity theory approach. However in Keynesian approach, flows of investment and income rather than the stock of money become the chief cause of inflation. Thus, whereas the quantity theory approach is couched in stock concepts, Keynesian approach is based on flow concepts.

➢ Cost Push Inflation

Often the demand-pull-inflation precedes the cost-push inflation. When the former sets in there is an increasing demand for factors of production, the prices of these also rise, leading to raise in general prices. It is called cost-push inflation which, however, may also be due to rise in the price of imported material or even be profit inflation when entrepreneurs exploit the scarcity conditions to secure higher monopolistic gains by raising price.
Cost-push inflation is mainly caused by the two pushes—(a) wage push and (b) profit push.

- **Wage-push Inflation**

  By wage-push inflation we mean inflation initiated by bargaining power of the trade union in rising per unit wage costs. Where trade unions have strong bargaining power and they are able to get wage rates pushed up, such pushes will lead to autonomous shifts in the supply function even if aggregate demand and level of income remain unchanged. Rise in wages in industries where labour is organized does not remain confined to these industries only. It is spread even to non-union industries. When wages increase in this way without any corresponding rise in productivity, the resultant upward shift in the aggregate supply function will lead to cost-push inflation. It may, however be pointed out that wage push inflation can occur due to increases in wages which cause and are not caused by higher prices.

- **Profit-push Inflation**

  Another important variant of cost-push inflation is the profit-push inflation. It can occur only under imperfectly competitive markets. The monopolists and the oligopolies may raise prices of their products more in proportion to the increase in cost and this may lead to cost-push inflation. The possibility of this type of inflation is greater where the prices are administered by the sellers as compared to a situation where prices are determined by the competition between the buyers and sellers. Profit-push inflation may arise in a seller’s dominated market.

Economic theories reach a variety of conclusions about the responsiveness of output growth to inflation. Theories are useful, as they account for some observed phenomenon. Historically, in the absence of what is termed ‘persistent inflation’, the early inflation-growth theories were built on cyclical observations. Persistent inflation is regarded as a post World War II phenomenon. Before then, bouts of inflation were followed by bouts of deflation. Having showed no upward or downward trend, inflation was said to behave like a ‘lazy dog’. It stays at a particular level unless and until there is a disturbance. Thereafter, it moves to another level, at which it settles. Theory, therefore sought to account for a positive correlation between inflation and growth.

The aggregate supply-aggregate demand (AS-AD) framework also postulated a positive relationship between inflation and growth where, as growth increased, so did
inflation. In the 1970s, however, the concept of stagflation gained prominence, and the validity of the positive relationship was questioned. Widely accepted at that time, the Phillips Curve relationship had appeared to not hold. This was evidenced by periods of low or negative output growth, and inflation rates that were historically high. During this period, prices rose sharply, while the economies around the world experienced massive unemployment.

The following sub-sections will discuss Classical, Keynesian, Neokeynesian, Monetarist, Neo-classical and Endogenous growth theories, each with their respective contribution to the inflation-growth relationship. Classical economics recalls supply-side theories, which emphasise the need for incentives to save and invest if the nation's economy is to grow, linking it to land, capital and labour. Keynesian and Neo-keynesian theory provided a more comprehensive model for linking inflation to growth under the AD-AS framework. Monetarism updated the Quantity Theory, reemphasising the critical role of monetary growth in determining inflation, while Neo-classical and Endogenous Growth theories sought to account for the effects of inflation on growth through its impact on investment and capital accumulation.

➢ **Classical Growth Theory**

Classical theorists laid the foundation for a number of growth theories. The foundation for Classical growth model was laid by Adam Smith who posited a supply side driven model of growth and his production function was as follows:

\[ Y = f(L, K, T) \]

Where \( Y \) is output, \( L \) is labour, \( K \) is capital and \( T \) is land, so output was related to labour, capital and land inputs. Consequently, output growth (\( gy \)) was driven by population growth (\( gL \)), investment (\( gK \)) and land growth (\( gT \)) and increases in overall productivity (\( gf \)). Therefore: \( gy = \_ (gf, gK, gL, gT) \).

Smith argued that growth was self-reinforcing as it exhibited increasing returns to scale. Moreover, he viewed savings as a creator of investment and hence growth, therefore, he saw income distribution as being one of the most important determinants of how fast (or slow) a nation would grow. He also posited that profits decline – not because of decreasing marginal productivity, but rather because the competition of capitalists for workers will bid wages up. The link between the change in price levels
(inflation), and its “tax” effects on profit levels and output were not specifically articulated in classical growth theories. However, the relationship between the two variables is implicitly suggested to be negative, as indicated by the reduction in firms’ profit levels through higher wage costs.

➢ **Keynesian Theory**

The Traditional Keynesian model comprises of the Aggregate Demand (AD) and Aggregate Supply (AS) curves, which aptly illustrates the inflation – growth relationship. According to this model, in the shortrun, the (AS) curve is upward sloping rather than vertical, which is its critical feature. If the AS curve is vertical, changes on the demand side of the economy affect only prices. However, if it is upward sloping, changes in AD affect both prices and output, (Dornbusch, et al, 1996). This holds with the fact that many factors drive the inflation rate and the level of output in the short-run. These include changes in: expectations; labour force; prices of other factors of production, fiscal and/or monetary policy.

In moving from the short-run to the hypothetical long-run, the above-mentioned factors, and its ‘shock’ on the ‘steady state’ of the economy are assumed to balance out. In this ‘steady state’ situation, ‘nothing is changing’, as the name suggests. The ‘dynamic adjustment’ of the short-run AD and AS curves yields an ‘adjustment path’ which exhibits an initial positive relationship between inflation and growth, however, turns negative towards the latter part of the adjustment path.

➢ **Money & Monetarism**

Monetarism has several essential features, with its focus on the long-run supply-side properties of the economy as opposed to short-run dynamics.5 Milton Friedman, who coined the term “Monetarism”, emphasised several key long-run properties of the economy, including the Quantity Theory of Money and the Neutrality of Money. The Quantity Theory of Money linked inflation and economic growth by simply equating the total amount of spending in the economy to the total amount of money in existence. Friedman proposed that inflation was the product of an increase in the supply or velocity of money at a rate greater than the rate of growth in the economy.
Friedman also challenged the concept of the Phillips Curve. His argument was based on the premise of an economy where the cost of everything doubles. Individuals have to pay twice as much for goods and services, but they don't mind, because their wages are also twice as large.

Individuals anticipate the rate of future inflation and incorporate its effects into their behaviour. As such, employment and output is not affected. Economists call this concept the neutrality of money. Neutrality holds if the equilibrium values of real variables - including the level of GDP – are independent of the level of the money supply in the long-run. Superneutrality holds when real variables - including the rate of growth of GDP - are independent of the rate of growth in the money supply in the long-run. If inflation worked this way, then it would be harmless. In reality however, inflation does have real consequences for other macroeconomic variables. Through its impact on capital accumulation, investment and exports, inflation can adversely impact a country’s growth rate.

In summary, Monetarism suggests that in the long-run, prices are mainly affected by the growth rate in money, while having no real effect on growth. If the growth in the money supply is higher than the economic growth rate, inflation will result.

➢ Neo-classical Theory

One of the earliest neo-classical models was postulated by Solow (1956) and Swan (1956). The model exhibited diminishing returns to labour and capital separately and constant returns to both factors jointly. Technological change replaced investment (growth of K) as the primary factor explaining long-term growth, and its level was assumed by Solow and other growth theorists to be determined exogenously, that is, independently of all other factors, including inflation (Todaro, 2000).

Mundell (1963) was one of the first to articulate a mechanism relating inflation and output growth separate from the excess demand for commodities. According to Mundell’s model, an increase in inflation or inflation expectations immediately reduces people’s wealth. This works on the premise that the rate of return on individual’s real money balances falls. To accumulate the desired wealth, people save more by switching
to assets, increasing their price, thus driving down the real interest rate. Greater savings means greater capital accumulation and thus faster output growth.

**Neo-Keynesian**

Neo-Keynesians initially emerged from the ideas of the Keynesians. One of the major developments under Neo-keynesianism was the concept of ‘potential output’, which at times is referred to as natural output. This is a level of output where the economy is at its optimal level of production, given the institutional and natural constraints. This level of output also corresponds to the natural rate of unemployment, or what is also referred to as the Non-Accelerating Inflation Rate of Unemployment (NAIRU). NAIRU is the unemployment rate at which the inflation rate is neither rising nor falling. In this particular framework, the ‘built-in inflation rate’8 is determined endogenously, that is by the normal workings of the economy. According to this theory, inflation depends on the level of actual output (GDP) and the natural rate of employment.

Firstly, if GDP exceeds its potential and unemployment is below the natural rate of unemployment, all else equal, inflation will accelerate as suppliers increase their prices and built-in inflation worsens. This causes the Phillips curve to shift in the stagflationary direction; towards greater inflation and greater unemployment.

Secondly, if the GDP falls below its potential level and unemployment is above the natural rate of unemployment, holding other factors constant, inflation will decelerate as suppliers attempt to fill excess capacity, reducing prices and undermining built-in inflation, leading to disinflation. This causes the Phillips curve to shift in the desired direction, towards less inflation and less unemployment.

Finally, if GDP is equal to its potential and the unemployment rate is equal to NAIRU, then the inflation rate will not change, as long as there are no supply shocks. In the long-run, the Neo Keynesians believe that the Phillips curve is vertical. That is, the unemployment rate is given and equal to the natural rate of unemployment, while there are a large number of possible inflation rates that can prevail at that unemployment rate. However, one problem with this theory is that, the exact level of potential output and natural rate of unemployment is generally unknown and tends to change over time. Inflation also seems to act in an asymmetric way, rising more quickly than it falls, mainly due to the downward rigidity in prices.
Endogenous Growth Theory

Endogenous growth theories describe economic growth which is generated by factors within the production process, for example; economies of scale, increasing returns or induced technological change; as opposed to outside (exogenous) factors such as the increases in population. In endogenous growth theory, the growth rate has depended on one variable.

The rate of return on capital. Variables, like inflation, that decrease that rate of return, which in turn reduces capital accumulation and decreases the growth rate. One feature accounts for the foremost difference between the endogenous growth models and the neo-classical economies. In the neoclassical economies, the return on capital declines as more capital is accumulated. In the simplest versions of the endogenous growth models, per capita output continues to increase because the return on capital does not fall below a positive lower bound. The basic intuition is that only if the return on capital is sufficiently high, will people be induced to continue accumulating it. Models of endogenous growth also permit increasing returns to scale in aggregate productions, and also focus on the role of externalities in determining the rate of return on capital. Endogenous Models that explain growth further with human capital, develop growth theory by implying that the growth rate also depends on the rate of return to human capital, as well as physical capital. The rate of return on all forms of capital must be equal in the balanced growth equilibrium. A tax on either form of capital induces a lower return. When such endogenous growth models are set within a monetary exchange framework, of Lucas (1980), Lucas and Stokey (1987), or McCallum and Goodfriend (1987), the inflation rate (tax) lowers both the return on all capital and the growth rate.

A tax on capital income directly reduces the growth rate, while a tax on human capital would cause labour to leisure substitution that lowers the rate of return on human capital and can also lower the growth rate. Some versions of the endogenous growth economies find that the inflation rate effects on growth are small. Gomme (1993) studied an economy similar to the one specified by Cooley and Hansen; that is, an inflation rate increase results in a decline in employment. According to Gomme’s research, efficient allocations satisfy the condition that the marginal value of the last unit of today’s consumption equals the marginal cost of the last unit of work. A rise in inflation reduces the marginal value of today’s last unit of consumption, thus inducing...
people to work less. With less labour, the marginal product of capital is permanently reduced, resulting in a slower rate of capital accumulation. Gomme found that in this economy, eliminating a moderate inflation rate (for example, 10 percent) results in only a very small (less than 0.01 percentage point) gain in the growth of output.

Alternative models examine how inflation might directly affect capital accumulation and hence output growth. Marquis and Reffert (1995) and Haslag (1995) specify economies in which capital and money are complementary goods. Marquis and Reffert examine inflation rate effects in a Stockman economy: there is a cash-in-advance constraint on capital. In Haslag’s research, banks pool small savers but are required to hold money as deposits to satisfy a reserve requirement. Thus, an inflation rate increase drives down the return to deposits, resulting in deposits being accumulated at a slower rate. Since capital is a fraction of deposits, capital accumulation and output growth are slow. In both the Marquis and Reffert, and Haslag studies, the inflation rate effects on growth are substantially greater than those calculated in Gomme.

1.8 CAUSES OF INFLATION

The factors responsible for inflation are classified into Demand side factor and supply side factors. The main factor responsible for inflation is generalized excess demand. If, therefore, implies that the factors that cause excess demand are the factors that result in inflation. Excess demand may be the result of (1) upward shift in demand and/or (2) downward shift in supply.

Factors causing Upward Shift in Demand:

Monetarists as well as Keynesians believe that inflation is mainly due to factors which cause an upward shift in the aggregate demand. The main factors which cause such a shift are as follows.

- The most important cause of excess monetary demand is increase in the money supply. Increase in money supply leads to an increase in the disposable income of the people and hence the demand for goods and services.
- Increased government expenditure and that too financed by borrowings from the central bank, is another cause of inflation. Enormous increase in expenditure on big development projects such as steel plants, major irrigation works etc., with long gestation period places money income immediately in the hands of
the recipients without there being a corresponding increasing in the supply of goods and services.

- Deficit financing is one of the major causes of upward shift in demand. It has become almost an integral feature of fiscal policy of developing countries. It puts money in the hand of the public at a much faster pace as compared to the availability of goods and services. In the developing economies, the increase in money supply is largely due to the excess expenditure by the government financed mainly by borrowings from the Central Bank.

- A borrowing by the private sector from the banking system is also responsible for inflation. Excessive credit creation by the commercial banks, especially to finance unproductive and speculative business or to finance consumer durables may contribute to rise in prices.

- Some people blame the existence of black money for the rising prices also. Black money is the money earned from illegal transactions or money, which is concealed from the tax authorities. Holders of black money often indulge in conspicuous consumption and spend lavishly. Moreover, black money cannot be invested: it can only be spent. Those who hold black money are prepared to pay more in purchasing scarce goods in the black market thereby adding fuel to the inflationary fire. However, some economists feel that black money leaves the total aggregate demand unchanged. However, it may lead to redistribution of income largely in favour of the rich who may spend on conspicuous consumption and this may contribute to inflation in a modest way.

- High rates of growth of population in some of the developing economies may also contribute to inflation. Increasing urbanization of population and powerful demonstration effect are also responsible for upward shift in demand.

- When the government pays off its old public debt, purchasing power with the people increases and hence the prices rise, the supply of goods remaining unchanged.

- Rising demand of domestically produced goods in the foreign countries leads to increase in exports and hence export earnings. These may add to excess demand. Moreover, supply of goods at home is reduced and hence the prices rise.
Factors cause Downward Shift in Supply.

Structuralists believe that inflation is due to factors, which cause a downward shift in the supply of goods and services. The main factors which cause downward shift in supply are as follows.

- Industrial production is often hampered by various bottlenecks such as shortage of labour, electric power; raw materials etc., Moreover, wrong economic policies of the government may also hamper production in the private sector especially if the administration is inefficient and weak. Inefficiency, wrong personnel policies, long gestation period and under-utilization of existing capacity may also contribute to inflationary pressures. Labour unrest may add fuel to the fire.

- Agricultural production is subject to diminishing returns and dependent on natural factors in countries like India. Food shortages and shortages of other raw materials of primary origin may lend a helping hand to inflation.

- Atmosphere of artificial scarcity created by the speculators and hoarders also contributes to inflation. However, speculators and hoarders cannot cause inflation. They can only make the disease worse.

- The modern world is an independent one. Therefore, price levels in the foreign countries also influence the domestic output and price situation. For example, the hike in oil prices since 1973 has been an important factor of inflation in many countries. External influences are predominant in the case of foreign trade oriented economies.

- In addition to the above, there are various non-economic factors contributing to inflation. Wars are perhaps the most important of them. Poor law and order situation, inefficiency, corruption, lack of the sense of responsible citizenship etc. provide the breeding ground for the germs of inflation.

1.9 CONSEQUENCES OF INFLATION

Inflation has varied consequences in both developed and developing countries. Although most present day economists seem to pay little attention to the alarming erosion in moral values which has occurred over the last four decades, inflation is potent cause of the present day malady and the following consequences can be seen in such a situation:
• Inflation has put a lot of unearned or badly earned income in the hands of few persons. It has increased the inequalities of incomes and wealth thereby leading to socio-economic class conflicts.

• Inflation has encouraged demonstration effect on a large section of the society, in harboring high expectations with regard to the level of income consumption without putting sincere and honest effort to attain that level.

• It has progressively eroded the real value of money earnings compelling honest and sincere persons to work harder and harder even to say where they were.

• It has forced a large proportion of women and even children to enter the employment market first to make both ends meet. It has led to exploitation of women and children by the employers in unorganized industries. Their physical and mental growth retarded.

• Operation of inflationary tendencies, have given recognition for many unethical and illegitimate practices so that the straight path is often found to be deserted and dangerous to follow.

1.10 MEASURES OF INFLATION

The inflation rate is widely calculated by calculating the movement or change in a price index, usually the consumer price index. The inflation rate is the percentage rate of change of a price index over time. The Retail Prices Index is also a measure of inflation that is commonly used in the United Kingdom. It is broader than the CPI and contains a larger basket of goods and services.

To illustrate the method of calculation, in January 2007, the U.S. Consumer Price Index was 202.416, and in January 2008 it was 211.080. The formula for calculating the annual percentage rate inflation in the CPI over the course {211.080-202.416} \times \frac{100}{202.416} = 4.28\% The resulting inflation rate for the CPI in this one year period is 4.28\%, meaning the general level of prices for typical U.S. consumers rose by approximately four percent in 2007.
Other widely used price indices for calculating price inflation include the following:

- **Producer price indices** (PPIs) which measures average changes in prices received by domestic producers for their output. This differs from the CPI in that price subsidization, profits, and taxes may cause the amount received by the producer to differ from what the consumer paid. There is also typically a delay between an increase in the PPI and any eventual increase in the CPI. Producer price index measures the pressure being put on producers by the costs of their raw materials. This could be "passed on" to consumers, or it could be absorbed by profits, or offset by increasing productivity. In India and the United States, an earlier version of the PPI was called the Wholesale Price Index.

- **Commodity price indices**, which measure the price of a selection of commodities. In the present commodity price indices are weighted by the relative importance of the components to the "all in" cost of an employee.

- **Core price indices**: because food and oil prices can change quickly due to changes in supply and demand conditions in the food and oil markets, it can be difficult to detect the long run trend in price levels when those prices are included. Therefore most statistical agencies also report a measure of 'core inflation', which removes the most volatile components (such as food and oil) from a broad price index like the CPI. Because core inflation is less affected by short run supply and demand conditions in specific markets, central banks rely on it to better measure the inflationary impact of current monetary policy.

Other common measures of inflation are:

- **GDP deflator** is a measure of the price of all the goods and services included in gross domestic product (GDP). The US Commerce Department publishes a deflator series for US GDP, defined as its nominal GDP measure divided by its real GDP measure.

- **Regional inflation** The Bureau of Labor Statistics breaks down CPI-U calculations down to different regions of the US.

- **Historical inflation** Before collecting consistent econometric data became standard for governments, and for the purpose of comparing absolute, rather than relative standards of living, various economists have calculated imputed inflation figures. Most inflation data before the early 20th century is imputed.
based on the known costs of goods, rather than compiled at the time. It is also
used to adjust for the differences in real standard of living for the presence of
technology.

- **Asset price inflation** is an undue increase in the prices of real or financial
  assets, such as stock (equity) and real estate. While there is no widely accepted
  index of this type, some central bankers have suggested that it would be better
to aim at stabilizing a wider general price level inflation measure that includes
some asset prices, instead of stabilizing CPI or core inflation only. The reason
is that by raising interest rates when stock prices or real estate prices rise, and
lowering them when these asset prices fall, central banks might be more
successful in avoiding bubbles and crashes in asset prices.

### 1.11 Issues in Measuring

Measuring inflation in an economy requires objective means of differentiating
changes in nominal prices on a common set of goods and services, and distinguishing
them from those price shifts resulting from changes in value such as volume, quality,
or performance. For example, if the price of a 10 oz. can of corn changes from $0.90 to
$1.00 over the course of a year, with no change in quality, then this price difference
represents inflation. This single price change would not, however, represent general
inflation in an overall economy. To measure overall inflation, the price change of a
large "basket" of representative goods and services is measured. This is the purpose of
a **price index**, which is the combined price of a "basket" of many goods and services.
The combined price is the sum of the weighted prices of items in the "basket". A
weighted price is calculated by multiplying the **unit price** of an item by the number of
that item the average consumer purchases. Weighted pricing is a necessary means to
measuring the impact of individual unit price changes on the economy's overall
inflation. The **Consumer Price Index**, for example, uses data collected by surveying
households to determine what proportion of the typical consumer's overall spending is
spent on specific goods and services, and weights the average prices of those items
accordingly. Those weighted average prices are combined to calculate the overall price.
To better relate price changes over time, indexes typically choose a "base year" price
and assign it a value of 100. Index prices in subsequent years are then expressed in
relation to the base year price: While comparing inflation measures for various periods
one has to take into consideration the **base effect** as well.
Inflation measures are often modified over time, either for the relative weight of goods in the basket, or in the way in which goods and services from the present are compared with goods and services from the past. Over time, adjustments are made to the type of goods and services selected in order to reflect changes in the sorts of goods and services purchased by 'typical consumers'. New products may be introduced, older products disappear, the quality of existing products may change, and consumer preferences can shift. Both the sorts of goods and services which are included in the "basket" and the weighted price used in inflation measures will be changed over time in order to keep pace with the changing marketplace.

Inflation numbers are often seasonally adjusted in order to differentiate expected cyclical cost shifts. For example, home heating costs are expected to rise in colder months, and seasonal adjustments are often used when measuring for inflation to compensate for cyclical spikes in energy or fuel demand. Inflation numbers may be averaged or otherwise subjected to statistical techniques in order to remove statistical noise and volatility of individual prices.

When looking at inflation, economic institutions may focus only on certain kinds of prices, or special indices, such as the core inflation index which is used by central banks to formulate monetary policy.

Most inflation indices are calculated from weighted averages of selected price changes. This necessarily introduces distortion, and can lead to legitimate disputes about what the true inflation rate is. This problem can be overcome by including all available price changes in the calculation, and then choosing the median value. In some other cases, governments may intentionally report false inflation rates; for instance, the government of Argentina has been criticised for manipulating economic data, such as inflation and GDP figures, for political gain and to reduce payments on its inflation-indexed debt.
1.12 EFFECTS OF INFLATION

GENERAL

An increase in the general level of prices implies a decrease in the purchasing power of the currency. That is, when the general level of prices rise, each monetary unit buys fewer goods and services. The effect of inflation is not distributed evenly in the economy, and as a consequence there are hidden costs to some and benefits to others from this decrease in the purchasing power of money. For example, with inflation, those segments in society which own physical assets, such as property, stock etc., benefit from the price/value of their holdings going up, when those who seek to acquire them will need to pay more for them. Their ability to do so will depend on the degree to which their income is fixed. For example, increases in payments to workers and pensioners often lag behind inflation, and for some people income is fixed. Also, individuals or institutions with cash assets will experience a decline in the purchasing power of the cash. Increases in the price level (inflation) erode the real value of money (the functional currency) and other items with an underlying monetary nature.

Debtors who have debts with a fixed nominal rate of interest will see a reduction in the "real" interest rate as the inflation rate rises. The real interest on a loan is the nominal rate minus the inflation rate. The formula \( R = N - I \) approximates the correct answer as long as both the nominal interest rate and the inflation rate are small. The correct equation is \( r = n/i \) where \( r, n \) and \( i \) are expressed as ratios (e.g. 1.2 for +20%, 0.8 for −20%). As an example, when the inflation rate is 3%, a loan with a nominal interest rate of 5% would have a real interest rate of approximately 2% (in fact, it's 1.94%). Any unexpected increase in the inflation rate would decrease the real interest rate. Banks and other lenders adjust for this inflation risk either by including an inflation risk premium to fixed interest rate loans, or lending at an adjustable rate.

NEGATIVE

High or unpredictable inflation rates are regarded as harmful to an overall economy. They add inefficiencies in the market, and make it difficult for companies to budget or plan long-term. Inflation can act as a drag on productivity as companies are forced to shift resources away from products and services in order to focus on profit and losses from currency inflation. Uncertainty about the future purchasing power...
of money discourages investment and saving.\[^{39}\] Inflation can also impose hidden tax increases; for instance inflated earnings push taxpayers into higher income tax rates unless the tax brackets are indexed to inflation.

With high inflation, purchasing power is redistributed from those on fixed nominal incomes, such as some pensioners whose pensions are not indexed to the price level, towards those with variable incomes whose earnings may better keep pace with the inflation.\[^{15}\] This redistribution of purchasing power will also occur between international trading partners. Where fixed exchange rates are imposed, higher inflation in one economy than another will cause the first economy's exports to become more expensive and affect the balance of trade. There can also be negative impacts to trade from an increased instability in currency exchange prices caused by unpredictable inflation.

- **Cost-push inflation**
  
  High inflation can prompt employees to demand rapid wage increases, to keep up with consumer prices. In the cost-push theory of inflation, rising wages in turn can help fuel inflation. In the case of collective bargaining, wage growth will be set as a function of inflationary expectations, which will be higher when inflation is high. This can cause a wage spiral. In a sense, inflation begets further inflationary expectations, which beget further inflation.

- **Hoarding**
  
  People buy durable and/or non-perishable commodities and other goods as stores of wealth, to avoid the losses expected from the declining purchasing power of money, creating shortages of the hoarded goods.

- **Social unrest and revolts**
  
  Inflation can lead to massive demonstrations and revolutions. For example, inflation and in particular food inflation is considered as one of the main reasons that caused the 2010–2011 Tunisian revolution and the 2011 Egyptian revolution according to many observers including Robert Zoellick, president of the World Bank. Tunisian president Zine El Abidine Ben Ali was ousted, Egyptian President Hosni Mubarak was also ousted after only 18 days of demonstrations, and protests soon spread in many countries of North Africa and Middle East.
- **Hyperinflation**
  
  If inflation gets totally out of control (in the upward direction), it can grossly interfere with the normal workings of the economy, hurting its ability to supply goods. Hyperinflation can lead to the abandonment of the use of the country's currency, leading to the *inefficiencies of barter*.

- **Allocative efficiency**

  A change in the supply or demand for a good will normally cause its *relative price* to change, signaling the buyers and sellers that they should re-allocate resources in response to the new market conditions. But when prices are constantly changing due to inflation, price changes due to genuine relative *price signals* are difficult to distinguish from price changes due to general inflation, so agents are slow to respond to them. The result is a loss of *allocative efficiency*.

- **Shoe leather cost**

  High inflation increases the opportunity cost of holding cash balances and can induce people to hold a greater portion of their assets in interest paying accounts. However, since cash is still needed in order to carry out transactions this means that more "trips to the bank" are necessary in order to make withdrawals, proverbially wearing out the "shoe leather" with each trip.

- **Menu costs**

  With high inflation, firms must change their prices often in order to keep up with economy-wide changes. But often changing prices is itself a costly activity whether explicitly, as with the need to print new menus, or implicitly, as with the extra time and effort needed to change prices constantly.

- **Business cycles**

  According to the *Austrian Business Cycle Theory*, inflation sets off the business cycle. Austrian economists hold this to be the most damaging effect of inflation. According to Austrian theory, artificially low interest rates and the associated increase in the money supply lead to reckless, speculative borrowing, resulting in clusters of malinvestments, which eventually have to be liquidated as they become unsustainable.
POSITIVE

- Labour-market adjustments

Nominal wages are slow to adjust downwards. This can lead to prolonged disequilibrium and high unemployment in the labor market. Since inflation allows real wages to fall even if nominal wages are kept constant, moderate inflation enables labor markets to reach equilibrium faster.

- Room to maneuver

The primary tools for controlling the money supply are the ability to set the discount rate, the rate at which banks can borrow from the central bank, and open market operations, which are the central bank's interventions into the bonds market with the aim of affecting the nominal interest rate. If an economy finds itself in a recession with already low, or even zero, nominal interest rates, then the bank cannot cut these rates further (since negative nominal interest rates are impossible) in order to stimulate the economy – this situation is known as a liquidity trap. A moderate level of inflation tends to ensure that nominal interest rates stay sufficiently above zero so that if the need arises the bank can cut the nominal interest rate.

- Mundell–Tobin effect

The Nobel laureate Robert Mundell noted that moderate inflation would induce savers to substitute lending for some money holding as a means to finance future spending. That substitution would cause market clearing real interest rates to fall. The lower real rate of interest would induce more borrowing to finance investment. In a similar vein, Nobel laureate James Tobin noted that such inflation would cause businesses to substitute investment in physical capital (plant, equipment, and inventories) for money balances in their asset portfolios. That substitution would mean choosing the making of investments with lower rates of real return. (The rates of return are lower because the investments with higher rates of return were already being made before.) The two related effects are known as the Mundell–Tobin effect. Unless the economy is already overinvesting according to models of economic growth theory, that extra investment resulting from the effect would be seen as positive.

- Instability with deflation
Economist S.C. Tsaing noted that once substantial deflation is expected, two important effects will appear; both a result of money holding substituting for lending as a vehicle for saving. The first was that continually falling prices and the resulting incentive to hoard money will cause instability resulting from the likely increasing fear, while money hoards grow in value, that the value of those hoards are at risk, as people realize that a movement to trade those money hoards for real goods and assets will quickly drive those prices up. Any movement to spend those hoards "once started would become a tremendous avalanche, which could rampage for a long time before it would spend itself." Thus, a regime of long-term deflation is likely to be interrupted by periodic spikes of rapid inflation and consequent real economic disruptions. Moderate and stable inflation would avoid such a seesawing of price movements.

Financial market inefficiency with deflation

The second effect noted by Tsaing is that when savers have substituted money holding for lending on financial markets, the role of those markets in channeling savings into investment is undermined. With nominal interest rates driven to zero, or near zero, from the competition with a high return money asset, there would be no price mechanism in whatever is left of those markets. With financial markets effectively euthanized, the remaining goods and physical asset prices would move in perverse directions. For example, an increased desire to save could not push interest rates further down (and thereby stimulate investment) but would instead cause additional money hoarding, driving consumer prices further down and making investment in consumer goods production thereby less attractive. Moderate inflation, once its expectation is incorporated into nominal interest rates, would give those interest rates room to go both up and down in response to shifting investment opportunities, or savers' preferences, and thus allow financial markets to function in a more normal fashion.

REASONS

Historically, a great trade of economic literature was concerned with the question of what reasons inflation and what effect it has. There were dissimilar schools of idea since to the reasons of inflation. The excellence theory of inflation rests on the expectation of a seller accepting currency to be able to swap that currency at a later time
for goods that are desirable since a buyer. The quantity theory of inflation rests on the quantity equation of money that relates the money supply, its velocity, and the nominal value of exchanges. Adam Smith and David Hume proposed a quantity theory of inflation for money, and an excellence theory of inflation for manufacture.

Currently, the quantity theory of money is widely carried since an accurate model of inflation in the extensive run. Consequently, there is now broad agreement in the middle of economists that in the extensive run, the inflation rate is essentially dependent on the development rate of money supply comparative to the development of the economy. Though, in the short and medium condition inflation may be affected through supply and demand pressures in the economy, and convinced through the comparative elasticity of wages, prices, and interest rates. The question of whether the short-condition effects last extensive sufficient to be significant is the central topic of debate flanked by monetarist and Keynesian economists. In monetarism prices and wages adjust quickly sufficient to create other factors merely marginal behavior on a common trend-row. In the Keynesian view, prices and wages adjust at dissimilar rates, and these variations have sufficient effects on real output to be "extensive condition" in the view of people in an economy.

**Keynesian View**

Keynesian economic theory proposes that changes in money supply do not directly affect prices, and that visible inflation is the result of pressures in the economy expressing themselves in prices. There are three major kinds of inflation, since section of what Robert J. Gordon calls the "triangle model":

- **Demand-pull inflation** is caused through increases in aggregate demand due to increased private and government spending, etc. Demand inflation is constructive to a faster rate of economic development as the excess demand and favorable market circumstances will stimulate investment and expansion.

- **Cost-push inflation**, also described "supply shock inflation," is caused through a drop in aggregate supply (potential output). This may be due to natural disasters or increased prices of inputs. For instance, a sudden decrease in the supply of oil, leading to increased oil prices, can reason cost-push inflation. Producers for whom oil is a section of their costs could then pass this on to consumers in the shape of increased prices. Another instance stems from
unexpectedly high Insured Losses, either legitimate (catastrophes) or fraudulent (which might be particularly prevalent in times of recession).

Built-in inflation is induced through adaptive expectations, and is often connected to the "price/wage spiral". It involves workers trying to stay their wages up with prices (above the rate of inflation), and firms passing these higher labor costs on to their customers since higher prices, leading to a 'vicious circle'. Built-in inflation reflects measures in the past, and therefore might be seen since hangover inflation.

Demand-pull theory states that the rate of inflation accelerates whenever aggregate demand is increased beyond the skill of the economy to produce (its potential output). Hence, any factor that increases aggregate demand can reason inflation. Though, in the extensive run, aggregate demand can be held above productive capability only through rising the quantity of money in circulation faster than the real development rate of the economy. Another (although much less general) reason can be a rapid decline in the demand for money, since happened in Europe throughout the Black Death, or in the Japanese engaged territories presently before the defeat of Japan in 1945. The effect of money on inflation is mainly obvious when governments fund spending in a crisis, such since a civil war, through printing money excessively. This sometimes leads to hyperinflation, a term where prices can double in a month or less.

Money supply is also idea to play a major role in determining moderate stages of inflation, although there are variations of opinion on how significant it is. For instance, Monetarist economists consider that the link is extremely strong; Keynesian economists, through contrast, typically emphasize the role of aggregate demand in the economy rather than the money supply in determining inflation. That is, for Keynesians, the money supply is only one determinant of aggregate demand.

Some Keynesian economists also disagree with the notion that central banks fully manage the money supply, arguing that central banks have small manage, as the money supply adapts to the demand for bank credit issued through commercial banks. This is recognized since the theory of endogenous money, and has been advocated strongly through post-Keynesians since distant back since the 1960s. It has today become a central focus of Taylor rule advocates. This location is not universally carried
banks make money through creation loans, but the aggregate volume of these loans diminishes since real interest rates augment. Therefore, central banks can power the money supply through creation money cheaper or more expensive, therefore rising or decreasing its manufacture.

A fundamental concept in inflation analysis is the connection flanked by inflation and unemployment, described the Phillips curve. This model suggests that there is a deal off flanked by price continuity and employment. So, some stage of inflation could be measured desirable in order to minimize unemployment. The Phillips curve model called the U.S. experience well in the 1960s but failed to define the combination of growing inflation and economic stagnation (sometimes referred to since *stagflation*) experienced in the 1970s.

Therefore, contemporary macroeconomics defines inflation by a Phillips curve that *shifts* (therefore the deal-off flanked by inflation and unemployment changes) because of such matters since supply shocks and inflation becoming built into the normal workings of the economy. The former refers to such measures since the oil shocks of the 1970s, while the latter refers to the price/wage spiral and inflationary expectations implying that the economy "normally" suffers from inflation. Therefore, the Phillips curve symbolizes only the demand-pull component of the triangle model.

Another concept of note is the potential output (sometimes described the "natural gross domestic product"), a stage of GDP, where the economy is at its optimal stage of manufacture given institutional and natural constraints. (This stage of output corresponds to the Non-Accelerating Inflation Rate of Unemployment, NAIRU, or the "natural" rate of unemployment or the full-employment unemployment rate.) If GDP exceeds its potential (and unemployment is below the NAIRU), the theory says that inflation will will *decelerate* since suppliers effort to fill excess capability, cutting prices and undermining built-in inflation.

Though, one trouble with this theory for policy-creation purposes is that the exact stage of potential output (and of the NAIRU) is usually strange and tends to transform in excess of time. Inflation also looks to act in an asymmetric method, growing more quickly than it falls. Worse, it can transform because of policy: for
instance, high unemployment under British Prime Minister Margaret Thatcher might have led to a rise in the NAIRU (and a fall in potential) because several of the unemployed establish themselves since structurally unemployed, unable to discover occupations that fit their skills. A rise in structural unemployment implies that a smaller percentage of the labor force can discover occupations at the NAIRU, where the economy avoids crossing the threshold into the realm of accelerating inflation.

➢ Monetarist View

Monetarists consider the mainly important factor influencing inflation or deflation is how fast the money supply grows or shrinks. They believe fiscal policy, or government spending and taxation, since ineffective in controlling inflation. Just as to the well-known monetarist economist Milton Friedman, “Inflation is always and everywhere a monetary phenomenon.” Some monetarists, though, will qualify this through creation an exception for extremely short-condition conditions.

Monetarists assert that the empirical revise of monetary history illustrates that inflation has always been a monetary phenomenon. The quantity theory of money, basically stated, says that any transform in the amount of money in an organization will transform the price stage. This theory begins with the equation of swap:

\[ MV = PQ \]

where
- \( M \) is the nominal quantity of money.
- \( V \) is the velocity of money in final expenditures;
- \( P \) is the common price stage;
- \( Q \) is an index of the real value of final expenditures;

In this formula, the common price stage is related to the stage of real economic action \((Q)\), the quantity of money \((M)\) and the velocity of money \((V)\). The formula is an identity because the velocity of money \((V)\) is defined to be the ratio of final nominal expenditure \((PQ)\) to the quantity of money \((M)\).

Monetarists assume that the velocity of money is unaffected through monetary policy (at least in the extensive run), and the real value of output is determined in the extensive run through the productive capability of the economy. Under these
assumptions, the primary driver of the transform in the common price stage is changes in the quantity of money. With exogenous velocity (that is, velocity being determined externally and not being convinced through monetary policy), the money supply determines the value of nominal output (which equals final expenditure) in the short run. In practice, velocity is not exogenous in the short run, and therefore the formula does not necessarily imply a stable short-run connection flanked by the money supply and nominal output. Though, in the extensive run, changes in velocity are assumed to be determined through the development of the payments mechanism. If velocity is relatively unaffected through monetary policy, the extensive-run rate of augment in prices (the inflation rate) is equal to the extensive run development rate of the money supply plus the exogenous extensive-run rate of velocity development minus the extensive run development rate of real output.

➢ Unemployment

A relationship flanked by inflation and unemployment has been drawn as the emergence of big level unemployment in the 19th century, and connections continue to be drawn today. In Marxian economics, the unemployed serve since a reserve army of labour, which restrain wage inflation. In the 20th century, same concepts in Keynesian economics contain the NAIRU (Non-Accelerating Inflation Rate of Unemployment) and the Phillips curve.

➢ Rational Expectations Theory

Rational expectations theory holds that economic actors seem rationally into the future when trying to maximize their well-being, and do not respond solely to immediate opportunity costs and pressures. In this view, while usually grounded in monetarism, future expectations and strategies are significant for inflation since well.

A core assertion of rational expectations theory is that actors will seek to "head off" central-bank decisions through acting in ways that fulfill predictions of higher inflation. This means that central banks necessity set up their credibility in fighting inflation, or economic actors will create bets that the central bank will expand the money supply rapidly sufficient to prevent recession, even at the expense of exacerbating inflation. Therefore, if a central bank has a reputation since being "soft" on inflation, when it announces a new policy of fighting inflation with restrictive
monetary development economic mediators will not consider that the policy will persist; their inflationary expectations will remain high, and therefore will inflation. On the other hand, if the central bank has a reputation of being "tough" on inflation, then such a policy announcement will be whispered and inflationary expectations will approach down rapidly, therefore allowing inflation itself to approach down rapidly with minimal economic disruption.

- **Austrian View**

The Austrian School asserts that inflation is an augment in the money supply, growing prices are merely consequences, and this semantic variation is significant in defining inflation. Austrians stress that inflation affects prices in several degree, i.e. that prices rise more sharply in some sectors than in other sectors of the economy. The cause for the disparity is that excess money will be concentrated to sure sectors, such since housing, stocks, or health care. Because of this disparity, Austrians argue that the aggregate price stage can be extremely misleading when observing the effects of inflation. Austrian economist’s measure inflation through calculating the development of new elements of money that is accessible for immediate exploit in swap that has been created in excess of time. Critics of the Austrian view point out that their preferred alternative to fiat currency designed to prevent inflation, commodity-backed money, is likely to grow in supply at a dissimilar rate than economic development. Therefore it has proven to be highly deflationary and destabilizing, including in instances where it has caused and prolonged depressions.

- **Real Bills Doctrine**

Within the context of a fixed specie foundation for money, one significant controversy was flanked by the quantity theory of money and the real bills doctrine (RBD). Within this context, quantity theory applies to the stage of fractional reserve accounting allowed against specie, usually gold, held through a bank. Currency and banking schools of economics argue the RBD that banks should also be able to issue currency against bills of trading, which is "real bills" that they buy from merchants. This theory was significant in the 19th century in debates flanked by "Banking" and "Currency" schools of monetary soundness, and in the formation of the Federal Reserve. In the wake of the collapse of the international gold average post 1913, and the move towards deficit financing of government, RBD has remained a minor topic,
primarily of interest in limited contexts, such since currency boards. It is usually held in ill repute today, with Frederic Mishkin, a governor of the Federal Reserve going therefore distant since to say it had been "totally discredited."

The debate flanked by currency, or quantity theory, and banking schools in Britain throughout the 19th century prefigures current questions in relation to the credibility of money in the present. In the 19th century the banking school had greater power in policy in the United States and Great Britain, while the currency school had more power "on the continent", that is in non-British countries, particularly in the Latin Monetary Union and the earlier Scandinavia monetary union.

- Anti-classical or Backing Theory

Another issue associated with classical political economy is the anti-classical hypothesis of money, or "backing theory". The backing theory argues that the value of money is determined through the assets and liabilities of the issuing agency. Unlike the Quantity Theory of classical political economy, the backing theory argues that issuing authorities can issue money without causing inflation therefore extensive since the money issuer has enough assets to cover redemptions. There are extremely few backing theorists, creation quantity theory the dominant theory explaining inflation.

1.13 CONTROLLING INFLATION

A variety of methods and policies have been proposed and used to control inflation. **Stimulating Economic Development.** If economic development matches the development of the money supply, inflation should not happen when all else is equal. A big diversity of factors can affect the rate of both. For instance, investment in market manufacture, infrastructure, education, and preventative health care can all grow an economy in greater amounts than the investment.

- Monetary policy

Governments and central banks primarily use monetary policy to control inflation. **Central banks** such as the U.S. Federal Reserve increase the interest rate, slow or stop the growth of the money supply, and reduce the money supply. Some banks have a **symmetrical inflation target** while others only control inflation when it rises above a target, whether express or implied.
Most central banks are tasked with keeping their inter-bank lending rates at low levels, normally to a target annual rate of about 2% to 3%, and within a targeted annual inflation range of about 2% to 6%. Central bankers target a low inflation rate because they believe deflation endangers the economy.

Higher interest rates reduce the amount of money because less people seek loans, and loans are usually made with new money. When banks make loans, they usually first create new money, then lend it. A central bank usually creates money lent to a national government. Therefore, when a person pays back a loan, the bank destroys the money and the quantity of money falls. In the early 1980s, when the federal funds rate exceeded 15 percent, the quantity of Federal Reserve dollars fell 8.1 percent, from $8.6 trillion down to $7.9 trillion.

Monetarists emphasize a steady growth rate of money and use monetary policy to control inflation by increasing interest rates and slowing the rise in the money supply. Keynesians emphasize reducing aggregate demand during economic expansions and increasing demand during recessions to keep inflation stable. Control of aggregate demand can be achieved using both monetary policy and fiscal policy (increased taxation or reduced government spending to reduce demand).

- **Fixed exchange rates**

  Under a fixed exchange rate currency regime, a country's currency is tied in value to another single currency or to a basket of other currencies (or sometimes to another measure of value, such as gold). A fixed exchange rate is usually used to stabilize the value of a currency, vis-a-vis the currency it is pegged to. It can also be used as a means to control inflation. However, as the value of the reference currency rises and falls, so does the currency pegged to it. This essentially means that the inflation rate in the fixed exchange rate country is determined by the inflation rate of the country the currency is pegged to. In addition, a fixed exchange rate prevents a government from using domestic monetary policy in order to achieve macroeconomic stability.

  Under the Bretton Woods agreement, most countries around the world had currencies that were fixed to the US dollar. This limited inflation in those countries, but also exposed them to the danger of speculative attacks. After the Bretton Woods...
agreement broke down in the early 1970s, countries gradually turned to floating exchange rates. However, in the later part of the 20th century, some countries reverted to a fixed exchange rate as part of an attempt to control inflation. This policy of using a fixed exchange rate to control inflation was used in many countries in South America in the later part of the 20th century (e.g. Argentina (1991–2002), Bolivia, Brazil, and Chile).

➢ **Gold standard**

The gold standard is a monetary system in which a region's common media of exchange are paper notes that are normally freely convertible into pre-set, fixed quantities of gold. The standard specifies how the gold backing would be implemented, including the amount of specie per currency unit. The currency itself has no innate value, but is accepted by traders because it can be redeemed for the equivalent specie. A U.S. silver certificate, for example, could be redeemed for an actual piece of silver.

The gold standard was partially abandoned via the international adoption of the Bretton Woods System. Under this system all other major currencies were tied at fixed rates to the dollar, which itself was tied to gold at the rate of $35 per ounce. The Bretton Woods system broke down in 1971, causing most countries to switch to fiat money – money backed only by the laws of the country.

According to Lawrence H. White, an F. A. Hayek Professor of Economic History "who values the Austrian tradition", economies based on the gold standard rarely experience inflation above 2 percent annually. However, historically, the U.S. saw inflation over 2% several times and a higher peak of inflation under the gold standard when compared to inflation after the gold standard. Under a gold standard, the long term rate of inflation (or deflation) would be determined by the growth rate of the supply of gold relative to total output. Critics argue that this will cause arbitrary fluctuations in the inflation rate, and that monetary policy would essentially be determined by gold mining.

➢ **Wage and price controls**

Another method attempted in the past have been wage and price controls ("incomes policies"). Wage and price controls have been successful in wartime
environments in combination with rationing. However, their use in other contexts is far more mixed. Notable failures of their use include the 1972 imposition of wage and price controls by Richard Nixon. More successful examples include the Prices and Incomes Accord in Australia and the Wassenaar Agreement in the Netherlands.

In general, wage and price controls are regarded as a temporary and exceptional measure, only effective when coupled with policies designed to reduce the underlying causes of inflation during the wage and price control regime, for example, winning the war being fought. They often have perverse effects, due to the distorted signals they send to the market. Artificially low prices often cause rationing and shortages and discourage future investment, resulting in yet further shortages. The usual economic analysis is that any product or service that is under-priced is over consumed. For example, if the official price of bread is too low, there will be too little bread at official prices, and too little investment in bread making by the market to satisfy future needs, thereby exacerbating the problem in the long term.

Temporary controls may complement a recession as a way to fight inflation: the controls make the recession more efficient as a way to fight inflation (reducing the need to increase unemployment), while the recession prevents the kinds of distortions that controls cause when demand is high. However, in general the advice of economists is not to impose price controls but to liberalize prices by assuming that the economy will adjust and abandon unprofitable economic activity. The lower activity will place fewer demands on whatever commodities were driving inflation, whether labor or resources, and inflation will fall with total economic output. This often produces a severe recession, as productive capacity is reallocated and is thus often very unpopular with the people whose livelihoods are destroyed (see creative destruction).

- **Stimulating economic growth**

  If economic growth matches the growth of the money supply, inflation should not occur when all else is equal. A large variety of factors can affect the rate of both. For example, investment in market production, infrastructure, education, and preventative health care can all grow an economy in greater amounts than the investment spending.
**Cost-of-living allowance**

For more details on this topic, see Cost of living.

The real purchasing-power of fixed payments is eroded by inflation unless they are inflation-adjusted to keep their real values constant. In many countries, employment contracts, pension benefits, and government entitlements (such as social security) are tied to a cost-of-living index, typically to the index. A *cost-of-living allowance* (COLA) adjusts salaries based on changes in a cost-of-living index. It does not control inflation, but rather seeks to mitigate the consequences of inflation for those on fixed incomes. Salaries are typically adjusted annually in low inflation economies. During hyperinflation they are adjusted more often. They may also be tied to a cost-of-living index that varies by geographic location if the employee moves.

Annual escalation clauses in employment contracts can specify retroactive or future percentage increases in worker pay which are not tied to any index. These negotiated increases in pay are colloquially referred to as cost-of-living adjustments ("COLAs") or cost-of-living increases because of their similarity to increases tied to externally determined indexes.

**INFLATION COULD HAMPER ECONOMIC GROWTH MAINLY DUE TO THE FOLLOWING REASONS**

- Economies that are not fully adjusted to a given rate of inflation usually suffer from relative price distortions caused by inflation. Nominal interest rates are often controlled, and hence real interest rates become negative and volatile, discouraging savings. Depreciation of exchange rates lag behind inflation, resulting in variability in real appreciations and exchange rates.

- Real tax collections do not keep up with inflation, because collections are based on nominal incomes of an earlier year (the Tanzi effect) and public utility prices are not raised in line with inflation. For both reasons, the fiscal problem is intensified by inflation, and public savings may be reduced. This may adversely affect public investment.

- High inflation is unstable. There is uncertainty about future rates of inflation, which reduces the efficiency of investment and discourages potential investors.
1.14 INFLATION AND ECONOMIC DEVELOPMENT

From the foregoing analysis we can say that generally the developing countries are inflation prone. Now, the most important question is whether in such countries, inflation is a source of strength or weakness. Whether inflation promotes economic development or retards it? What is the role of inflation in the process of economic development? In this connection, there are two approaches: Keynesian approach and the quantity theory approach.

➢ Keynesian Approach

According to Keynes inflation promotes economic growth in two ways first, by redistributing income from wage earners to the profit earners. The former have a low propensity to save while the latter have a high propensity to save and invest. Second, inflation raises the nominal rate of return on investment as compared to rate of interest and hence promotes investment which leads to economic growth. These arguments are based on the assumption that profit earners are able to anticipate inflation while others are not. N however, these arguments are not supported by facts.

➢ Quantity Theory Approach

This approach believes that (i) during long inflationary periods the behavior of all sectors of economy gets adjusted to the expectations of inflation and therefore, (ii) the effect of inflation leads to redistribution of income from holders of money stock to the monetary authority and not to the redistribution of income from wage-earners to profit-earners as Keynesians hold. The transfer of money balances to the money issuing authority means that ‘inflation tax’ is imposed on holding of money which implies that the holders of money have to forgot the real resources in order to restore the real value of their money holdings.

The debate over the rexies between inflation and economic development is continuously going on. Theoretical arguments have been advanced on both sides.
1.15 INFLATION AS A PROMOTOR OF ECONOMIC DEVELOPMENT

Robertson, Arthur Lewis holds that inflation does promote economic development. Certain theoretical arguments advanced in favour of inflation as a promoter of economic development are followed.

- Slow and gradually rising prices build an atmosphere of optimism and rising expectations among the industrialist and an business community. High marginal efficiency of investment is bound to encourage investment and employment and ultimately the all round economic activity. Thus inflation promotes development.

- Inflation redistributes income in favour of those economic groups who have high propensity to save. Thus inflation strengthens the hands of those who have the capacity to make productive investments.

- Inflation an important source of capital formation in less developed countries. Economic development requires financial resources on a massive scale but the internal sources such as taxation, savings, profits from public enterprises and external sources such as foreign aid or earnings from exparts may not be quite sufficient to finance heavy development projects. It is here that inflation as a method of forced saving plays its role in the process of economic development. The only alternative to inflation in a poor country is to remain poor for want of financial resources. So, it is preferable to resort to inflationary financing for much-needed development projects than to leave the country in a state of backwardness.

- Inflation is argued that inflationary financing is ultimately self-liquidating. Professor Arthur Lewis regarded inflation as a device for drawing out unemployed resources in to productive channels. He further says that inflation, for purposes of capital formation, is ultimately self-terminating because sooner or later it is likely to result in an increased supply of goods and services in the market.

- Finally, in under-developed countries, propensity to hoard is high as these countries are characterized by inadequate banking facilities and vast non-monetised sector. To the extent deficit financing is below the savings currently hoarded, it would not inflationary, as it is likely to offset private hoarding of currency.
On the basis of the above arguments, it is held that inflation would not be a very high price for the mobilization of resources and hence for economic development. Thus there exists a positive correlation between development and inflation. Economists such as Singer, Haberler, Prof. B.R. Shenoy etc. are of the view that inflation is a deterrent to development. Singer stated, “To my mind there has never been yet a successful example of economic development combined with inflation.

Optimism and rising profit expectations as a result of inflation do not last long. During inflation, costs start rising and an atmosphere of uncertainty develops due to labour unrests, strikes and lockouts. Infact, industrialists prefer gradual, steady and predictable rise in prices to sharp and erratic fluctuations in prices.

Inflation is deterrent to saving and it robs the savers. It is just like an invisible tax without any exemption limit on the incomes and the other cash balances held by the people. In this connection, Professor Chandler observes, “It is a tax or forcible extraction for the specific, immediate purpose of forcing a higher rate of real investments, the more basic purpose of which is to produce a higher rate of growth. As a tax it should be judged not only on the basis of its capacity to promote its principle objective, but also on the basis of its total effects… inflation may not be the most regressive tax known, but it is surely one of the most erratic in its incidents… inflation is not taxation according to ability to pay”.

Inflation redistributes income in favour of the rich. So on the grounds of social justice; such a method is not desirable at all.

Inflation is not certain that rising incomes of industrialists, businessmen etc. Will be invested in the productive channels. On the other hand, the possibility is that the resources may be shifted to conspicuous consumption such as construction of ultra modern palatial buildings and speculative, unproductive, and merely trading activities. Thus genuine production suffers as a result of inflation.

Inflation may lead to balances of payments difficulties. It is the most important obstacle in the way of export promotion, which is so essential for economic development.

Financial indiscipline on the part of government especially in less developed countries having unsound political governments does not provide conductive atmosphere for inflationary financing. Moreover, once inflation is set in motion, it often turns into a spiral and it becomes difficult to control it, as the experience of several Latin American countries shows.
According to the method of financing economic development through inflation is too risky and dangerous and may prove suicidal. Thus, strong and valid arguments can be given in support of as well as against the inflationary financing of development. Conclusions on a purely a-priori ground are not possible.

1.16 STATEMENT OF THE PROBLEM

The relationship between money supply, inflation, and economic development remains the controversial over if the both theory and empirical findings. The structuralist believes that inflation is essential for economic growth, whereas the monetarist view inflation as a retarding factor to economic progress. Historically, all possible combinations are analyzed i.e., increase in money supply, inflation, with are without development and increase in money supply no inflation with are without development. Many empirical study have been attempted to establish the relationship between money supply, inflation and economic development. Many studies confirm the existing of either a positive or a negative relation between these major economic variables. A general consensus evolved that low and stable inflation promotes economic growth. The purpose of this research is to empirically explore the relationship between money supply, inflation and economic growth in India and South East Asian Countries as well as study the Pair Wise multiple comparison of selected countries for the selected variables. Hence the title of the study is “A Study of Money Supply, Inflation and Economic Growth in India and South East Asian Countries During 1990-2010”.

OBJECTIVES

- To study the growth of Money Supply, Gross Domestic Product and Price Level in India and South East Asian countries during the study period.
- To study the growth and share of Components of Gross Domestic Product i.e. Agriculture Production, Industrial Production and Service Sector for the selected countries during the study period.
- To test the pair wise multiple comparison of selected countries for the selected variables.
- To test the granger causality between Money Supply and Inflation, Inflation and Growth of Output for the selected countries.
1.18 STATEMENT OF HYPOTHESIS

This study has tested the following null hypotheses on relation between the defined variables for the selected countries.

H01: Money Supply M1 variances are equal across the selected countries
H02: Money Supply M2 variances are equal across the selected countries
H03: Money Supply M3 variances are equal across the selected countries
H04: Wholesale Price Index variances are equal across the selected countries
H05: Consumer Price Index variances are equal across the selected countries
H06: Gross Domestic Product variances are equal across the selected countries
H07: Agriculture Production variances are equal across the selected countries
H08: Industrial Production variances are equal across the selected countries
H09: Service Sector variances are equal across the selected countries
H10: There is no significant difference between Money Supply M1 and selected countries.
H11: There is no significant difference between Money Supply M2 and selected countries.
H12: There is no significant difference between Money Supply M3 and selected countries.
H13: There is no significant difference between Wholesale Price Index and selected countries.
H14: There is no significant difference between Consumer Price Index and selected countries.
H15: There is no significant difference between Gross Domestic Product and selected countries.
H16: There is no significant difference between Agriculture Production and selected countries.
H17: There is no significant difference between Industrial Production and selected countries.
H18: There is no significant difference between Service Sector and selected countries.
H19: Money supply does not causes Wholesale Price Index
H20: Wholesale Price Index does not causes Money supply
H21: Money supply does not causes Consumer Price Index
H22: Consumer Price Index does not causes Money Supply
H23: Money supply does not causes Gross Domestic Product.
H24: Gross Domestic Product does not causes Money Supply
H25: Money supply does not causes Agriculture Production.
H26: Agriculture Production does not causes Money Supply
H27: Money supply does not causes Industrial Production.
H28: Industrial Production does not causes Money Supply
H29: Money supply does not causes Service Sector.
H30: Service Sector does not causes Money Supply
H31: Wholesale Price Index does not causes Gross Domestic Product.
H32: Gross Domestic Product does not causes Wholesale Price Index
H33: Consumer Price Index does not causes Gross Domestic Product
H34: Gross Domestic Product does not causes Consumer Price Index
H35: Wholesale Price Index does not causes Agriculture Production
H36: Agriculture Production does not causes Wholesale Price Index
H37: Consumer Price Index does not causes Agriculture Production
H38: Agriculture Production does not causes Consumer Price Index
H39: Wholesale Price Index does not causes Industrial Production
H40: Industrial Production does not causes Wholesale Price Index
H41: Consumer Price Index does not causes Industrial Production
H42: Industrial Production does not causes Consumer Price Index
H43: Wholesale Price Index does not causes Service Sector
H44: Service Sector does not causes Wholesale Price Index
H45: Consumer Price Index does not causes Service Sector
H46: Service Sector does not causes Consumer Price Index
1.19 SCOPE OF THE STUDY

The study is based on data pertaining to Indian and South East Asian Economy. Hence, it is of great importance for policy makers and general public. The study shows the impact of prices on economic development or economic development on prices. The study also helps to know the causal relationship between price level and economic development.

1.20 LIMITATIONS OF THE STUDY

- The study is based on secondary data. Hence it is subjected to the limitations of secondary data.

- The study is based on Indian Economy and South East Asian countries. The conditions in the other countries may be different. Hence the results cannot be generalized for all the developing countries.
1.21 CHAPTER SCHEME

Chapter 1 deals with the Introduction meaning of money supply and inflation, money and prices, theories of inflation, measuring, causes and consequences of inflation effects and controlling of inflation. It also explains the theoretical relationship between inflation and economic development.

In Chapter 2, the Reviews of earlier studies are presented.

Chapter 3 deals with the Methodology of the study adopted. This includes the nature of research design, period of study, nature of data, sources of data and tools of analysis.

Chapter 4 gives the Profiles of selected countries.

In Chapter 5, an Analysis and interpretation of selected variables for the selected countries.

Chapter 6 gives the Findings and Conclusions of the study.