INTRODUCTION
Experience in India's Monetary System

Introduction to Major Issues

An appropriate definition of money and the specification of the demand for money are crucial in predicting the effect of changes in the nominal money supply on nominal income and in the long run on prices. One way of empirically finding the appropriate definition of money is through testing the stability of the demand for money function, viz., whether we get a stable econometric demand for money relationship with or without the inclusion of time deposits in the money definition. But such a procedure indirectly assumes that there exist well recognized independent variables of the demand for money function, like income — current or permanent — and interest rates — again the appropriate interest rate from a spectrum of different rates. On the other hand, one can first theoretically and empirically define money through methods, like Friedman - Meiselman money income dual correlation criterion (1965), Chetty's (1969) cross elasticity of substitution criterion, Factor Analytic techniques etc. And, then demand for money function can be estimated for that a priori defined definition of money. The alternative schemes for arriving at the appropriate definition of money may lead to different conclusions. Of course, it may lead to the same conclusions as well. Also, when modelling monetary relationship by using different definitions of money viz. $M_1$ or $M_2$ etc., the empirical results may also lead to different conclusions. We have to see the reasons for such inconsistent
results if any. The definition of money applicable to a particular country itself may undergo changes over time due to the financial evolution. These issues are important not only from research strategy and methodology, but also from the points of view of monetary theory and policy.

Economic theory ordinarily does not specify any statistical tests and therefore conclusions based on empirical tests must be robust to at least some alternative functional specifications. An arbitrarily chosen functional form may lead to misleading conclusions. So one may adopt an empirical approach for identifying the appropriate functional form through parametric transformations. In demand for money literature, the necessity for testing the stability of the functional form and parameters is well recognized. One can adopt the recent developments in econometric methods like Durbin - Brown - Evan's Casum of Squares test (1975), Cooley and Prescott's Varying Parameter Regression etc. for testing the stability of the demand for money function. And it may be desirable to test simultaneously for the functional form through parametric transformation and the stability of the empirically generalised functional form. The existing literature on demand for money in India has tacitly ignored such econometric problems and concentrated mainly on traditional formulations.

Conventionally in money demand function, income - either current or permanent is taken as the scale variable and the interest rate as the opportunity cost variable.
When permanent income is taken as the scale variable, it may stand as a proxy for either transactions i.e., the expected current real income, or the wealth variable. As shown by Suraj Gupta (1970) when nominal interest rate is taken as the relevant opportunity cost variable in the demand for money function the implied assumption is the acceptance of Fisher hypothesis that nominal interest rates adjust to inflationary expectations. But then suppose that if there are lag effects, especially the adjustment lag of the dependent variable viz the real money balances to independent variables like income and interest rates, what are its implications for the Fisher hypothesis of the adjustment of nominal interest rates to inflationary expectation? This necessitates a study of the demand for money function exploring the adjustment lag problems on the one hand, and a study of the empirical verification of Fisher hypothesis of the relation between nominal interest rates and inflationary expectation; on the other hand.

During the hyper inflationary period, even for advanced countries the expected inflation rate alone has been to a major determinant of the demand for money. For developing countries the conventional demand for money specification in terms of interest rate may not always be the appropriate specification, especially the interest rate may not always capture the opportunity cost of holding money.
This may also happen when there is a lag in adjusting the nominal rate of interest to expected inflation. The capital markets in such countries are not often well developed and nominal rates are pegged or administered rates. Conflicting empirical evidences regarding interest rate - money demand relations are also found. Gujarati (1968) could not discover any relationship between interest rate and money demand for India, whereas Sharma (1973) has been able to find a significant negative relation between interest rate and money demand. G. S. Gupta (1973) found the Indian demand for money to be significantly interest elastic if money were disaggregated into various components. So, on the whole, there is some justification to experiment with inflationary expectation either with or without interest rate as the relevant opportunity cost in the context of the Indian demand for money function.

Another problem which is equally valid for developed and developing countries is that the conventional specification of the demand for money assumes that the quality of the real money balances remains constant. But the price uncertainty which is often found in an inflationary environment may adversely affect the quality of real money balances. Theoretically it can affect the precautionary demand for money, and have influence in other directions as well, and what the ultimate effect will be is an open empirical question.
Indian economy has undergone not only the inflationary process, but also experienced much variability of inflation. Existing studies on the demand for money in India have not examined how the variability of inflation is affecting the demand for money.

As in demand for money function both adjustment lags and expectation lags are present, in the reduced form equations often the number of parameters and coefficients are not equal. To solve the problem of over identification Mammen (1970) and Wagmare and Khetan (1971) employed the non-linear least squares technique for India. Wagmare and Khetan (1971) have used the quarterly data and the industrial output is taken as a proxy for national income. As the quarterly national income figures are not directly available for India, the estimates of the income coefficients in such quarterly money demand models have to be taken with caution. On the other hand as in Mammen's (1970) study, if non-linear least squares are applied to annual data, as the number of observations are not large enough in the sample space, the parameter estimates are also subject to statistically anomalies. In Sharma's (1978) demand for money studies for India, as his reduced form equation is over identified, the technique that he has adopted to estimate the parameters will not necessarily yield a unique solution. So in the Indian context one has to look for some alternative econometric techniques.
to accommodate for both adjustment and expectation lags.

As it has been stated earlier, when the nominal interest rate is cast as the relevant opportunity cost variable in the demand for money function, it implies the acceptance of Fisher hypothesis of the positive relation between nominal interest rates and inflationary expectation with an additional assumption that bonds and real assets are perfect substitutes to each other. If, on the one hand, demand for money function has adjustment lags, or on the other hand, if the assumption of perfect substitutability between bonds and real assets has to be relaxed, the best procedure is to test Fisher hypothesis directly by taking the nominal interest rate as the dependent variable and inflationary expectation as the independent variable. And this is a missing link in Indian monetary literature that even though high inflation and the variability of it have been important phenomena, their impact on nominal interest rates from the point of view of macro-theories like Fisher effect has not been paid enough attention.

The present work makes an attempt to partially resolve the above outlined issues both from the theoretical and empirical angles and specifically focuses attention on the following aspects:

(1) To examine the definitional problems regarding the monetary aggregates in India in general and evolve an
alternative empirical approach.

(2) To examine the specification aspect of the demand for money function in India by introducing alternative variables representing scale variable and opportunity cost variable. In the light of the recent monetary experience, variables representing inflationary expectation and variability of inflation are also considered in the said relationship.

(3) To examine the stability of the money demand relationship in each specification.

(4) To examine the relationship between inflationary expectation and nominal interest rates, relaxing the traditional assumption of constant real interest rate, for some selected interest rates of India.

The Chapter Scheme for examining the above issues is given below:

First chapter deals with the definition of money from various theoretical angles. This chapter is mainly a critical survey of the theoretical contributions in this area. We examine first, the genesis of the medium of exchange function like uncertainty, cost of information etc. We begin with Clower's (1974) criticism of the absence of the medium of exchange function in Walras's general equilibrium model and Morishima's (1977) defence of "Walrasian method of monetarising the growth process". Regarding 'uncertainty' as the genesis of the medium of exchange function, we critically
present the views of Goodhart (1975) and Davidson (1972), supporting 'uncertainty' thesis and Brunner and Meltzer (1971) opposing that thesis. Then Peake and Saving's (1967) distinction between money and debt on the basis of the doctrine of 'net wealth effect' and Laidler's (1969) objections to rejecting time deposits which yield interest as not money are discussed. We deal with the additive separability of the transaction and asset motives in Keynesian theory from the points of view of various authors. We discuss Hicks's (1979) difficulty regarding the problem of converting the stock relation or balance sheet relation into flow relation when we look into money as a liquid asset in relation to flow variables like income and interest rates.

Second chapter deals with the empirical definition of money in India. For empirically defining money, there are, broadly speaking, four approaches: (1) definition of money which conforms to a stable demand function for money, (2) the ability of a particular definition of money based on Friedman - Meiselman (1963) dual criterion to explain aggregate nominal income, (3) the cross - elasticity of substitution criterion, and (4) definition which uses Factor Analytic techniques. This chapter using Factor Analysis empirically arrives at the definition of money by examining the movements of the financial variables over time. Monthly data from 1952 to 1975 have been utilized.
The data series has been deseasonalised through Wald's (1936) Moving Regression Coefficient Method. For the deseasonalised data we have examined: (1) Monthly growth rates, (2) Trends based on a fourth degree polynomial, and (3) Cycles. The monthly deseasonalised variables that we used are: (1) Currency, (2) Demand deposits, (3) Time deposits, (4) Bank Credit, (5) Bank Reserves. We have employed the Principal Components Analysis and Vari-Max Orthogonal Rotation to solve the Factor Analysis problems of the deseasonalised monthly growth rates and Cycles of those financial variables and examined their movements over time.

Third chapter employs directly the Friedman - Meiselman dual criterion for empirically defining money and examines close substitutability, if any, across the financial variables. These issues are also examined in a dynamic framework.

Fourth and fifth chapters try to define money through the estimation of the demand for money functions. After highlighting the theoretical and empirical underpinnings, fourth chapter critically evaluates the various approaches adopted in the demand for money studies in India. In the fourth chapter, by utilizing the annual data for the period 1951-52 to 1976-77 and postulating alternative specifications, the demand for money functions are estimated both for $M_1$ and $M_2$ definitions of money (in real terms).
We have used both the current real income and permanent income as scale variables in two separate equations. Permanent income used in the fourth chapter is exogenously taken from the one that we have constructed endogenously in the fifth chapter. In fourth chapter first a preliminary investigation is conducted to choose the appropriate opportunity cost variable – interest rate from a spectrum of different interest rates using only linear demand for money functions – the results of which are given in the appendix to fourth chapter. A weighted 12 month deposit rate given by Suraj Gupta (1979) has been found to be better performing interest rate as the relevant opportunity cost variable. This particular interest rate is used for further detailed study of the estimation of the demand for money functions for the search of appropriate functional form and stability of the parameters. We have in order to examine the lags in the adjustment process between actual and desired money balances, postulated a partial adjustment model. Monetary theory does not provide any clue as to the appropriateness of the chosen functional form. For example to include the rate of interest in a linear-relationship suggests that its effect is merely additive to that of other variables and that its importance as a determinant of the demand for money declines as the money stock increases. So we postulate a Generalised Money Demand Functions (GFF) which is based on
Box - Cox power transformation in the fourth chapter. The GEF, it is believed, would reduce the arbitrariness of the chosen functional form.

\[ M_t^\theta = \beta_0 + \beta_1 Y_t + \beta_2 X_t + U_t \]

\( M^* = \) desired real money, \( Y = \) real income, 
\( r = \) interest rate, \( t = \) time period

\[ M_t - M_{t-1} = \lambda (M_t^\theta - M_{t-1}^\theta) \quad \text{where}, \quad 0 \leq \lambda \leq 1 \]

\( \theta \) is a power transformation.

\[ M_t = \alpha_1 + \alpha_2 Y_t + \alpha_3 X_t + \alpha_4 M_{t-1} + V_t \]

where: \( \alpha_1 = \lambda \beta_0 \), \( \alpha_2 = \lambda \beta_1 \), \( \alpha_3 = \lambda \beta_2 \), \( \alpha_4 = (1 - \lambda) \), and \( V_t = \lambda U_t \)

Box - Cox transformation is

\[ M_t^\theta = \left( M_t - 1 \right)^\theta \]

Different values of \( \theta \) generate different functional form.

Thus we have \( \theta = -1, 0, 1 \) respectively give rise to reciprocal, log - linear and linear specifications. The parameter \( \theta \) is estimated through Maximum Likelihood principle and compared with a priori chosen functional forms through log - likelihood ratio tests.
As the next step we have examined the stability of the generalised function through Varying Parameter Regression approach (VGFF). This chapter gives many interesting answers to questions like which specification, with or without partial adjustment, with which interest rate—short or long, with which income—current or permanent, which definition of money narrow or broad, gives the stability of the parameters of the demand for money function. And also whether the transformation parameter \( \theta \) is different for income variable and interest rate variable, whether the Generalised Functional Form is significant by different from a priori chosen forms like linear, log-linear etc. Another interesting question which may be answered is that whether some of the general postulates which are taken for granted in monetary theory, like unit elasticity of real demand for money with respect to income and the negative sign of the interest rate coefficient (while Keynesians take negative interest rate coefficient for granted, monetarists keep it as an open empirical issue,), can only be empirically supported through a search for suitable functional form or whether the same theoretical conclusions can be corroborated by a reasonable remoulding of the functional specification? And last but not the least, in a footnote in the fourth chapter, we discuss the theoretical and institutional conditions in the particular context of Indian economy.
under which the statistical assumption of the exogeneity of the independent variables in single equation money demand functions can be justified.

In the fourth chapter when interest rate was taken as the opportunity cost variable, one of the implied assumptions was that the changes in the nominal interest rates adjust to changes in inflationary expectation. This particular implied assumption is, of course, more in line with Quantity theory and Fisher hypothesis than with Keynesian theory. In Keynesian system it is not necessary to treat financial assets like bonds as close substitutes to real assets. In Quantity theory the financial assets like bonds are treated as more or less close substitutes to real assets. Suppose nominal interest rate does not adjust to inflationary expectation, or if there are lags in such adjustment, then there is some justification for taking inflationary expectation also in addition to interest rates in money demand functions. On the other hand, if the real interest rate is constant, and nominal interest rates adjust fully to inflationary expectation, instead of interest rates, inflationary expectation can be used as the opportunity cost variable in money demand functions. Some of these implied hypotheses are considered testable hypotheses in chapter five by taking inflationary expectation as the opportunity cost variable. This has also been necessitated due to other
considerations like India's capital markets are said to be undeveloped and interest rates are administered and pegged rates. The unobservable variable, inflationary expectation has been generated by Cagan's (1956) adaptive expectation hypothesis, estimated through a method suggested by Solow (1969). The details of this method are given in chapter five. This particular method of generating inflationary expectation variable has many advantages over other adhoc methods, like taking just the average of past rates of inflation. In India very few people have used this method - Kawrah and Paul (1979), Trivedi (1979) have made some attempts in this direction.

Also, in view of the recent debate as to the importance of the variability of inflation in the monetary relations, and looking into the recent Indian empirical experience in this respect, we have restructured the demand for money specifications accordingly considering the variability of inflation. In the light of recent literature, it is well known that if the variability of inflation affects the demand for money relationship, inflation produces not only distributional effects, but also allocation effects. The quality of real money balances may undergo changes. It has got welfare implications too. The alternative specifications are also examined for their structural stability through Varying Parameter Regression approach.
Recent evidence indicates the superiority of adopting Varying Parameter Regression, for testing the stability of parameters in a regression relation, over other methods, like Chow test and Brown-Durbin-Evan's Casum of Squares test (1975), both in terms of the small sample criteria as also the efficiency of the parameter estimates.

In Chapters four and five, when the opportunity cost variable of demand for money function was cast either in terms of interest rate alone or inflationary expectation only, some indirect assumptions were made regarding the impact of inflationary expectations on nominal interest rates. In chapter four when the opportunity cost variable was cast in terms of interest rate only, the indirect assumption was that the nominal interest rates adjust to inflationary expectation. In the fifth chapter when inflationary expectation alone was cast as the opportunity cost variable, the implied assumption was that real interest rate was constant. These assumptions are made testable hypotheses in chapter six by a comprehensive study of Fisher hypothesis regarding the relation between nominal interest rate and inflationary expectation. We have also relaxed the assumption of constant real interest rate in the study of Fisher hypothesis, by considering factors which might have caused changes in real interest rate, like
"Friedman Effect" - i.e., the negative effect of the variability of inflation on real interest rate; "Phillips Curve Effect" - i.e., when the rate of income growth is higher, its effect on real interest rate is negative.

"Keynesian Liquidity Effect"; "Hicks L.M. Curve effect" - i.e., when real income level is higher, interest rate levels are higher. We have also considered the lagged effect of previous year's interest rate on current rate. The interest rates that we have studied are Call Money Rates, Bazar Bill Rate and 12 Month Time Deposit Rate. We have tried to remove the first order auto-correlation through an auto-regressive transformation.

In Seventh Chapter general conclusions along with policy implications are highlighted.
DEFINITION OF MONEY - SOME THEORETICAL ISSUES
CHAPTER - 1

Definition of Money - Some Theoretical Issues.

This chapter is a critical survey of the various theoretical concepts regarding the definition of money. It examines the geneses of the functions of money beginning with medium of exchange, like the trading costs, costs of information, uncertainty net wealth which bears no interest etc. Whether those theoretical schemes are capable of distinguishing money, is an important issue from both academic and policy points of view. We touch upon also the separability between various functions of money like the medium of exchange and store of value. In store of value function, the problems of defining liquidity are discussed. Finally how some of the theoretical enlightenings lead to empirical definition schemes of money are discussed, for example the 'substitutability along the demand curve for liquid assets'. The differences of approach between Keynesians and money are also highlighted with regard to the definition of money.

Medium of Exchange

Monetary theorists disagree on the geneses or the fundamental causes from which the medium of exchange function has emanated. Clower (1971) thinks that the transaction cost is the major factor which necessitates the medium of exchange function of money.
He finds that in Walrasian exchange economy, there is no money primarily because there is no transaction cost in Walrasian economy. Clower (1971) argues, "The main difficulty in the past has been for monetary theorists to emancipate themselves from preconceptions carried over from conventional value theory, the whole of which rests on an essentially conception of exchange as a virtual process in which the trading plans of a set of individuals are costlessly coordinated by a central authority whose only explicit function is to determine a vector of exchange rates that will permit individuals to carry out, at least in principle, a series of mutually consistent and beneficial barter transactions. This conception of market exchange precludes assignment of a specialized role to any single commodity as a means of payment, for its logic implies that any good may be traded directly for any other good, which is to say that all commodities are perfect substitutes as means of payment. The natural consequence is to divert attention away from the function of money as a medium of exchange and to focus attention instead on its function as a store of value."
From here it is but a short step to the conclusion all assets are 'more or less money' and hence that the definition of money is an empirical rather than a theoretical problem."

Even if trading costs are present, there may not necessarily exist a positive demand for money. This is because, as a technical matter, an individual can always reduce his average holdings of money to any desired level by synchronizing his sales and purchases in organized markets that money receipts are almost instantly reflected in money expenditure. However, as Glower argues that, if trading costs are U-shaped functions of average holdings of commodity inventories, it is easy to show that individuals will not normally aim at perfect synchronization of purchases and sales. This implies the positive demand for money.

* One lone economist Morishima (1977), however, has tried to defend Walras's treatment of money, "Walras was rightly of the opinion that the function of money as a store of value can be explained, not by introducing it into exchange (or productive) model, but by monetarizing real growth theory. In Walras's model the demand for cash is a way of saving and is very much related to investment in commodity inventories; there is no demand for money in the Walrasian sense in the system of pure exchange and that of simple reproduction, "since there is no place for savings and investments in these systems. This is an important characteristic of Walras's view of money; there may be a numeraire in a static timeless system of exchange and production, while money can appear only in dynamic system in which individuals and firms are allowed to save and invest ....... Thus Walras's money theory is related, in an intrinsic way, to the theory of saving, the theory of inventory investment, the theory of portfolio selection and so on". Morishima admits that the medium of exchange function of money in Walras is relegated to the background, however.
for purposes of exchange, so money is considered one among many inventories and average holdings of money for trading purposes are determined jointly with average holdings of all other commodities. Then, of course, the factors governing desired holdings of money and other inventories will include, among other things, current holdings of inventories, desired average rates of production and consumption of each commodity, actual and imputed rates of interest and anticipated rate of change of prices. Another point of controversy comes with Clower's assertion that, to formulate an explicit formal model that accurately portrays the dynamics of individual or market behaviour in a monetary economy is obviously a difficult task, so difficult that it has yet to be carried out for any but special cases. And a related problem is to come to grips with situations in which money consists of currency, demand deposits and trade credit, the last item being used in business transactions, with a controversy as the eligibility of the trade credit to be included in money definition or not. The reason Clower advances to the co-existence of the different kinds of means of payment is that trading costs will depend to some extent on modes of payment and that trading cost functions associated with one mode of payment normally will not lie uniformly below trading cost functions for other modes. But, of course in equilibrium conditions the proliferation of payment modes in an actual economy typically entails the use of one kind of money as reserves for others.
However, the point that Clover emphasizes is that the pyramiding of monetary instruments can become crucially important in situations of monetary disequilibrium and that we do not know often enough of such disequilibrium processes even in a monetary economy and hence the inability of the monetary theory to give clear directions to those who formulate the policy issues. And in disequilibrium states, the technology of money exchange becomes important and a related issue is whether the ways in which new supplies of money were injected into economy led to different initial results and different final results, on which Clover and monetarists stand on the opposite sides and in any case this is an empirical problem. Johnson’s (1971) views regarding Clover’s opinion about the inadequate knowledge of the monetary process is that this not having the necessity for the knowledge of all that institutional arrangements has been the strength of the monetary theory and that it has concentrated on general principles of analysis of a monetary economy on the assumption that such an economy exists in reality and has not allowed itself to be captivated by the fascination with institutional detail that so frequently blinds policy practitioners to the real nature of what they are doing. And regarding the contention of the trade credit, especially the unused trade credit to be included in money definition, a point which Johnson argues to the
contrary is that, even granting that an unused overdraft facility or an unused trade Credit enables one to buy goods that one could not afford to buy from normal flow of income, but when compared to money balances the use of overdraft facility or trade credit entails the accumulation of a debt that one eventually should repay. But then it is the question whether one gives emphasis on the transaction function of money and the ability money furnishes to acquire goods without providing other goods in exchange in the context of which even trade credits are not unimportant, or to consider money as an asset that one can exchange for goods without incurring a debt and a repayment obligation in which context trade credits can be excluded.

Fisher (1978) agrees that 'the struggle to define the transaction role of money has been a mighty one.' Now we can examine the role of uncertainty as the genesis of medium of exchange function of money. Firstly uncertainty and secondly cost of information are said to be the fundamental causes for transaction role of money. Goodhart (1975) says, "the need for money, as a means of payment, is caused by the existence of uncertainty. The main function of money defined as a specialized means of payment is caused by the existence of uncertainty. The main function of money defined as a specialized means of payment is to meet and alleviate problems of exchange under conditions of uncertainty and transaction
cost mainly, if not entirely, reflect the cost of obtaining information (i.e. reducing uncertainty.) Davidson (1972) has also written that, "It is the synchronous existence of money and money contracts over an uncertain future which is the basis of a monetary system whose maximum is 'money buys goods and goods buy money, but goods do not buy goods.'" And the presumed uncertainty which is the cause for transaction role of money cannot be expressed in a probability distribution. Now we are confronted with a problem of defining what type of uncertainties are the causes of the transaction role of money. Brunner and Meltzer (1971) state: the different types of uncertainties, but try to disapprove the argument that the uncertainty is the genesis of the medium of exchange function of money, "Uncertainty about the price level clearly presupposes money otherwise there would be no price level to be uncertain about. . . . . . similarly uncertainty about the timing of payments and non-synchronous nature of payments schedule only imply the existence of an inventory problem but do not explain the concentration of these inventories on a small subset of assets." Brunner and Meltzer base the case for the existence of money on its special ability to provide information to transactors. Niehans (1969) points out that some may argue that all transaction costs are really cost of gathering information. . . . . It may be better not to be dogmatic about this. Ostroy (1973) constructed a transaction theory of money which also did not depend on uncertainty.
Ha said, "price uncertainty is neither necessary nor sufficient to explain the presence of a medium of exchange." He also depends on money's information providing capacity.

Another related issue is the separability of the medium of exchange and store of value functions of money. Pesek and Savin (1967) put the same question, "if no one holds money where will the transactions acquire money needed for transactions? Money becomes the proverbial hot potato; as the time during which money is held in between transactions approaches zero, the price of money approaches zero, the general price level approaches infinity. Given the relationship between the price of money and the real value of money, money ceases to exist." Whether actually, Keynes meant the separability of the transaction demand and the speculative demand is a disputable point. Keynes (1936) has written that "... money held for each of the three purposes forms; nevertheless, a single pool which the holder is under no necessity to segregate into three water tight components; for they need not be sharply divided even in his own mind, and the same sum can be held primarily for one purpose and secondarily for another." Many Keynesians have accepted the additive separability, Tobin (1954) Bronfambrenner and Mayer (1960) have gone a step further by separately estimating the transaction and 'idle' balances.

\[ M_1 = \frac{GNP_t}{V} \]
Where $V^*$ is the highest recorded annual velocity of real (Narrow) money balances in the series. What is wanted is the fluctuating transaction velocity.

A view regarding the preponderence of the medium of exchange function has also emerged from the contributions of Pesek and Saving (1967). Money is contrasted with debt, where the debt pays interest while money does not. Debt is an asset to some and liability to others and it is not net wealth whereas money is net wealth. But W. Smith (1970) pointed out that if government debt which is interest bearing is also not regarded as one of their liabilities by private wealth holders, then an open market operation results merely in an exchange of one asset for another and not in any obvious conclusions about the change in net wealth as a consequence of monetary policy. If we make both fiat money and government debt liabilities i.e. if the individuals expect the Government to payback its loan of money by means of tax revenues, they get cancelled. Only to the extent that government debt is considered a private liability, while fiat money is not, will a clear case for 'net wealth effect' from open market operations emerge. This also leads us to the distinction between what is called 'inside money' and 'outside money'.

Laidler (1969) joins an issue with Pesek and Saving (1967) whether there would be any net wealth effect in the case of time deposits or any such deposits which pay interest rate.
Here we are confronted with an interesting subtle theoretical problem regarding the applicability of the micro-economic concept of marginal units to interest rates as well. Laidler (1969) refers to a passage from Pesek and Saving (1967) "When demand deposit money starts to pay the market rate of interest, the price of this money is reduced to zero. This may be seen best by considering a consumer who wishes to borrow twenty dollars worth of demand deposits. Before the introduction of interest payments, such a loan would cost him one dollar per annum (at a market interest rate of 5 percent) and this expense would be justified by the imputed income (also equal to $1 according to Pesek and Saving). After the introduction of interest payments, this item will now also yield one dollar per year in interest payments so that the net cost of borrowing it has been reduced to zero; thus, the price of it has been reduced to zero. Need one to add that, as long as this item continues to serve as money a source of purchasing power, the demand for it will be insatiable? ......." Then Laidler (1969) replies, "First it should be obvious that it is only on the marginal unit of demand deposits that the return must be equal to the market rates of interest so that the imputed income to twenty dollars of cash balances will exceed $1 when the market rate of interest is 5 percent. Second, the confusion in this passage between the marginal utility of the services of money, on the one hand, and the price of money on the other
hand should be self evident, as should the fatal ambiguity of the conclusion that the marginal utility of the services of demand deposits can only reach zero if the "item" ceases to serve as money. It is only the marginal unit of demand deposits that will cease to yield any return as a means of exchange, not demand deposits in general .

"In the first place the conclusion of Pesek and Savings that the introduction of time deposits and other financial assets have no net wealth effect in the economy rests on a failure to distinguish between average, marginal and total values of variables. It is only from the marginal units of such assets that there is no net gain for it is only the marginal unit that is held for the interest it bears. All intra marginal units presumably yield a flow of amenities to their holders in addition to the interest they carry. If they did not it would not be possible for an institution to intermediate between borrowers and lenders by ussing such assets."

In this context, we would like to point out that it is difficult to apply Laidlers' marginal unit analysis in the case of the interest rates on time deposits. If the interest rate on time deposit is stopped, will only the marginal units of time deposits - be withdrawn? And if that is so, it is against the a priori rational because why to
And if the entire time deposits are withdrawn when the interest paid on them is stopped, Leidler's own argument will lead to the conclusion that there would be no net wealth effect from time deposits.

Newlyn's (1972) definition of money that if the asset in question can be employed in exchange for commodities or factors of production without affecting the market for loans, not only leads to a convergence towards Peisk and Savings's definition of money, but also more or less to a medium of exchange definition. But Friedman and Schwartz (1963) argue that neutrality in Newlyn's scheme is at the cost of irrationality on the part of the person who acquired or departed with funds. If a person changes his demand deposits into currency, the bank reserves will fall in a fractional reserve system and when banks sell securities to replenish the loss, the interest rates will rise. And Fisher (1978) says "In Newlyn's scheme to define money depends on adventitious institutional details or, worse, on deliberately neutralising government policy after all".

Store of Value

We encounter a difficult problem of converting the stock relation or balance sheet relation into a flow relation when we look into money as a liquid asset in relation to flow variables like income and interest rates. The Classical...
Neo-classicals have the velocity bridge. But when we study the Keynesian liquidity preference theory, we are not having the velocity bridge to link the stock and flow. Can this difficulty be overcome by averaging various stocks of money approximating to a flow? Hicks (1979) answers in the negative by introducing the 'Expectation paradox' in his chapter on 'Contemporaneous causality in Keynes'. He writes, "For it is not at all easy, in this case to fall back on the Equilibrium method. We cannot escape by saying that if things turn out as expected, then expectations (which have turned into experiences) are unchanged. For an essential characteristic of liquidity is that it is a matter of uncertain expectations. The expectations relating to April that could be formed in January were uncertain expectations; but when April is past, the experience relating to April which have replaced them are certain. Thus we cannot avoid the transition in the present form uncertainty to certainty; past and future are inherently different and cannot be averaged. For this reason alone we seem driven to the conclusion that equilibrium method applied to liquidity over a period will not do. . . . . . . . . the weakest part of the Keynesian model is, after all, the Liquidity preference relation, which from other points of view, perhaps more important point of view is its characteristic feature-Liquidity, it turns out is not at home with Equilibrium; and is, therefore, not at home with Contemporaneous Causality". 
The store of value function of money draws money into a whole close range of financial assets. The problem of close substitutability between money and the wide range of alternative financial assets provided by government debt and the obligations of financial institutions creeps in. It approximates to the Keynesian view that it is difficult to identify a subset of assets as money 'Pure', and the views associated with Gurley and Shaw (1960) and the Radcliffe report (1959) are well-known that money is not especially unique in being liquid asset and even if its supply is reduced, the public will have enough near money assets. There are both theoretical and empirical problems associated with the meaning of 'liquidity'. The first idea connected with liquidity is ready availability of the asset at a well-defined market price (Hicks). The second, a priori definition of liquidity is 'the ability to sell an asset on demand for a nominal sum fixed in advance'. By the second scheme not only currency and demand deposits but also time deposits and treasury bills are liquid.

The empirical literature which is related to the liquidity problem is the "Substitutability along the demand curve for liquid assets". All assets are, in the ultimate analysis, substitutes for one another. But the degree of substitutability becomes an empirical problem, depending on the scheme on which substitutability is really measured. There is no unanimity on the scheme to be adopted and hence, most often
conflicting empirical evidences are also found out. One such study was of Feige (1971) in which cross elasticities of the demand for demand deposits suggested that demand deposits might even be the complements of savings and loan deposits.

Feige extended his study by use of both covariance model and a random coefficient model and concluded, mainly, that commercial bank time deposits are a weak substitutes for demand deposits. On purely empirical grounds, such as temporal instability, multi-collinearity etc; Feige's study was not perfect. Moroney and Wilbratte (1972) on Chetty's lines (1969) found that if identical variables are entered in a utility function or a transactions constraints having the same parametric form, the alternative behavioural models yield identical derived asset demand equations, and also introduce a technological transaction constraint and find no significant difference between substitutability of time deposits and that of either short or long term government loans for demand deposits.

The monetarists position regarding the definition issue can be summarized in Friedman and Schwartz (1963) as, "It is an empirical generalization that this is not the case, there is a subtotal (labeled 'money'), for convenience which is useful to distinguish because it is related to other economic magnitudes in a fairly regular and stable way, though it's particular content may be different from place to place or time to time. This empirical generalization underlines the distinction between price theory and monetary theory a distinction that has been central in economic analysis for centuries".
And finally, taking for granted the underlying monetary relationship and estimating the demand for money functions itself is recognized as a way of empirically defining money. As Laidler (1969) has put it, "How one can only define what is meant by a 'sufficiently close substitute if he will specify the problem with which he wishes to deal and as far as the definition of money is concerned the most important issue has been the identification and measurement of a stable aggregate demand for money function ....... A 'more stable demand function' is precisely one that permits the consequences of shifting the supply of money to be more easily and accurately predicted."

To conclude many questions regarding the genesis of the functions of money and the definition of money are still open to discussion and no clear consensus has emerged. Many reasons like uncertainty, cost of information and trading etc. are advanced even for the primary medium of exchange function of money. There is no unanimous opinion on the question whether trade credit should be included in the money which is characterized for its medium of exchange function. If one gives importance only to the transaction role of money and the ability money furnishes to acquire goods without providing other goods in exchange in the context of which even trade credits are to be considered money. On the other hand, if we consider money as an asset that can exchange for goods without incurring a debt and a repayment obligation in which
context trade credits can be excluded. From which particular monetary aggregate there is pure net wealth effect and hence becomes true money is also a question which has yielded no uniformity of opinion. Laidler's criticism of Pesek and Saving's views that time deposits may produce net wealth effect because only the marginal units of time deposits are held by the public purely for the interest which is being paid on them, and intra-marginal units of time deposits are held not only for the interest that is paid but also for conveniences and hence there is a surplus, is also a point which needs further analysis. If the interest is not paid on time deposits there is no surplus satisfaction which prevents people from converting the entire time deposits into demand deposits which are having evidently more liquidity.

Whereas people like Clower plead guilty for the inadequate knowledge of the details of the monetary processes in an actual economy, monetarists concentrate on general principles of analysis of a monetary economy on the assumption that such an economy exists in reality. For example, the question whether the ways in which new supplies of money were injected into economy led to different initial results and different final results is relevant in this context. Keynesians may believe that they may lead to different results. As is well known, the monetarists believe that money is related to other economic magnitudes in a fairly regular and stable way.