CHAPTER II

THEORY OF MONEY AND MONETARY POLICY

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CHAPTER II.

THEORY OF MONEY AND MONETARY POLICY.

Introductory:-

Understanding the role of money in the economic system and explaining and devising ways to control its influence on the economy has been one of the most fascinating subjects in the science of Economics. Since monetary theory is concerned with explaining "how money affects the economy"[1] and, therefore, essentially - involves taking an overall view of the economic system, there has inevitably developed a system of thinking which takes recourse to a number of approaches in order to understand the same problem or arrive at the same conclusion. A.Lindbeck has thus been led to observe that "monetary theory lives several separate lives in economics".[2] Milton Friedman on the other hand holds that "the basic differences (now) among economists (in regard to theory of money) are empirical, not theoretical".[3]

This empirical overtone of monetary theory should augur well for the processes and problems of monetary

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1. Harry G. Johnson "Monetary Theory and Policy" in "Essays in Monetary Economics" George Allen & Unwin (1969) P. 15.

2. A. Lindbeck - "A study in monetary analysis" Almavist & Wiksell, Stockholm (1962) P.9.

3. Milton Friedman - "A theoretical framework for monetary analysis" - Journal of political economy, (March-April, 1970). P. 234.

policy-making. As Johnson has so well surmised "there is probably no field of economics in which the writings of economists are so strongly influenced by both current fashions in opinion and current problems of economic policy as the field of monetary policy".[1] Hicks putting the issue in a historical perspective rightly observes that "a large part of the best work on Money is topical ... topicality is one way in which monetary theory is historically conditioned ... monetary theory is less abstract than most economic theory ... it cannot avoid a relation to reality ... Monetary theory arises out of monetary disturbances".[2] Going about on these lines of reasoning one may argue that monetary theory is older than most economic theory and adduce in evidence the vast literature both in theory and policy making.

Throughout the long period of history of economic thought one common basis of enquiry has been the manner in which money permeats its influence in the economy - the 'transmission mechanism'. The use of such a term presupposes and endows money with an element of exogenity. This exogenity inhers in the 'peculiar optionality'[3] of money and as Culbertson observes "if the -

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1. Johnson Ibid P. 75.

2. J. R. Hicks "Critical essays in monetary theory" Oxford (1967) P. 156.

3. As Culbertson puts it : "Our thinking so will not make coal serve as food or make the ant a means of transportation but it will confer the function of money upon almost anything whatever".

performance of the system depends importantly upon its money supply function which depends upon what serves as money and this choice is determined by no discipline or logic - then a curious gap is opened in the logic of the economic system".[1] It is probably towards the filling up of this 'gap' that we have had hypotheses ranging from the neutrality and non-neutrality of money to its proper definition; the distinction between 'outside' and 'inside' money and so on.

Post-war developments in both monetary theory and policy have been fascinating and rewarding and examining their relevance to the underdeveloped countries may be a more rewarding task. It is neither necessary nor logical to be oblivious to these developments merely on grounds of difference in institutional characteristics of the two groups of countries as was the fashion some two decades before.[2] Quite the contrary, it is now recognised that even within the group of developed countries the transmission mechanism may be unique to each monetary system so that the choice between one strategy and another would remain "a matter of political attitudes and the technical efficiency of the different measures in local circumstances".[3]

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1. J.M. Culbertson "Macroeconomic theory and stabilization policy" - Mc Graw Hill (1968) P.146.
2. K.N. Raj, "The monetary policy of the Reserve Bank of India" (1948).
3. R.F.G. Alford in "Money in Britain, 1959-1969". David Croome and Harry Johnson (Eds). Oxford (1970) P. 232.

Hicks has well pointed out that "it is useful to recognise that pre-Keynesian monetary economics was not monolithic ... some of our present differences echo much older differences. We still have a Currency School seeking ... for a system that shall be automatic. It is represented over its long history not only by Lord Overstone and his friends but by Ricardo himself; not only by Mises and Hayek and Friedman but by Pigou. The Banking School has greater names upon its roll than Tooke, Mill and Bagehot ... Hawtrey and Robertson as well as Keynes ... (and) there is and has long existed another wing which (not only) believes in monetary management but also believes that it is necessary to be eceletic in the kind of management and the means of management that are to be used in each particular situation".[1]

The above surmise being true it must be noted that the whole of pre-classical and classical thinking was concerned with varying emphasis, with the transmission of the effect of variation in money (supply) on volume of trade, output, employment, prices and even the way in which the new money was distributed between different groups in the economy. The neo-classical phase was one of consolidation and rationalisation of much of the earlier thinking. As Hicks looks at it; "monetary theory did get a bit ossified in its neo-classical phase; (the reason being) in that phase, there seemed

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1. J.R. Hicks, Ibid Pp. vii - viii.

to be no challenge; when Marshall could have responded to a challenge it was just not there, you could not get much of a kick out of bi-metallism!"[1]

The Quantity theory equations added elegance to existing body of monetary theory but whereas Fisher's contribution to monetary theory consisted precisely in a detailed discussion of the forces determining the - velocity of circulation of money and thus imparting a highly mechanical and institutional connotation to monetary theory, the Cambridge 'K' added behaviourism in the quantity theory approach but as Patinkin puts it "all too often this humanising (volition in Pigou's term) of the demand for money led to an undue concentration on the money market, a corresponding neglect of the commodity markets and a resulting 'dehumanising' of the effects of monetary changes."[2]

Keynes in the 'General theory' made an attempt to replace the mechanical treatment of velocity as a 'technological and institutional constant' by his theory of demand for money as an asset alternative to other forms of interest-bearing but less liquid assets. But the intrusion of the 'liquidity trap' in his demand function for money and his valorous utterings on the 'euthanasia of the rentier' made him de-recognise the influence of

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1. Hicks Ibid P. 157.

2. Don Patinkin, "Money Interest and Prices" Harper (1965). Pp. 166-67.

monetary policy, culminating into the present day controversy about 'money does' and 'money does not' matter. Keynes himself did not want to play down the role of money for he was cautious enough to regard absolute liquidity preference (implied in the liquidity trap) as a strictly "Limiting Case" of which he knew "no example hitherto" but which he thought "might become practically important in future".[1]

Post-war developments in monetary theory and policy :-

While our purpose is not to lay bare the connecting threads leading to the emergence of the 'Monetarist' approach based on a refined version of the traditional quantity theory as well as the 'portfolio balance' approach inherited from the 'Keynesian revolution', Johnson's summing up of these strands of thought as "an application of capital theory to monetary theory",[2] is highly representative of the whole process of development.

The Neo-Quantity theory approach :-

The Neo-Quantity theory approach owes a great deal to the contribution by Milton Friedman first in terms of his 'restatement' of the quantity theory of money, then through the 'monetarist'[3] interpretation of the monetary

1. J. M. Keynes "General theory of employment, interest and money" P. 207.
2. Johnson Ibid P. 74.
3. The term 'monetarist' stands for the approach which considers that the stock of money is an important and pervasive variable affecting economic activity. In his 'restatement' Friedman pointed out: "the quantity theory of money is a term evocative of a general approach rather than a label for a well-defined theory". The term 'monetarist' has incidentally become evocative of a well-defined theory but has often degenerated into polar positions such as 'money is all that matters'.

history of the U.S.A. (with Anna Schwartz) and now in his search of conditions for an 'Optimum Quantity of Money'[1]. The bearing of his analysis on policy making has been far greater in magnitude leading to emergence of issues such as 'monetary rule' vs. 'discretionary management', 'lagged effect' of monetary policy and other controversies.

Friedman's restatement of the quantity theory of money as being "not a theory of output or of money income or of the price level but a theory of demand for money" led him to write the money demand equation (in real terms) for an individual wealth holder as

$$\frac{M}{P} = f\left(Y, W, rm, rb, re, \frac{1}{P}\frac{dp}{dt}; u\right)$$ [2]

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1. Collections of his writings in "Optimum quantity of money and other essays" - Macmillan (1969) which according to him 'embody a single view of monetary theory' (vide P. v)

2. Where
   - M/P = demand for real money balances
   - Y = income
   - W = fraction of wealth in non-human form
   - rm = expected nominal rate of return on money
   - rb = expected nominal rate of return on fixed value securities
   - re = expected nominal rate of return on equities.
   - $(1/P)(dp/dt)$ = expected rate of change of prices of goods
   - u = portmanteau symbol.

Later he employed his concept of 'permanent income', in formulating the money demand equation. Permanent income is a weighted average of current and past measured incomes. This notion of expected yield on wealth takes into account both human and non-human wealth and being a weighted average for a long period renders the demand function for money more stable as permanent income is likely to fluctuate less than measured income.[1]

According to Friedman, the four determinants of the demand for money are (i) level of prices (ii) level of real income and output (iii) the rate of interest and (iv) the rate of change in the price level. The demand for money varies in direct proportion to the first two and in inverse proportion to the latter two determinants. The 'demand for money' equation fitted by Friedman to secular data of the U. S. economy for the period 1870-1954 was

$$\frac{M}{NP_p} = K \left(\frac{Yp}{NP_p}\right)^e$$

where

M = nominal stock of money

N = population

Yp and Pp = permanent nominal aggregate income and permanent price level respectively.

K and e = parameters.

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1. Expectations of individuals in regard to income play the dominant role. They are being adjusted in response to differences between previous expectations and the actual outcome. The constructed measure of permanent income (Ye) would then be -

$$Ye_t = Ye_{t-1} + \lambda(Y_t - Ye_{t-1})$$

λ = elasticity of expectations and $0 < \lambda < 1$.

The equation expressed permanent real balances per capita as a function of permanent real income per capita. The parameter e yielded a value of 1.8 which stands for the income elasticity of demand for money (income velocity). This implied that a one per cent increase in permanent income is expected to lead to a 1.8 per cent increase in the demand for money and on this basis money was declared to be a 'luxury good'. Using the permanent income variable Friedman was in a position to eleminate the procyclical variability of velocity and impart stability to the demand function exhibiting a secular decline in velocity.

One of the shortcomings of the Keynesian money demand hypothesis was its decomposition into 'active' and 'passive' components and it was soon realised that even transactions demand for cash would be interest-elastic. The opportunity cost of holding money represented interest forgone but if liquid funds are lent there is a cost (brokerage) to be incurred in purchasing and selling securities. These two elements and not some constant proportion of transaction balances to income would determine the amount that would be held by individuals and firms for transaction purposes. Such an approach developed by Baumol[1] and Tobin[2] yielded the

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1. W. J. Baumol "The transactions demand for cash : An inventory theoretic approach"; Quarterly Journal of Economics (1952) Pp. 545-56.

2. James Tobin, "The interest-elasticity of transactions demand for Cash" - Review of economics and statistics (1956) Pp. 241-47.

result that individuals economise in their use of money and there are economies of scale in the holding of money balances as income increases. The analysis thus supports a secular increase in the income velocity of money.

Gurley and Shaw[1] in their analysis of growth and 'security differentiation' pointed out that as output grows the ratio of (i) flow of primary security issues to national income as well as (ii) stock of primary security issues to national income would begin to rise i.e. 'issues of primary securities and the stock of these securities both build up rapidly relative to national income'. However these ratios eventually reach plateau levels. "If consumers desire to hold a constant proportion of their financial assets in money balances during output growth, the ratio of money to national income rises during the earlier stages of growth and then eventually levels off".

This line of reasoning thus points to a secular trend of income velocity of money which first falls and then stabilizes.

At one remove, the policy stance following from the impressive statistical findings of Friedman strengthened the earlier Chicago writings on 'Rules' as against 'Authority'. As he emphatically pointed out "(even) relatively small changes in the stock of

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1. J. G. Gurley and E. S. Shaw "Money in a theory of finance" (Washington, 1960) Pp. 129-30.

money, random in timings and size, may equally be an important source of instability ... and the system may not have a large tolerance for mistakes in monetary management".[1] At another remove, they found an extension in the controversy eoncerning the stability of velocity relative to the Keynesian multiplier[2] and later on in a broad manner the policy choice based on 'monetarism' vs. 'fiscalism'. In regard to the former part of the controversy, Friedman and Meiselman had reported in their study that relating variations in consumption to variations in money stock yielded a better statistical 'fit' compared to the variations in consumption as related to autonomous expenditure with the exception that during the 1930s sub-period the latter relation performed better. Commenting on the debate that ensued publication of these results, Johnson has observed that the exception of the 1930s sub-period should have been interpreted by a conscientious Keynesian "as confirming the master's insight" but instead of this "a number of them[3] were provoked

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1. M. Friedman, "The Demand for money; Some theoretical and empirical results" - Journal of political economy, August, 1959 - Pp. 327-51.

2. M. Friedman and D. Meiselman 'The relative stability of monetary velocity and investment multiplier in the United States, 1897-1958' in "Stabilization Policies" - a C.M.C. study publication - Prentice Hall (1963) Pp. 165-268.

3. Ando and Modigliani as well as M. de Prano and T. Mayer in American Economic Review (September 1965) Pp. 693-712 - D. D. Hester as well as Friedman and Meiselman in Review of Economics and Statistics (November 1964) Pp. 364-76.

into attempting to disprove the findings" and their efforts were generally vitiated by violation of the rules of the game as laid down by Friedman and Meiselman.[1]

The latter part of the controversy emerging as 'fiscalist' versus 'monetarist' approaches has its basis in deeper theoretical issues - the relevance of Quantity theory and Portfolio balance approaches or the conduct of monetary management in terms of money stock or interest rate variations and so on.

The neo-quantity theory approach of Friedman has given rise to some specific issues viz. (i) appropriate definition of money (ii) unimportance of interest rates in the money demand hypothesis (iii) the 'transmission mechanism'; and the policy-related problems of (iv) 'lag' in the effect of monetary management as also (v) the appropriateness of 'monetary rule'. Testing of the money demand hypothesis (country wise and on a cross country basis) was another outcome. A brief reference to each will be in order.

i) Appropriate definition of money :

Traditionally currency and demand deposits which are ready and instantaneous means of effecting sale and purchase constitute money. Time deposits are excluded from the definition of money supply on the ground that

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1. H. G. Johnson in "Money in Britain 1959-69" Oxford (1970) P. 87.

they are not spendable unless converted into cash or demand deposits. Friedman in measuring the money-income correlation with the U.S. data had defined money as inclusive of time deposits also on the grounds that (i) the ease and convenience afforded by time deposits are obvious enough for their being bracketed with demand deposits and that (ii) this wider definition yielded better statistical 'fit'. An additional practical reason was that separate data for time and demand deposits for all the years were not available.

There is something of a more basic reason in the choice of the definition by Friedman. The Chicago economists are inclined to look upon money as "something more than a medium of transactions; some thing which enables people to separate the act of purchase from the act of sale. From this point of view the role of money is to serve as a temporary abode of purchasing power".[1] Friedman is even willing to concede inclusion of other categories of near money assets or have some 'weighted aggregates of such several elements'. The definition chosen for statistical purposes by him was thus some thing of an 'intermediate total' as he puts it.

Such a wider definition blurs the distinction between money and other (interest bearing) assets and

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1. M. Friedman "The optimum Quantity ..... ". P. 74.
2. Ibid P. 264.

may prove embarassing for a theory of asset preferences. Newlyn has thus suggested that any item in the monetary total which can affect aggregate expenditure on goods and services without affecting the market for loans may be treated as money and the rest as near-money.[1]

The issue may partly be resolved by measuring the degree of moneyness of near money assets (through the cross elasticity demand method) and the definition decided empirically. The trend is obviously in search of an empirical definition of money.[2]

ii) Unimportance of interest rates:-

Although Friedman had earlier specified a broader demand function for money including interest as a variable, having used the wider definition of money and for statistical purposes he brushed aside interest rate as being important. It is argued that this result is due to the statistical methodology used but on a priori reasoning also it is not valid. When interest rates go up, including the rate on time deposits, the demand for currency and demand deposit falls but the demand for time deposits would normally increase. Now when the increase in time deposits is combined with the fall in currency and demand deposits the resultant variation in the total money demand with the wider definition will

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1. W. T. Newlyn "Theory of Money" Oxford (1962), P.1-11.

2. G. G. Kaufman "More on an empirical definition of money" American Economic Review March, 1969 - Pp. 78-87.

be much less than what would obtain under the narrow definition and hence the possibility of the finding of weak relation between interest and money demand.

Meltzer[1] in his testing of the money demand function with U.S. data and using both wealth and interest rate variables has shown that the demand for money varies inversely with interest rates and positively with the non-bank public's stock of wealth.[2] Several other studies have similarly yielded significant interest elasticity of demand for money. Exclusion of the - interest rate sharpens the cleavage between the quantity theorists and the advocates of the portfolio balance theory. We shall have more to say on this when we look into the portfolio balance approach and the issue of using interest rates as an Indicator for monetary - policy.

iii) The transmission mechanism :-

The neo-quantity theory built up on the ramifications of earlier crude versions; marshalling statistical data into evidence and abounding in strong assertions about uniformity of the relation between money stock and prices "being of the same order as many of the

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1. Allan H. Meltzer "The Demand for money: the evidence from the time series", Journal of political economy June, 1963 Pp. 219-46. Earlier, Latane had discovered strong negative relation between money demand and long term interest rate.

2. It may be noted that Friedman uses a measure of human and non-human wealth in his permanent income estimation while Meltzer uses a measure of non-human wealth.

uniformities that form the basis of the physical sciences"[1] naturally led to the demand for specification of the transmission mechanism.

Several efforts have since then been made by Friedman to provide such a specification. In his 1959[2] article he took the Cambridge gersion of the quantity theory mechanism as being more relevant. Later in his various writings he has offered the mechanism which is based more or less on adjustment between stocks and flows of assets in which money - plays a 'key role as a component of the stock of assets'[3]. The neo-quantity theorists are rather on weak grounds in regard to the transmission mechanism in the sense that they do not offer something which is essentially different from the Keynesian and portfolio balance analysis. As Patinkin has observed Friedman's title of a 'restatement of the quantity theory' is rather mislabelled. For "whereas Keynesian theory emphasises the relationship among stocks of assets (which is - Friedman's primary concern) neoclassical (and traditional Chicago) theory emphasised the optimal relationship between the stock of money and the flow of planned

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1. M. Friedman, 'The quantity theory of money-a restatement' in "Studies in the quantity theory of money" Chicago, 1956 Pp. 3-21.

2. Ibid. (Journal of political economy).

3. M. Friedman and Anna J. Schwartz "Money and business cycles" in 'Optimum quantity of money and other essays" P. 235.

expenditures".[1] H. G. Johnson in a similar vein suggests that Friedman's restatement should probably be interpreted as an appropriation of portfolio balance analysis on Keynesian lines for use against those Keynesians who have neglected the monetary side of Keynes' theory.[2]

We shall, therefore, do well to make a reference to the portfolio balance approach to monetary theory before we take up the policy related problems of 'lagged effect' and other issues.

The Portfolio balance approach:-

Having lineage with the Keynesian liquidity preference theory but more elaborate and comprehensive in nature and application is the approach developed by Tobin;[3] Gurley and Shaw and others to view the demand for money as a problem in optimal holding of assets (wealth) by an individual.

At the micro level this theory was earlier propounded as behaviour of an individual asset holder towards risk and making choice under uncertainty. But recasting of the theory in the general equilibrium context i.e. focusing attention on relative rates of return on and

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1. Don Patinkin "Money interest and prices", Harper and Row (1965) Pp. 81-82 f.n. 8

2. "Money in Britain - 1959-69" Ibid P. 88.

3. J. Tobin 'Money capital and other stores of value', American economic Review - May, 1961. Pp. 26-37.

possibilities of substitution among various assets comprising the portfolio, has made the theory broad based. At the more abstract level it involves the problem of adjustment between stock and flow variables of the asset portfolio so that a distinction has to be made between a change in the size and a change in the composition of the portfolio. But the underlying theory is clear enough that the demand for any asset, taken as a proportion of total assets, varies directly with its rate of return and inversely with rates of substitute assets. The demand for money varies directly with its own implicit rate[1] of return and inversely with rates of return on other assets. Hence when rates of return on alternative assets increase these are substituted for money and the ratio of money to total assets falls and conversely for a decrease in the rates. Monetary policy (a change in money stock) operates initially by changing the relative quantities of money and other securities and this sets in motion the process of substitution which in the far reaching end influences decisions pertaining to investment in real assets. Even trading of one type (selling short term) for another type (buying long term) of securities by the monetary authorities[2] with the public which would lower the long term rate of interest relative to

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1. Represented by 'rm' in the money demand equation given by Friedman (cited above).

2. As implied in the 'operation twist' of the Federal Reserve System.

short term rate would bring about a change in the desired composition of total assets including a change in the demand for capital goods. Such a substitution occurs, as is evident, without any change in money supply but which could not occur under the liquidity preference or neo-quantity theory approaches.[1] The implication is clear that the portfolio balance approach lays greater emphasis on using interest rates and condition of the credit and securities market as an Indicator for monetary policy.

One advantage of the neo-quantity theory over the Keynesian portfolio balance theory should be made explicit at this stage. The restated quantity theory takes account of expected changes in the price level as an element in the cost of holding money and other assets whose capital value and yield are fixed in money terms whereas the portfolio balance theory starts from the assumption of an actual or expected stable price level. Consequently when interest rates are used as an Indicator of policy it becomes difficult to trace the real rates of interest as influenced by price expectations. Whereas the 'monetarist' approach has thus to offer a mechanism explaining division of effect of change of money stock between price and output, the portfolio

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1. Thus it could be said that the asset composition of an individual under the neo-quantity theory is one which excludes money (so money remains an exogenous variable) while under the portfolio balance theory the composition is one which is inclusive of money.

balance approach has to incorporate a price expectation variable in the analysis. At the more abstract level recent efforts at incorporating money in growth model and the search for conditions of an optimum money supply are pointers in this direction. At the empirical level importance of recasting the models in terms of disaggregated general equilibrium approach has been duly recognised. Such models involve relationship between primary instrument variables (say money stock) intermediate financial variables (interest rates; credit conditions etc.) and the ultimate target variables (output or prices).

The theory of money supply :-

In the tradition of early formulations of quantity theory, Friedman considered money supply to be exogenously determined (so was the case with Keynes' liquidity preference theory also). The supply of money was thus explained by the money multiplier related to the reserve base; the reserve ratio observed by the commercial banks (determined legally or conventionally) and the ratio of currency and demand deposits held by the public (treated as an institutional datum).

The pioneering efforts by P. Cagan[1] towards - searching the factors that determine the ratio of - currency to total money supply revealed that in the U.S.A. expected real income per capita explained most

1. P. Cagan "The demand for currency relative to the total money supply", Journal of political economy, August, 1958 - P. 303-28.

of the decline in the ratio (between 1875 to 1919) while variations in the ratio from 1919 onward were to be attributed to changes in the net cost of holding currency instead of deposits and the rise in the ratio after 1955 in terms of rates of personal income tax.

The relation of change in currency ratio to personal income tax rate is more or less based on the tendency on the part of money holders to use relatively more currency for transactions and thus have some gains from tax evasion in the face of rising tax rates.

Such relation would appear more relevant for underdeveloped countries. Under Indian conditions stepping up of personal income tax rates may have likely contributed to a higher ratio of currency to money supply than warranted by the general process of economic growth and monetisation. Table 3(3) in Chapter 3 throws light on this. Two implications follow from this. One is that given the behaviour of fiscal authorities, monetary authorities have to estimate rate of expansion of money supply in terms of this behavioural relationship. Another is that rising personal income tax rates (and tax rates in general) and low interest rates on savings media such as bank deposits together constitute a drag on the saving investment process as well as the general growth of financial intermediation.

As Pesek has recently observed "The only genuinely

endogenous variable (in the money supply equation) is the Currency-deposit ratio. It has the task of summarising the tremendously complex forces exerted on the market by the public, the business sector and commercial banks. This heavy burden the ratio is unable to bear as is evidenced by the fact that no one has, as yet, specified in a formal manner the economic determinants of this ratio. All that we do have are verbal and expost speculations as to the probable causes of changes in it. This ratio rather than M is the true unknown in the system".[1]

In addition to this behaviour of individuals, the behaviour of banking institutions in terms of the actual and desired level of excess reserves has also to be taken into account. Meigs[2] and others found that the excess reserve ratio varied inversely with interest rates on loans and securities. Restrictive monetary policy raising interest rates would cause banks to reduce their excess reserves and thus reduce the effectiveness of policy. There is thus immediately a problem of incurring loss of reserves against an expansion of assets. Brunner suggested that this may be measured in terms of a 'loss coefficient'. Another problem is the expectation on the part of banks about the continuation

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1. B.P. Pesek "Bank's supply function and the equilibrium quantity of money" - Canadian Journal of Economics, August, 1970. Pp. 359-60.

2. J.A. Meigs "Free Reserves and the money supply" Chicago (1962).

or reversal of a given policy measure.

The implication of these explorations have been to suggest that the desired currency, time deposit and excess reserve ratios are not constants but are functionally related to levels of national income and market interest rates. The money supply equation could then be written as :

$$M = \frac{1 + C}{rd + rtT + e} R$$

where M = Money supply,

C = desired currency ratio

rd & rt = reserve requirements against demand and time deposits respectively,

T = desired Time Deposit ratio,

e = desired excess reserve ratio,

R = quantity of total reserve money (base money or high-powered money).

Variables R, rd and rt are determined by the Central Bank, C and T by non-bank public and e by banks. Hence money supply is determined partly endogenously and the Central Bank in designing its monetary policy has per force to take account of these behavioural constraints. This 'new view' in which banks are looked upon as sellers of securities rather than as 'creators of money' is in line with the portfolio balance approach. The simpler 'money

multiplier' approach implicit in the Quantity theory approach then does not provide a full basis for policy making.[1] The Central Bank behaviour subsumed under R being however, a predominant and much more influential variable in the equation the Quantity theorists do not attach much importance to this 'new view'. The position is more judiciously summed up by Johnson when he says "the 'new view' is long on elegant analysis of theoretical possibilities but remarkably short on testable or tested theoretical propositions about the way the economy works."[2]

Theoretical approach relevant to underdeveloped countries :

The foregoing pages provide a sort of sketchy account of developments in theory of money. How does one go about with them when considering them in relation to an underdeveloped economy? The issue as to which approach is more relevant could be decided on grounds of the current trend of opinion about accepting or rejecting a theory on the basis

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1. (i) J.Tobin - Commercial banks as creators of money in Deane Carson (Ed.) "Banking and Monetary studies" Irwin 1963 Pp. 408-19.
   (ii) Also Gramley and Chase "Time Deposits in monetary analysis" Federal Reserve Bulletin, October, 1965, Pp. 1380-1404.

2. H.G. Johnson Ibid ("Money in Britain 1959-69") P. 105.

of its testability. On this showing, the quantity theory may score better than the portfolio balance approach. One may, alternatively, like to invoke the variant of principle of positivism that Friedman had advanced in his controversy about the theory of monopolistic competition wherein he had argued that the same phenomenon (of effect on retail prices of cigarettes due to an increase in cigarette tax) could be studied in terms of analysis of either perfect competition (under normal conditions) or imperfect competition (under conditions of price control and war-time rise in incomes).[1] Such an approach may not prove useful however, in macro relations where theories are often competitive and the choice of one may lead to rejection of another (as for instance acceptance of the Crude Keynesian theory of interest entitles us to consider it as a purely monetary phenomenon) although the possibilities of synthesis are always there (as evidenced in the I.S. - L.M. curve approach to interest theory). It may, therefore, be argued that if our objective is to analyse the problem of stability of the price level during the growth process the quantity theory approach may prove useful. However, efforts at deriving the determination of the price level by positing (and measuring statistic-

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1. Vide M. Friedman "Easays in positive economics", Chicago (1953) Pp. 36-37.

   It may be noted that Friedman and Meiselman in running their quantity theory model for one period and assigning a chunk of it to the credit of the Keynesian hypothesis were invoking such a principle.

ally) rates of change in money supply (say M) against rates of change of real output (say Y), checking them against the given rates of change of price level (say P) and finding fortuituously a 1:1 relationship ($\Delta M - \Delta Y = \Delta P$) does not entitle one to say that the quantity theory is more relevant.[1] Inflation nevertheless is a monetary phenomenon and the relevance of the quantity theory when dealing with problems of inflation has to be accepted. An underdeveloped economy however passes through a process of structural transformation and there sets in a process of financial accumulation, growth and diversification of financial intermediaries; so these together with the nature and prices of their instruments also become important factors in the process of development and one could not, therefore, brush aside the portfolio or asset preference hypothesis as having little or no relevance. What is more, neglect of this takes us away from paying any attention to the role of interest rates and interest rate policies in the - underdeveloped countries.

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1. For an attempt on similar lines refer "The relationship of money supply, output and prices in a developing economy - Indian case "Indian Economic Journal" - October - December, 1968 Pp. 249-55. Refer the statement for instance: "the money supply rose by 106.3 per cent in 1964-65 over 1950-51 level ... net national output rose by 70.1 per cent ... effect of this imbalance is seen in a rise of 36.6 per cent in prices over the period" (p. 249).

   The relevance of the Quantity theory it may be noted, crucially depends on its central proposition about there being a stable demand function for money.

Cross-country studies of secular behaviour of income velocity :

In a recent study[1] by Ezekiel and Adekunle which covered a diverse group of 37 countries[2] in different stages of growth (real per capita income taken as a proxy for growth) the secular behaviour of income velocity (computed separately for currency as well as traditional and wider definitions[3] of money supply) was related to the stage of growth. The conclusions confirmed the Friedman hypothesis of a decline in velocity consequent upon growth but the authors of the study noted that the rate of change in decline of income velocity was slowing down with a given rise in per capita income. For the income velocity of currency no discernible trend was found and this is as it should be in view of the peculiar behaviour of this ratio as noted above. However, the authors found that for the traditional and wider definitions of money supply, the slowing down of rate of change of velocity with rise in per capita income may, after reaching approximately the zero level, keep velocity constant in accordance with the Gurley - Shaw hypothesis.

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1. H.Ezekiel and J. Adekunle "The secular behaviour of income velocity - An international cross-section study" I.M.F. Staff Papers July, 1969. Pp.224-37.

2. Excluding India but including Pakistan.

3. The traditional definition refers to currency plus demand deposits (M_1); wider definition refers to M_1 + time deposits (M_2).

Incidentally they point to a study by Dorrance and Brehmer wherein the hypothesis was advanced that "as national per capita income rises, upto a certain point money holdings rise relatively to real income, after a certain point, the ratio of money to income falls with rising national income".[1] The authors then feel that either the Gurley-Shaw hypothesis of decline and constancy or the Dorrance - Brehmer hypothesis about first declining and then rising velocity would be a more plausible conclusion.

Another study by Adekunle[2] covering nine countries in three groups ('Industrial', 'Other developed' and 'Less developed')[3] reported values of income and interest rate coefficients of demand for money, with respect to both the traditional (M_1) and wider (M_2) definitions of money. Transforming these coefficients into income and interest elasticities of demand for money it was found that the income elasticity of demand for money (M_2 total) was above unity in 4 cases, near to unity in 4 cases and below 0.80 in one case. The income variable used for all countries was short run (measured) one. In regard to India

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1. Ibid P. 225.

2. J. Adekunle "The Demand for money - an international comparison" - Indian Economic Journal, July-Sept., 1968. Pp. 22-43.

3. India being one of them.
   Period covered was 1948-61.

the income elasticity of demand for money was 0.95 (M_1 total) and 1.08 (M_2 total) on the basis of which the author concluded that "the M_2 elasticities for India suggest that money is a luxury". However, he rightly observes, "in the case of India, the fact that M_1 elasticity is also relatively high suggest that what is observed might be the influence of monetisation of the economy".[1]

The portfolio balance analysis may appear less relevant in view of the structural characteristics of the underdeveloped countries making for lack of mobility and gaps in the system so that the substitution process is hindered. Nonetheless this analysis which focuses attention on the changes in the size and composition of assets and the structure of interest rates provides an important theoretical tool for analysing the shifts in patterns of asset holdings consequent upon growth in output as well as growth, extension and diversification of the media for saving and lending and of the financial system in general. As noted earlier this approach which attaches importance to the saving investment process inevitably takes into account the role of interest rates and appropriate interest rate policy in the underdeveloped countries and may thus prove quite useful for policy purposes. However, the problems facing an underdeveloped are so complex and

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1. Adekunle Ibid P.29.

structurally so different that the choice about a particular theoretical approach being more or less relevant is beset with difficulties. As P. R. - Brahmananda has so cogently put it "in such countries there are plural markets with only limited mobility of funds, money is not yet the sole medium and not even an important store of value, the area of operations of standard financial intermediaries is limited, the unorganised agencies are only loosely linked with the Monetary Authority, real-credit gaps galore, there is no scope for active debt-management, fluctuations in supply and output (are) caused by climatic factors", and the situation perhaps calls forth "for a different theoretical framework to state and understand the problems of these - countries".[1]

For our purpose in hand a point of more immediate concern is how do these differences in theoretical approaches affect the formulation of monetary policy in the underdeveloped countries? This has been however, the issue under discussion in regard to the developed countries also and we should make brief reference to that aspect of development in policy-making in the post-war years.

Some issues in monetary policy :

1. The issue of choice of an Indicator :

A direct implication of these differences in

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1. P.R. Brahmananda, Indian Economic Journal - April-June, 1970. Pp. 592-93.

approaches has been the problem about the manner in which or channels through which monetary policy exerts its influence on the economy. Sporadic efforts were earlier made in this field of enquiry one instance of which is the 'availability' doctrine. This approach which gained currency in the U.S.A. in the immediate post war years emphasised that a small increase in interest rate would deter lenders from making more loans due to fear of capital loss (the locking-in effect) whatever the behaviour of the borrowers. As a behavioural relation this was a welcome proposition but its degeneration into the dogmatic assertion that what mattered for policy makers was not the level or structure of interest rates but availability of funds so that "money could be easy with 10 per cent interest rates and in the same sense tight with 2 per cent rates".[1] In terms of the indignant remarks of Tobin, "the idea that the scarcity of a commodity can be gauged without referring to its price is an odd heresy that seems to have currency only with respect to loans and credit instruments."[2]

P. R. Brahmananda who deals with the concept from a wider angle correctly points out that the locking in

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1. James Tobin in Karl Brunner (Ed.) "Targets and Indicators of Monetary Policy (1969) Pp.167-68.

2. Ibid.

effect envisages carrying out the effects of a rise in interest rate to the bond market and stopping there so that "bonds will simply be held as bonds". (On this showing he prefers to call the effect a cousin of the 'liquidity preference theory proper').

He however makes the pertinent observation that "despite the bizarre nature of the theory it may contain some clue to the absence of selling pressures on bonds when interest rates have risen ... the effect may have some potency because it may postpone a possible crash in bond values ... it may (even) be considered as affording a necessary breathing time to the authorities to devise more radical measures".[1]

The drawback of the concept as an indicator of policy however is "it is not clear how empirically strong the effect is".[2]

The issue has been treated more systematically in recent years as 'targets' and 'indicators' of monetary policy.[3]

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1. P. R. Brahmananda "The Bank Rate in a general setting" in Desai and Ghonasgi (Eds.) "Monetary policy and central banking in India" Bombay (1969) Pp. 38-40.

2. Ibid P. 40.

3. (A) "Targets and Indicators of Monetary Policy" op. cit.

   (B) "The Journal of Political economy", August, 1967 (Part II) Pp. 446-60.

The choice of terms however, creates confusion and are being sometimes used interchangeably. Its theoretical linkage however, is clear namely that the neo-quantity theorists insist on using the 'money stock' (monetary base) while the Keynesians favour using - 'interest rates' as indicators of policy. The former group discounts the use of interest rates, though primarily because they believe about a low interest elasticity of demand for money, but more fundamentally because they believe that nominal market rates of interest would not give any clue as to the 'thrust' of policy, as the effects of price expectations of interest rates are not easily observed on the market. Thus there is every likehood of monetary authorities mistaking a rise in interest rates as a sign of 'tight' money whereas the rise may be due to 'price expectations' and 'income' effects. On the other hand the choice of the 'monetary base' as an indicator is free from any such ambiguities, is easy to manipulate, easy to recognise and what is more is under direct control of the monetary authorities.[1]

The issue of choice of an indicator is basically concerned with efficient design (in the sense of its

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1. To the extent the 'new view' is accepted and money supply admitted as an endogenous variable, the choice of monetary base is rendered more difficult.

   "Free Reserves" are another indicator but they are not favoured by the majority of thinkers. This aspect has been considered in Chapter Five in the context of Bank Rate Policy.

being least destabilizing) of monetary policy and would, therefore, bring in the instruments (the rate of interest may become then an instrument besides serving as indicator) as well as targets for consideration. Viewed this way, the issue of choice merges with the discussion as carried out in terms of the targets-instruments relationship as developed by Tinbergen[1] and his associates, in particular the notion of 'optimal policy' introduced by Theil. The concept of 'optimal policy' implies full knowledge about the structure of the economy and once it could be ascertained what current policy 'ought to be' the need for indicator becomes redundant. There is no need of a search for behaviour of some 'intermediate variable' between policy action and policy goal also. Such a concept is relevant for both the developed and underdeveloped countries. However, the information that is available to the Central bank is imperfect and hence 'optimal policy' making is rendered difficult. But striking a note of optimism Brunner argues 'the absence of perfect knowledge is not equivalent to total ignorance'[2] and so by choosing an ordinal scale the appropriateness of a particular indicator could be established and the thrust of policy measured in the most reliable manner.

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1. A brief reference to this is further made in the next chapter.

2. Brunner op.cit. P. 10.

   Another important contribution in this field is specification and testing of "A model of Federal Reserve behaviour" by John H. Wood (vide George Horwich (Ed.) 'Monetary process and policy' Irwin (1967) Pp. 135-66.

2. Lag in effect of monetary policy :-

In the course of his 'restatement' of the quantity theory, Friedman alluded and then provided measurement of the lag in the effectiveness of monetary policy. As it is, the argument about 'lagged' effect of monetary policy is concerned with the 'stabilization' objective of the policy although Friedman had used it in support of his advocacy for 'monetary rule' in place of discretionary management. Some time must necessarily elapse between the time a policy measure is put to use (say a change in money stock or interest rate) and it ultimately reaches the distant goal of output or employment. The discussion that ensued from this proposition centered around (i) identification of different types of lags - 'Inside' and 'Outside' lags[1] and more importantly (ii) the length and variability of the lag or types of lags.

Friedman had estimated the total lag to be running from something between 12 to 16 months. A number of studies that have been made since then report variable length(s) of the lag(s) but there is a general consistent outcome that the total lag is at least six months long. A long and variable lag would conceivably put the monetary authorities in an embarassing position.

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1. The 'inside lag' consists of 'recognition' and 'decision' lags while the 'outside lag' refers to 'output' lag. There may be an 'intermediate' ('credit market') lag lying between the two lags referred earlier. The terms are self-explanatory.

The issue, therefore, has been debated in terms of the existence of a long and variable lag and the methodology of measurement of the lag. The lag is measured either by direct estimates[1] or by statistical inference. - Friedman used the latter method by taking the weighted average of time between the peaks and troughs of - 'reference cycles'. Culbertson[2] who carried the debate with Friedman found on the basis of 'casual empiricism' that the lag may not be anything more than six months long. Gibson[3] in a recent article has argued that an increase in money stock would first reduce the interest rate (liquidity effect) and encourage investment; then as income increases interest rate will rise (income effect) and may return to its previous level. The time that elapses between these two effects to be operative may be taken as a measure of the lag. His econometric testing with U.S. data using both definitions of money gave a measure of the lag which had remarkable correspondence with Culbertson's 'casual empiricism'.[4]

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1. T. Mayer who made an earlier effort in this direction making use of 'direct estimates' found the lag - between change in monetary policy and change in investment expenditure to be long enough to render policy reversal difficult so that monetary policy turned out to be inflexible. Refer T. Mayer "The inflexibility of monetary policy", Review of Economics and Statistics November, 1958.
2. Vide "Journal of Political economy" December, 1960, Pp. 617-21.
3. William E. Gibson "The lag in the effect of monetary policy on income and interest rates" Quarterly Journal of Economics, May, 1970, P. 288-300.
4. Gibson Ibid P. 299.

Culbertson in his debate with Friedman had argued that the existence of the lag itself did not determine appropriate stabilization policy; at best it implied that "policies should not attempt to be actively anti-cyclical but should behave in a manner that is cyclically neutral". Friedman conceds the point and argues that his assertions suggest a sort of 'self restraint' in anticyclical policy.[1] The debate on 'lags' has however well brought forth the point that policy changes should not be very frequent and sharp.

3. The issue of 'monetary rule' :-

Following his interpretation of the monetary history of the U.S.A. and even earlier in the wake of the Chicago tradition, Friedman advocated replacement of discretionary management by a legislated rule to increase money stock by 4 - 5 per cent per annum. Friedman feels that the 'blind and quasiautomatic' system prevailing before the Federal Reserve System was better than the present system based on 'discretion' and the 'feel of the market'. Monetary authorities should feel very comfortable with such a proposition if it helps them to fulfil the various goals they set before themselves. The 'monetary rule' hypothesis implicitly accepts floating exchange rates and - Johnson for instance would not favour it on this ground. Samuelson becomes quite harsh on the issue when he declares "when men set up a definitive mechanism which is to

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1. M. Friedman "Optimum quantity of money ..." P. 258.

run for ever after itself, that involves a single act of discretion which transcends both in its arrogance and its capacity for any harm from any repeated acts of foolish discretion that can be imagined", although he specifically expresses concern with the unsettling effect on the balance of payments situation of an - adherance to the 'rule' policy.

The 'rule' hypothesis is much less meaningful as a proposition of 'no discretion' policy but it does suggest the desirability of the Central banks seeking to approximate a steady rate of expansion implicit in the 'rule'. It provides a starting point for the formulation of an appropriate framework for central banking policy either in the developed or underdeveloped countries and more so in the latter.

It may be noted that the 'monetary rule' advocacy is based on the estimation of a rate from past experience which is long enough and may, therefore, be considered commensurate with "monetary requirements under full employment with stable prices".

Since underdeveloped countries have obviously to deny themselves the use of 'past experience' to serve as the basis, in view of the process of rapid (State-

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1. Joseph Stiglitz (Ed.) "The collected scientific papers of Paul A. Samuelson" Vol. II P. 1361.

engineered or otherwise) economic growth that they seek to pursue, the rule will have to be more of a 'forward-looking nature'. Monetary authorities in these economies will have perforce to take into account the projected (or planned) growth in national income; the rate of growth as well as extension growth and diversification of the process of financial intermediation and a host of financial (and perhaps non-financial also) variables into account and work out in details the interrelationship among them. In this exercise, the projected growth rate in money stock would become an important variable whose magnitude however is not decided within the framework of monetary policy but is importantly influenced by trends in fiscal policy.[1]

Culbertson puts the whole issue in a better perspective. As he says "the choice between rules vs. discretion may be seen not as a choice between simple system and complex ones but between systems of defined as against undefined performance characteristics."[2]

Concluding remarks :-

Monetary theory and policy have received much wider recognition and attention at the hands of professional economists and even policy makers in the post-war years

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1. G. S. Dorrance "Framework for central banking policy" - I.M.F. staff papers July, 1970,215-244 provides a helpful and promising line of approach in this regard.

2. J. M. Culbertson - "Macroeconomic theory ..." P. 141 and P. 453.

despite the ascendancy of fiscal policy as a component of what may be termed 'national economic policy'. The view that the "basic differences among economists (in regard to theory of money) are empirical, not theoretical" and the more assertive form of it cautioning researchers that "crude evidence may be misleading, and a more subtle examination of the record may be needed to disentangle what is systematic from what is random and erratic",[1] should put monetary theory and policy in a more honourable position than what was supposed in the pre-war and immediate post-war years.

Both the neo-quantity and the portfolio balance approaches emphasizing the relation between money and income in terms of adjustments in the balance sheets of individuals merge together to some extent for analytical purposes and the more important problem remains that of identifying the intermediate financial variable which means that money-income relationship needs to be studied at the disaggregated level also rather than in terms of a macro framework alone.

It may be fruitful to enquire which approach (neo-quantity or portfolio balance) is more relevant for the underdeveloped countries.

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1. M. Friedman "A theoretical framework for monetary analysis" Journal of Political economy March/April, 1970. P. 235.

One may alternatively discard the 'monistic - approach' attitude and take it that for understanding implications of monetary growth in relation to growth in output the neo-quantity framework which emphasis the price effect of a change in money supply may be better, while for understanding the process of financial accumulation which accompanies and promotes the process of economic growth, the portfolio balamce approach may prove more useful. Underdeveloped countries would need paying attention to interest rate variations as well as variations in money supply. The need may be for an eclectic approach. Once again empirical testing and, what is more, "subtle examination of the record" may be the pre-requisites of even an eclectic approach.

Post-war thinking on 'optimal policy' making and empirical work attaching varying importance to variations in interest rates as against or in combination with variations in money supply opened up the new field of enquiry about the choice of an indicator so that policy making is rendered efficient and least destabilizing. This piece of controversy is not so disconcerting to these who place greater emphasis on discretionary monetary management. Monetary authorities in the underdeveloped countries have no clear cut choice as to using one particular variable as an indicator.

Though the rate of growth and variations in money supply are an important determinant of policy making in the underdeveloped countries, the authorities may better play their role by influencing the saving. investment process in a marked manner.

The implication of 'monetary rule' is rightly to be seen in terms of a 'defined performance system' as against an 'undefined system'. Monetary analysis and policy too nonetheless involve largely a reiterative process. This demands dealing with a set of interrelated data rather than resorting to the policy goal statement of 'controlled expansion' which constitutes less than a rational framework for policy making. To this aspect of goals of monetary policy, we turn in the next chapter.