

Can There Be a Theory of Money?

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The possibility of obtaining a 'theory' of money is questioned, where a theory is taken to mean an explanatory framework using a small number of observables. The root of the problem lies in the maximising nature of economic agents. Money is means to effect transactions and savings; what will be used as money depends upon such a miscellany of factors that no 'theory' can be expected to emerge. A critical examination of the Quantity Theory, both as a theory and as a testable proposition, supports this claim.

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Keywords: Monetary Theory, Quantity Theory, Monetarism, Irving Fisher, Milton Friedman

JEL Classification: B0,E0,E5

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The Problem Posed

The answer to the question posed in the title depends on what we mean by “theory.” Established practice (and common sense) requires us to assert first and foremost that a stable functional relationship exists between certain variables of interest; to be attractive as a policy tool, we also require that the functional form be simple—linear, quadratic, polynomial, etc.—and that it involve only a few variables, five is perhaps manageable, fifteen is certainly too many. In order to be actually useful, this stable function of a small number of variables has to have empirical counterparts, ‘data’, for every variable and if there are several empirical candidates vying for a theoretical slot, the relationship has to be robust to the use of any of these empirical choices. If one accepts these grounds, how would one proceed to convince a skeptic that economists were in possession of a theory of money?

Why might one be skeptical? If a theory is well-established and empirically proven, one seeks only to adjust and fine-tune. However, neither monetary theory nor monetary practice show consensus—it is not even clear if there is methodological agreement on what will resolve the dispute. The icons of the recent past, Monetarism—and then Rational Expectations—are no longer in great repute. If we turn to one of the most important aspects of monetary theory, the theory of banking, we find that “Free Banking”—once the butt of jokes by economic historians—is now a very respectable (and aggressive) branch of the subject. Perhaps there can be no theory of money. Perhaps what we need is a theory of society—not one of money. Or to be more exact, a theory of money should be embedded within a theory of society; so that there is no general theory, but rather a set of principles which have to be worked into a ‘theory’ for any particular society.

I will argue this case with reference to the most famous theory of money—the Quantity Theory of Money. This actually is a more general critique since the Quantity Theory not only underlies three hundred years of history, but also underlies both the Monetarist school of the 60's and 70's as well as the even more recent Rational Expectations school of the 80's and 90's. Section 2 reviews the common-sense grounds for scepticism regarding the existence of a theory. Section 3 then takes the arguments of a famous advocate of the Quantity Theory, Irving Fisher, to show that he never really met the requirements posed by a society of optimising agents. The revival associated with Milton Friedman is considered thereafter in Section 4 in order to show that he does not meet a test Friedman himself considers vital for a good theory,--- Practicality. That the Quantity theory cannot be tested by most of the historical evidence indicated is made evident by looking at the nature of the data available, a point that has just as much force if the Quantity theory is to be relevant to the Developing Economies (LDC's). To illustrate my arguments I shall deal mostly with evidence from Europe and America: They are the best

studied, and if the ‘theory’ does not apply to them, there is all the more reason to believe that the LDC’s cannot expect the theory to apply there. Section 5 returns to the main theme: the inapplicability of the Quantity Theory without an understanding of Society and the ability to control endogeneity as well as the differing inertia of peoples in the pursuit of self-interest. As the argument unfolds, it will be clear that, , the nature of money necessarily feeds into our views of Banking and Finance and Interest rates. So I will have to make some remarks on each issue, but since I wish to focus on money, such remarks will be en passant.

While my primary goal is to see the relevance of monetary theory to economic policy in LDC’s it is worth noting that Monetary Theorists in the DC’s are not a particularly self-congratulatory group. The exasperation voiced by Brainard reflects a feeling found throughout the history of monetary thought:¹

The inadequacies of contemporary monetary theory are perhaps most obvious when economists get together to discuss some policy proposal. In recent years the growth and wide distribution of public debt, and the rapid growth of non-bank financial intermediaries, have created concern over the effectiveness of existing methods of monetary control. Opinions have differed widely over the significance of these two developments. Monetary economists have come forth with a bewildering variety of proposals to improve the monetary system..... Should the deposit rate at banks be fixed by regulation, or allowed to fluctuate in response to market forces? These questions are difficult to ask, let alone answer, within the framework of the traditional theoretical models, classical or Keynesian. ... One of the major reasons that both classical and Keynesian monetary theory have difficulty in dealing with this type of “practical” problem is that they lack sufficient detail in their description of financial assets and financial markets.

How can we have a description of financial assets and markets in satisfactory detail without being country specific?

Some five years later, Maurice Mann began his review of the transmission process with the hopeful words that “There seems now to be little quarrel that monetary policy works through the supply schedules and prices of financial assets, thereby influencing the real sector of the economy”. In the very next para however, he has to point out that nothing of practical use has been gained. “Unfortunately, recent empirical studies have not shed much light on the transmission process. While descriptions of the process are reasonably complete, the empirical results are not sufficiently reliable and are still a matter of faith”. Throughout this period, while western economists readily admitted that crucial evidence was 'a matter of faith', policymakers and intellectuals of the LDC’s (when not preoccupied with the merits of Socialism) took the wisdom of the West as gospel.²

A biographical word to end the Introduction. I wanted to write a dissertation on the Microfoundations of Money, almost thirty years ago. Nothing I read seemed to be adequate to the intuitive magnitude of the problem so I just gave up. However, I read the history of Monetary theory whenever I could and kept up a casual reading of items that filtered into the non-specialists literature, such as the items sent by various branches of the Federal Reserve. When I gave up the History of economics and turned to Development economics about ten years ago, my pace of reading quickened and I

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became increasingly interested in policy issues. I did some research on Bangladesh, some on Free Banking in the USA , and some on George Berkeley and the Irish Monetary system in the 18th century. All the while I worried about what it takes to call a set of ideas a 'Theory'. These notes are the result. I have used a minimal set of references, but I want to acknowledge my debt to the scholarly accounts of Laidler, Marget and Schumpeter.

The Quantity “Theory”

If the utility of a theory is a measure of its value, then the vogue of the Quantity Theory of Money is a mystery. There are no sound theoretical reasons to expect the theory to be true, and the empirical difficulties in verifying the theory are immense. That *some* relationship will exist between the Quantity of Money and the volume of economic activity, however each of these may be defined, may well be true; but why anyone would expect a simple and stable relationship is inexplicable—and even if the relationship existed, there are no good reasons to expect to see it verified in such data as are now collected. The initial question is a purely theoretical one. *In a smoothly functioning market economy, where all agents are inter-temporal maximizers, can we theorize about something called money?* This obviously requires us to identify “money.”

Money is said to be both medium of exchange and store of value. In some sense, it cannot serve as a medium of exchange and mediate between distant transactions, unless it maintains its value between the transactions. While this elementary point has been noted by several a scholars, no one has seen it as fundamental, and what is even more surprising is that several distinguished economists have even made the medium of exchange the primary distinguishing characteristic of money.

That money, on occasion, can be a store of value---that, as one used to say, it can be hoarded---is of course not to be denied. But this is no distinguishing property of money as such.... We thus seem to be left with two distinguishing functions of money: standard of value and medium of payment.³

This is a curious position to take since one can readily find distinguished scholars who had clearly noted the logical priority of the store of value.

A store of value is an object which is held exclusively, or at any rate primarily, for the purpose of preserving the value it represents. In a broader sense every medium of exchange must necessarily be suitable also to serve as a store of value, since the recipient accepts it because it is capable of preserving its purchasing power until he is prepared to spend it.⁴

A general focus upon fiat money in recent theorizing has clouded the importance attached to this fact. When the Overlapping Generations model (OLG) was subjected to severe attack by Tobin, Cass and Shell responded by stating that they found the store of value to be crucial. “*If money and bonds do not serve as a value store, then they cannot serve any other useful function*”⁵ Cass and Shell go onto say that this may not be the most interesting function of money, but rather that “this basic function must be well understood before we can begin to understand “ the more complicated functions.”⁶ While their statement is quite general, the accompanying text and paper focus all attention upon fiat money. Alas, their paper makes clear that no neat understanding does emerge and since the monetary commodity does perform several functions simultaneously, our understanding is not advanced at all. As Tobin indicates, “There is a semantic problem here. One can call the fiat store of value of the model *money*, but it bears little

resemblance to the money economists and policymakers argue about”⁷

Convolved expositions emerge from this failure to put first things first. Lester Chandler writes. “Money serves its broad purpose of facilitating trade and exchange by performing four specific functions: unit of value, medium of exchange, standard of deferred payments, and store of value. The first two are called *primary* functions of money; the second two are called *derivative* functions, because they are derived from the primary functions....To be a satisfactory measure of value, however, the monetary unit must itself maintain a relatively stable value or purchasing power. Confusion and miscalculations result when the purchasing power of a monetary unit fluctuates widely, falling as the price level rises and rising as the price level falls.”⁸ In other words, to be a satisfactory measure of value, the good must be a stable store of value---so the store of value comes to the fore.

In the same vein, what is called the precautionary demand for money, is really a question of the liquidity of the store of value. How easily can an asset be transacted at its market value? Menger considered this question so fundamental that the failure to address it was "one of the essential causes of the backward state of monetary theory".⁹ So the real issue is whether there exists some commodity called money which is most suitable as store of value for short lived transactions, when it serves as medium of exchange, *and* for long-term transactions, when it is called a store of value.

The choice of a good for short-run use, or medium of exchange, is based upon the well-worn considerations of portability, divisibility, acceptability, etc., while the long-term benefits fall squarely within the traditional framework of portfolio choice.¹⁰ Each of the desired properties, such as divisibility or portability, is possessed in differing amounts by every commodity. A maximiser's choice of a commodity for any transaction is obviously based on the application of the optimizing calculus. There is *no* reason for the same commodity to serve as the desired medium of exchange over time because, apart from changes in ones own preferences and endowments, the choice of such a medium in successive periods depends on the relative costs of all alternatives including those media that are being newly discovered or “coined.” This is just what financial innovation is about.

There is an added improbability in asking that this same commodity also be the preferred store of value, since a different set of returns and risks are evaluated in this case. Let us remind ourselves that taking into account *every* change in costs, benefits or risks over one’s lifetime is precisely what makes an inter-temporal maximizer’s life worthwhile. To expect that some one commodity will meet all the above criteria *and* have a stable, proportional relationship with economic activity is hard upon our common sense and one longs to see an explicit proof of this claim. But our theorists appear to finesse the issue by restricting commodity space to a handful of goods. If we identify economic activity with money income, a simpler problem would demonstrate the proportionality of the optimal quantities of money and income. Even for this restricted case, there are no reasonable restrictions on consumer optimization that provide such a neat Engel curve for any good. Yet this is exactly what the Quantity Theory has asked of us.¹¹

Irving Fisher

There are two versions of the Quantity Theory: That of Irving Fisher has been considered the parent of 20th century Macroeconomics so it needs some consideration.¹² Fisher's theory is based on transactions,

$$MV = PT$$

where M = Quantity of Money

V = Transactions Velocity

P = Price Level

T = Index of Transactions.

This transactions equation is affected by vertical integration and the extent of intermediate transactions; more importantly, there is no data normally generated for T. As a result, the more frequently used equation is

$$MV = PY$$

where M has the same meaning but Y is income, V is now the income velocity of money and P is the price level for final transactions.¹³ The fact that one can interpret the above also as $M=PY/V$, or with $k=1/V$, as $M=kPY$, has sometimes led to an amusing conflation of the monetary theory of Cambridge, with that of Irving Fisher. They are entirely different conceptually. For Cambridge, k is a choice variable, the proportion of income that people wish to hold, while for Fisher it was a velocity. As the Austrians have tirelessly tried to remind us, money does not move itself; it has no velocity. People move money. To understand money we need to model the motives of people.

In order to incorporate the banking system in the Fisherian system, we write

$$M_1V_1 + M_2V_2 + M_3V_3 = PY$$

where M_1 = currency, M_2 = demand deposits, and M_3 = savings deposits, then the Quantity Theory exercise is justified only if M_2V_2 and M_3V_3 maintain some stable proportionate relationship with each other.¹⁴ However, the evidence to demonstrate the plausibility of such an assumption, which had already been questioned in the 1920's and 1930's, has yet to be presented.¹⁵

Why did Fisher engage in such a 'mechanical' enterprise? Irving Fisher believed he could make the logic of the Quantity Theory transparent to all by basing it on the equation of exchange. As every purchase is a sale, Fisher argued that

$$MV = PT$$

is only the algebraic representation of the fact that, under the laws of property, nothing is acquired by begging, borrowing or stealing, but is duly paid for. If V is slow to change and T can be decided as fixed by the real side (presumably at full employment), then we have a directly proportional relationship between M and P.¹⁶ There is a charming and forceful account of this particular view of money by Ira Kaminow,

The rigid relationship between the demand for money and national income makes

this environment inhospitable to fiscal policy. If the national goal is to raise income, it can be achieved only by raising the money stock. An increase in Government expenditures won't work except for a very short time. As soon as income rises a bit, the money stock will be inadequate. There will be a general scramble for money, and the private demand for goods will decline as businesses and households try to increase their holdings of money. Consequently, income and output will be pulled back down by the limited money stock.¹⁷

This formulation clearly requires that there exists a well-defined money and that every transaction be paid for in "money." But what is money? Money is a means of lowering transactions costs. If the cost of obtaining the current money is high and agents are optimizers then new money will be created. Einzig insists that "Highly developed credit systems in terms of primitive currencies operate" in even the simplest societies.¹⁸ Such credit will always function as money even without a money separately defined. Just as exchange separates production from consumption so money permits the separation of production, sales, purchases and consumption; finally, credit permits the separation of sale from payment. Hence, at any point in time, there is no necessary relationship between Prices and Money because Credit serves to liquefy current Wealth and, sometimes, expected future Wealth. If we recognise that, without finance, investors can only invest what they themselves have saved, then we see that finance is the logical equivalent of the double coincidence of wants.

Robert Litan has an excellent description of the intimate connection between finance, banking and the 'liquefaction' of wealth into current purchasing power, as illustrated in recent US history. Government housing agencies pooled a large number of illiquid loans into pools that collateralised assets, thereby achieving what John Law had wished for in the 1700's. This process required standardisation and enabled the securities markets to provide credit more efficiently than traditional banks could. "The transformation of loans into securities has broken down what depository institutions formerly did into several discrete and separable functions, any one or all of which no longer need be performed by a bank: the origination, servicing, securitization and holding of credit"¹⁹

Irving Fisher provided an exact algebraic formulation by assuming away the prior choice the optimizer faces—what is money?—and by this act of legerdemain he converted an optimizing problem into a mechanical one. Without denying the considerable merits of Fisher's outlook when the transactions medium is 'fixed', as in the Debt-Deflation theory, it is clear that Fisher appears unable to imagine things to be other than they are. Henry Simons seems irritated by his inability to explain the problem of near-monies to Fisher: "Incidentally, I'd give a lot to be able to make clear your point (and mine to several over-hasty and overly enthusiastic converts – above all, to Irving Fisher, with whom I've spent hours and hours without making him see what you have expressed so clearly. "²⁰

That money and credit are frequently interchangeable, and that credit requires expectations about the future, suggests that future prices also come into play in discussing stores of value. As a means of exchange can hold its value as a transactions medium only if it has at least temporarily, a store of value, and as credit is the means of

indefinitely, or rather, amorphously, prolonging the function of the store of value, the stability of the monetary mechanism must link up with the stability of an intertemporal price system. The extant empirical evidence shows few empirical regularities on this topic. Reviewing studies done by economists on specific markets, Dennis Carlton writes about the experience gleaned by the field of Industrial Organisation²¹

A competitive equilibrium involves a separate price for each date at which the commodity will be consumed. Anything that changes either the cost of producing today or in the future or the demand today or in the future will affect the entire vector of prices over time. This means, for example, that a shock to demand might well affect the price of the good not only today but also in the future. This raises the possibility that shocks to supply or demand today will be absorbed primarily by something other than prices today. In fact, it is quite conceivable that in response to only slight changes in the vector of prices in the future, consumers will significantly rearrange their consumption of the good over time. In such a case, increases in demand today may not increase price today by very much, but rather leave most prices today and into the future unchanged, but simply shift consumption from today to the future.

The important insight from this way of viewing competition is that even though prices are clearing markets, the necessary equilibrating price changes can be quite small. It will be quantity shifts among different goods (i.e. the same good consumed at different periods of time) that will bear the brunt of the adjustment and not price.

Scepticism about such stability is enhanced when the money market is examined. Money is meant to provide us a store of purchasing power. As the rate of interest is the price of transferring purchasing power over time, one would want to see stability and predictability from this critical part of the intertemporal price system. Friedman and Schwartz do not appear to give us much hope on this score.

Because interest rates connect the future with the present, they are necessarily sensitive to judgments about the formation of which we have little confirmed knowledge. Because interest rates connect large stocks to relatively small flows, they can display wide variations as a result of apparently trivial changes. Because they connect holders of financial assets to holders of physical assets, they are sensitive to the process whereby nominal and real magnitudes are linked. Finally, the same disturbance can have effects in opposite directions over different periods of time, so the observed behaviour of interest rates is sensitive to variations in the reactions times of different groups in the population.²²

The question considered by Irving Fisher and other Quantity theorists such as Friedman and Schwartz is the easy problem because they argue consistently as though money can be satisfactorily identified for practical purposes. Even if this be true, it does not bear directly upon the theoretical question whether inter-temporal maximizers should permit such empirical stability. When we consider the theoretical question in a general commodity space, there seems no theoretical result that suggests that the stability needed for any viable policy is to be had.

Origins and Revival

It has long been claimed that the idea for the Quantity Theory arose from the steady rise of prices that followed the influx of treasure from the New World. Economic historians assure us today that sequence is contrary to fact

The case against the quantity theory is that prices started to rise well before the massive imports of silver from Peru and Mexico in the 1550s and 1560s and that the prices of basic foodstuffs rose higher than the prices of industrial goods and wages ...North's estimate (1990, p. 226) of the growth in the money supply from 1510 to 1570 is 22 percent – leaving out, of course, unknown amounts of bills of exchange and other forms of credit. The point at which prices started to rise differed from market to market but occurred mostly in the first half of the century, primarily in 1515, 1520, or 1525, well before the massive flow of silver from the New World to the European continent.²³

Perhaps the Quantity Theory is unremarkable in having been spurred into existence by a false premise. How did it become prominent? David Hume is most famous for arguing that the balance of trade was not worth worrying about because it was self-regulating.²⁴ Hume did so by applying the Quantity Theory of Money to two countries; if one country accumulated too much gold, its prices would rise and it would lose its position in foreign trade. The following passage is certainly one of the most frequently quoted in the history of economics but its importance for our argument makes repetition necessary.

Suppose, that all the money of Great Britain were multiplied fivefold in a night, must not the contrary effect follow? Must not all labor and commodities rise to such an exorbitant height, that not neighboring nations could afford to buy from us; while their commodities, on the other hand, became comparatively so cheap, that, in spite of all the laws which could be formed, they would be run in upon us, and our money flow out; till we fall to a level with foreigners, and lose that great superiority of riches, which had laid us under such disadvantages?²⁵

Two points should be noted about the extract quoted. First, Hume assumes a sudden, large inflow of money to make his point. This is a very different thing from the small (relative to the money stock) and steady inflow advocated by the so-called mercantilists. Second, Hume assumes that this sudden inflow is met by instantaneous adjustment in prices. Otherwise, if the change in, say, wages attracts more labor, there is no reason why the increased money supply could not lead to a greater output and thus avoid inflation. International labor mobility was a standard feature of mercantilist thought and so it will be seen that Hume's "new" result is obtained by his (a) altering the substantive position in question from the effects of a steady inflow of gold to that of a sudden inflow and (b) denying the standard mercantilist assumption of international labor mobility. It should surprise no one that Hume and the mercantilists differed since they each asked different questions and answered them under different assumptions.²⁶

A crucial assumption in the standard sequence of reasoning is that individuals care only about real values, or what is called the homogeneity of degree zero in money and prices. Let us grant this for the individual, Frank Hahn emphatically points out that it

still does not follow that the economy as a whole will exhibit such homogeneity:

A Walrasian equilibrium is homogeneous of degree zero in the money stock and prices and, let us add, expected prices. Therefore, an increase in the quantity of money will lead to an equiproportionate increase in prices. That seems to be a complete nonsequitur. The fact that an equilibrium is homogeneous in that way doesn't tell you where the economy will move if you inject more money. In order to get the sentence to make sense you have to add that the Walrasian equilibrium is unique; that the Walrasian equilibrium is the only equilibrium you are going to look at; and that you are going to say that the economy pretty smartly goes from one equilibrium to another, that it very quickly finds itself in equilibrium again. I think all of these things are extremely dubious, and I was hoping, actually, that this conference would be discussing some of these aspects rather than the meta-questions of why we have money at all, what the peasants did when they were bargaining women for cows, what the world looked like then.²⁷

The use of the simple Quantity theory by David Hume was a step backward since George Berkeley had already emphasized the paramount importance of Credit. The defense of the simple theory continued through the Bullion debates, the resumption of Cash Payments and the Bank of England Acts. The complete failure of the "Credit" party to be understood is clear in the simplistic way with which Irving Fisher thought a reference to the Circular Flow would solve the problem. In the words of the Radcliffe committee, which returned to the insights of the credit school: "We have not made more use of this concept [velocity] because we cannot find any reason for supposing, or any experience in monetary history indicating, that there is any limit to the velocity of circulation: it is a statistical concept that tells us nothing directly of the motivation that influences the level of total demand."²⁸

The debate came to the fore after Keynes wrote dismissively about the Quantity theory in the General Theory. The most important empirical claim made by Keynes from a theoretical point of view, was the assertion of the stability of aggregate Consumption, in the form of a Consumption Function. This made current consumption depend upon current income and grounded most Keynesian propositions. Milton Friedman attacked the belief in such empirical stability by arguing that consumption was actually a stable function of permanent, or lifetime, income and that it was not as reliable a macroeconomic relationship as the demand for money. Unlike aggregate Consumption, which was, so to speak, a constructed entity, the stock of Money was inherently a Macroeconomic concept and the school of thought Friedman represented had considerable suspicion of aggregate analysis. The market economy was basically stable and the only Macro guidance needed could be based upon the Quantity theory of Money. Policy should concern itself with keeping the money supply grow at a steady rate and not worry about the details of the economy. 'Fine tuning' was unnecessary, and frequently harmful. If the market were left free, it was quite capable of looking after such details. Regardless of its theoretical correctness, this was a feasible option if the government could identify what was to count as money and if it could control the money supply; in practice, neither condition applied.

Friedman's revival is based largely on empirical premises.²⁹ Fortunately for those interested in development policy, Friedman provides us a convenient summary, of which

items 1, 3, 4, 7 and 8 are quoted below:

1. There is a consistent 'though not precise relationship between the rate of growth of the quantity of money and the rate of growth of nominal income. If the quantity of money grows rapidly, so will nominal income and conversely. . . .
3. On the average, a change in the rate of monetary growth produces a change in the rate of growth of nominal income about six to nine months later. This is an average. . . . But I have been astounded at how regularly an average delay of six to nine months is found under widely different conditions. I have studied the data not only for the United States but also for Israel, for Japan, for India, and for a number of other countries. Some of our students have studied it for Canada and for several South American countries. . . .
4. The changed rate of growth of nominal income typically shows up first in output and hardly at all in prices. . . .
7. In the short run, which may be as much as five or ten years, monetary changes affect primarily output. Over decades, on the other hand, the rate of monetary growth affects primarily prices. . . .

Friedman's most famous thesis is stated as item 8 in his summary:

8. It follows from the propositions I have so far stated that *inflation is always and everywhere a monetary phenomenon* in the sense that it is and can be produced only by a more rapid increase in the quantity of money than in output. . . .³⁰

The two-edged relationship between money and interest rates explains why monetarists insist that interest rates are a highly misleading guide to monetary policy. For policy purposes, it is points 3, 4 and 7 that are of greatest significance. In point 3 Friedman stakes out a claim to the general validity of the Quantity Theory of Money. Studies have shown its applicability in a wide range of countries and the inclusion of India surely means that LDC's should heed the theory.³¹ However, this is immediately followed by a very 'Keynesian' point--- the first impact of more money is more output! To show the limited relevance of this version for LDC policy it suffices to emphasize point 7 which notes that monetary injections can increase output for between five and ten years. What politician could resist the urge to use money to boost output in such a case? Think of the cushion provided by economic growth to develop a political base and the collateral improvements, economic and political, that can occur in such a period. As in the case of David Hume, attention to time makes all the difference for policy purposes.

There is no need for students in the LDC's to mediate between these positions by working out a relationship between the long run and the short because Monetarism has been given up by policymakers in the West.

During the past 15 years the Federal Reserve has experimented with, or seriously considered the use of, a wide variety of targets . . . Even if one were to accept that the Federal Reserve's sole goal should be to stabilize prices, there simply is nothing approaching a consensus among economists that any of these targets is reliably linked to changes of price levels. As one target was shown to be a poor predictor of inflation, the Federal Reserve adopted yet another target. It has

become increasingly apparent that Fed policy is rudderless.³²

Testability? Historical and Contemporary

The validity of the Quantity Theory presupposes

1. Stable and widespread markets.
2. Stable velocity.
3. Constant or predictable income.
And to make it a policy tool it is vital that
4. Money is exogenous and subject to control

Even if the Quantity Theory were true, it could not be historically verified, at least by European data, thereby violating Friedman's (Marshallian) dictum of practicality. Why? Because nothing shows money used *only as* money. This is blatantly visible when dealing with primitive (simple) economies. The ethnological evidence makes clear an empirical point: When commodities are used as money, we cannot tell whether a given acquisition represents a consumption good, a medium of exchange, or a store of value without knowing the intent of the agent. Moving on to the market economies of Europe, a variety of examples can be brought forth to show that the requirements of the theory were frequently invalidated. From the 14th century onward, the use of gold and silver to maintain armies constantly overrode the need of these metals as currency; the invention of bills of exchange bypassed the need for currency;³³

The practical difficulties in relating data to the theory are clearly but briefly noted in Outhwaite. The questionable assumptions for measuring M are:

1. Mint output is taken to measure changes in the money stock.
2. The extent to which foreign coins circulated is unknown
3. The impact of bills of exchange is unknown

Outhwaite concludes that, "Even without taking into account such virtually unknown factors as external losses, the extent of hoarding, wear and tear, and counterfeiting, we can safely assert that it is impossible to measure accurately increases in M in the sixteenth and seventeenth centuries."³⁴ When we turn to the measurement of output, Outhwaite appears even more pessimistic. "Historians have tried to assess movements in T by reasoning as to probable movements in the physical output of certain goods. Services have generally been entirely ignored. There is, moreover, practically no important class of commodities whose output can be assessed with any pretence at accuracy in the sixteenth and seventeenth centuries"³⁵

One empirical test that is frequently used is of very little use in settling the issue. This consists of showing that the value of money (the price-level) rose or fell with the supply of the Quantity of Money. This is exactly what we would expect from *any* commodity that is in demand—as money surely is. We need no separate theory to tell us that prices vary inversely with quantity. It is curious that some supporters of the Quantity Theory state the same point but appear to draw a very different conclusion therefrom:

There is nothing mysterious about the quantity theory. Classical and neo-classical

economists never tired of stressing that it is but an application of the ordinary theory of demand and supply to money. Demand-and-Supply theory, of course, predicts that a good's equilibrium value, or market price, will fall as the good becomes more abundant relative to the demand for it. In the same way, the quantity theory predicts that an increase in the nominal supply of money will, given the real demand for it, lower the value of each unit of money in terms of the goods it commands. Since the inverse of the general price level measures money's value in terms of goods, general prices must rise.

This is exactly what is meant by a downward sloping demand curve. Friedman's primary argument is somewhat different. He claims that the Money demand function is remarkably stable (and uses this to attack the purported stability of the Keynesian Consumption Function). If this fact is still true, let us use it by all means. However, since a considerable part of Friedman's empirical program is to identify what counts as money, this does not touch the theoretical question.³⁶

Each LDC probably has its own way of falsifying these requirements. I will only treat Bangladesh, where I have had some experience. Let us begin with the definition of money. The most common definition of the money supply uses cash plus bank deposits as the medium of exchange. However, a survey of over 100 large and small businesses in the capital in 1991 showed that checks were accepted by less than 5 per cent of all enterprises. As this was true in the capital, it was virtually certain that checks would be even less acceptable in any of the smaller cities or the countryside. Firms do not accept checks because the legal system is so slow in providing redress in collecting checks that 'bounce'. Firms do not even pay their own employees by check because this requires more writing and hence leaves the salary scale more open to discovery by employees. Since bank deposits do not circulate, the use of bank deposits in M2 and in the standard monetary programming calculations of the Bangladesh Bank and the IMF, has little justification.

When we turn to performing any empirical tests in the Bangladeshi context, the following caveats have to be imposed.

- 1a. Monetary exchange is not utilized in many areas, eg. Sharecropping, and the subsistence sector is said to be substantial in some areas.
- 1b. Financial markets, in the textbook sense, do not exist. Banks assume that there is an indefinite demand for credit and simply follow procedures in allocating the available credit. No intermediation via interest rates is done.
- 1c. In the banks' balance sheets, over fifty percent of assets are classified as "other." Hence no optimization models are appropriate.
- 1d. No reliable estimates exist for two types of unreported money-using transactions.
 - (i.) Smuggling
 - (ii.) Foreign remittances which bypass the banking system

The National Income Accounts give no guide as to the appropriate orders of magnitude needed for making corrections for these caveats. Not to belabor a point, but how many LDC's can even claim to know, within a margin of error of 10%, the amount of

transactions media, domestic and foreign, circulating.³⁷

In the Indian context, Balakrishnan made a case for specific commodities, agriculture in particular, as the root cause of Inflation.³⁸

The interpretation of the inflationary process in the Indian economy which I shall present here... requires that agricultural prices respond directly to changes in demand, while industrial prices alter, predominantly, via changes in costs. In addition, it implies that industrial profit margins and labor costs are not significantly affected by short-run variations in demand, or at least, that they are not directly responsive. Under these conditions, industry will serve as a transmission belt for price increases stemming from the agricultural sector, for, now the increase in the relative price of agriculture can come about only via a rise in the absolute price of the agricultural product. This is ensured by wage bargaining in organized manufacturing whereby a temporary erosion in the real wage, which is both the consequence, and allowing of, of the shift in the relative price in favor of agriculture, is recouped with a lag.

This is precisely the case made for Europe in the 16th and 17th centuries by the anti Quantity Theorists---and by many 'Structuralists' for Latin America in the 20th century. It is also the most likely cause of Bangladesh's current macro situation, where high monetary growth has been accompanied by low inflation. So far, harvests have been good and agricultural prices low. Rice prices have kept the Quantity theory waiting in the wings.

It can be properly argued by quantity theorists that the non-use of deposit accounts as money does not invalidate the theory since they have always supported the practice of letting the facts on the ground dictate the content of the theory. This is fair, but when so used, the generality of the Quantity Theory becomes greatly limited, since we need to know all the societal institutions governing transactions before we can properly apply the theory. Theories justify themselves by their generality and their informational conciseness, and the Quantity Theory fails this test. It is not being claimed that *some* theory may not be constructed after taking into account all the institutional complications, but only that prior knowledge of the Quantity Theory, and the mammoth literature attached to it, is of no help in such an endeavour, One may as well take Econ 101 and begin *de novo*.

The survival and widespread use of the Quantity Theory is a tribute to the readiness of economists to simplify a problem and then stick with the simplification. The supreme virtue of theory is that it allows a lot to be done with very little. When it works it is a model of efficiency. Hence the desire to guide LDC policy after WWII by using the Quantity Theory(Eshag), and the continual attempts to find a measure and a time lag that will make the Quantity equation practical. It is attractive policy even to those whose theoretical principles give them latitude to move in other directions, such as Gurley and Shaw. If the thesis argued herein is sustained, the practical relevance of some debates in the literature will be clarified. For example, the debate between monetarists and Structuralists in Latin America will not involve monetary principles as both sides accept the Quantity Theory. The Structuralists are inadequately clear on their attitude towards

the truth of the Quantity Theory because they constantly refer to the Central Bank as 'validating' the actions of the politicians, firms and trade-unions. What would happen if such 'validation' did not take place? When concrete aspects of the economic structure are referred to, the sluggish nature of Agriculture and its dominant role in the economy are repeatedly raised---issues which take us back to Early Modern Europe and to modern India and Bangladesh. What is significant about the debate is the insistence of the Structuralists that each society being prescribed for be individually studied. The general principles are few and easily learned; the idiosyncracies of any given country are the heart of the problem. As Sunkel urged:

International observers have unfortunately nearly always had to make do with sporadic and partial information which, since the beginning of the stabilization programme, has even become biased. ... The simple truth – none the less ignored because it is simple – is that inflation does not occur *in vacuo* but as part of a country's historical, social, political and institutional evolution. ³⁹

Such interpretations of inflation proceed on the belief that the underlying causes of inflation in underdeveloped countries are to be found in basic economic development problems of the LDC's.No doubt there are some general principles but these are so amorphous that they lead to no policy without the institutional details. Rather than begin with a 'theory' and then modify it to each country's institutions, it is better to introduce the institutions at the start and then see how their functioning is directed by economic principles.

Inertia, and Endogeneity: checking some assumptions

That people were not inter-temporal maximisers is a point no historian needs to be reminded of. Nonetheless, since economists assume it so readily we need to provide some selected instances. If people were perfectly calculating and actively greedy, arbitrage between different forms of money would instantly arise—but in practice people prefer to consider monetary labels to be stable as far as possible (Davies, 2000). (Fischer Black accepts the endogeneity completely with the theorists legedrdemain on such issues)” These variations in the relative mint prices of gold and silver were not readily removed by what we might term ‘arbitrage’, at least not so far as the use of coinage within England was concerned, for the coins were almost invariably accepted at their face values. Although this was truly a bimetallic period, nevertheless silver was mainly the medium of retail and domestic trade, whereas gold became, during the debasement period especially, mainly the medium of wholesale and foreign trade.” Barry Supple argues that one of the major disruptions to Stuart trade occurred precisely because of the inability of people to adjust smoothly to debased currencies.

People do get pushed into adapting to shortages or debasements, but the process is never easy: Samuel Oldknow, a Lancashire cotton manufacturer, struggled to get enough money to pay his workforce. Relatives would send him cash hidden in bundles of cloth. Oldknow went into the retail trade solely to obtain enough cash to pay the wage bill; when this scheme failed he was forced to ration cash payments to his workers for eighteen months from 1792 to 1794 paying them mainly in ‘Shop notes’ of one guinea down to 1s. 6d. redeemable in certain company shops. The historian who chronicled these facts notes that. ‘So many manufacturers were forced to adopt such measures that the first decade of the nineteenth century witnessed the heyday of the private token coin. When this stage was reached the government had almost completely lost control over the metallic currency of the Kingdom’⁴⁰ Note that the manufacturers felt forced to use such tokens---innovation occurs under pressure. We do not have any measure for the extent of pressure that will induce a response, or the extent of the response if it does occur.

For the developing world in the recent past, a striking example of the lack of arbitrage is provided by Porter for Pakistan.

It is not at all unusual for the price of a security to be quoted at other than par just a few months before, and even right up to the day of, its maturity. Effective “market” yields soar, or crash, to plus or minus infinity in the final minutes without attracting buyers or disturbing owners.⁴¹

More recent studies on the responsiveness of individuals to information shows that news is selectively filtered and absorbed; moreover, there appears to be threshold required for people to actually act on information they possess. It is claimed in defense that these failures to maximise are second-order effects, a response that begs the issue, since it can be shown that second-order effects cumulated over many individuals leads to first-order effects. A detailed econometric study by Brainard and Perry found that the reception and reaction to news on inflation depended on circumstances and seemed to

change over time. Time and circumstance are of the essence in deciding these questions.⁴²

Even if the Quantity Theory were otherwise true, it would need to be able to show that the Money Supply was under the control of the authorities for the Quantity Theory to become a policy instrument. The endogeneity of money makes this an unattainable wish. During the Elizabethan period for example, despite Government suppression, there were as many as 3000 different tokens circulating in London alone. And during the Commonwealth there was a crisis of small change in both England and Ireland leading to a vast issue by merchants, manufacturers and municipalities, between 1648 and 1672, of copper tokens and even signed cards. The creation of inside money rose to such proportions in England during the Industrial Revolution as to swamp the actions of the Bank of England⁴³.

Theories of Money feed directly into theories of banking because banks are the primary instance of financial intermediaries in a monetary economy and, perhaps more importantly, because banks have been the primary creators of new species of money, such as bank notes and checks. This has been the complaint of many an opponent of Monetarism, most notably Nicholas Kaldor.⁴⁴ The practice of Quantity theorists grants this because the definition of money is readily changed whenever the data shows a particular asset as having become sufficiently 'liquid'. But banks are private firms, we have no idea how they might change and in any case they are not the sole financial intermediaries in any economy.⁴⁵ A bank borrows money from depositors and then loans it out to borrowers. If it simply matched up savers and investors it would be an information broker and its actions would be quite transparent. When the bank receives money from us it gives us a receipt, acknowledging the deposit. These receipts, or bank notes, soon become acceptable as mediums of exchange and stores of value. In other words, the existence of a stable financial intermediary created a new money—notes or checks—because people looked at the new 'good' and found it to be more portable, divisible, etc. This process, the 'creation' of new monies and their acceptance goes on all the time in any free market economy. Historically, the importance of 'banks as creators of money' lies both in what they meant for the reliability of Mint statistics as well as for politics.

whereas the supply of minted money was arbitrarily and centrally decided and at a predetermined, definite amount, bank money in contrast arose spontaneously and flexibly, but to a total amount not known in advance, in accordance with the vague but insistent demands of local trade and business... For the first time in history money was being substantially created, not ostentatiously and visibly by the sovereign power, but mundanely by market forces...⁴⁶

Money economises transactions. Whenever people find a new way to economise, they will do so. This is a corollary of the following premises – that people are greedy, that this leads them to be both economising and inventive, that therefore we cannot rely on the continuance of any medium as money. Practical men have long since realised this. The Austrian school has been most vocal, and correctly so, about this point. My disagreement lies with the failure of the Austrians to follow through the consequences of the process by which optimising individuals set up and choose a good to be money. People do not cease their optimisation once they choose, say, silver as the medium of

exchange. The *process* continues. This is just what we mean by financial innovation. A reluctance to acknowledge this fundamental point is a fatal flaw in the modern attempts at a revival of the Quantity Theory. It is clearly suggested in the lament of an ex-Governor of the Bank of Canada, "We did not abandon the monetary aggregates; they abandoned us."⁴⁷

A clear recognition of the process is provided by Gurley and Shaw,

A financial system restrains growth if it ties the distribution of spending too rigidly to the distribution of income and if it does not make institutional provision for selective matching of surplus budgets in some sectors with deficit budgets in others. Spending units can be expected to look for ways around such restraints. Indeed, in any economy, the financial structure is continually reshaped by the efforts of spending units to break out of the confines of existing financial arrangements.⁴⁸

By contrast, Menger appears to consider a relative difference between different monies as an absolute one: "This difference in saleableness ceases to be altogether gradual, and must be regarded in a certain respect as something absolute"⁴⁹.

One way to avoid any nasty contact with degrees of rationality and speeds of innovation is to assume that one is already at the limit---either that people do not innovate at all or that they do so perfectly. The Real Business Cycle theorists argue that money is always available in the quantity needed for real equilibrium.⁵⁰ Such procedures do little to help economic policy. Much of the confusion on the importance of this issue lies in the phrase "store of value". When I put \$10 in my pocket for lunch this does not mean that I know I will be eating hamburgers and fries at the corner of Prospect Avenue at 1 pm . What I do know is that I will be hungry and, depending on how I feel and who I am with, I will pick something. If this is amorphous desire accurately describes how we deal with needs expressed today, when money is basically a medium of exchange, how can we ask for more specificity when dealing with our needs in the future? Yet this is the case money must handle when it is used as a store of value. The principal difference in the two cases must lie in the speed and the definiteness with which disequilibria are detected and remedied. Such problems are not met ,but evaded by fiat, when we turn to models which assume the equivalent of knowledge. As Hicks eloquently stated: "liquidity is not a property of a single choice; it is a matter of a sequence of choice, a related sequence. It is concerned with the passage from the known to the unknown---with the knowledge that if we wait we can have more knowledge"⁵¹ The extent to which individuals in a given society maximize, the time periods over which they maximize, the knowledge they demand before commitment, and their propensity to innovate are all issues which are crucial to deciding policy issues---and they are all questions for which theory is impotent.

Money Reflects Society

It is time to return to our original question about the existence of a theory of money in a society of intertemporal maximizers. What is money? Without a reasonably clear grasp of how to recognize money, how can we theorize about it? The traditional evasion is to remark that, “Money is what money does.” What does money do? It acts as

- (a) medium of exchange,
- (b) store of value,
- (c) unit of account, and
- (d) standard of deferred payments.

While Jevons popularized the above in the 1870s, they were clearly articulated at least since the time of Rice Vaughn in the 1630s. Einzig has taken the widest ethnological view of money, and Fritz Redlich provides the most useful historical overview in a particular context.⁵²

What are each of (a), (b), (c), and (d)? They only turn the question a step further—What is a store of value? Anything that permits value to be stored from today to tomorrow. However if we look at the millions of commodities available in the market, it seems that, except for fresh fish and fresh vegetables, all commodities, albeit to different degrees, can serve as stores of value. The problem now becomes not existence but *multiplicity*—many solutions exist, each with its own beneficial properties.

Suppose for a moment that a single commodity is uniquely optimal as medium of exchange, and that there is also a unique store of value and also a unique standard for deferred payments. What reason do we have to believe that all these properties will coalesce in *one and the same* commodity? History does show certain goods being chosen as money but this does not answer our question whether such choice can be theoretically defended?

In view of the multiplicity of possibilities for “money,” i.e., goods which have the attributes of money in varying degrees, it should follow, as most students know, that many commodities have been used as money; more importantly, where the free-market mentality exists, we would expect continual monetary innovations. This is borne out in the behavior of the American colonies, in Scotland, in the proliferation of trade tokens in London.⁵³ It is seen in the ancient world in Lydian and Chinese coinage. An extreme case of the obverse is visible in the absence of coinage among the hierarchical Incas (but coinage existed among the more decentralized Mayas. In areas where a strong feudal order was established, there would not be a multiplicity of moneys, but rather there might be much adulteration or counterfeiting while in those states where a subordinate, colonial, mentality had taken root, one would expect a minimum of financial innovation.⁵⁴ In those ages where bourgeois life and the order of property, took strong root we would expect theories of money (singular) to flourish, as in Victorian England or in the USA in the first half of the twentieth century. Indeed, it is a peculiarity of Milton Friedman’s thought that he espouses economic ideas of choice which destroy the possibility of well-

defined “money,” while supporting an economic system that is based on a rigid adherence to property, a system which Friedman sees as being upheld *only* with a well-behaved money. Is money endogenous or exogenous? If exogenous, as the Quantity Theory, especially in its policy variants, requires, why do people continue to use the exogenously supplied currency as the economy changes? Why do optimizers stop optimizing? For example, when money is scarce, why are substitutes not used? If, on the other hand, money is endogenous, or if a substantial component of the money supply is endogenous, then we should worry about the factors determining such endogeneity and not the money supply itself.

If money is endogenously developed then there is nothing to directly theorize about—rather, the theorizing should be about the factors that cause money to be demanded, created and destroyed—not the money per se. If money is exogenous, we have to ask why people accept it? What prevents them from innovating new monies? And how this is consistent with a free-market mentality? If we do find evidence in colonies or LDC’s this is perhaps more due to the state of society—where both money and industry are controlled. This is no evidence for the Quantity Theory in the usual sense of the word.⁵⁵ It should be no surprise that the one modern society that supports the Quantity Theory vigorously is also a society well-known for its law abiding habits and acceptance of Government authority---Japan.

The importance of cultures in resolving the mix of risk and return that has to be calculated for each asset in order to obtain money is generally ignored. But once chosen, these cultural choices then further affect the evolution of the system and the policies viable in the economy. In this sense, the economy is both based on culture and its evolution is time dependent. Colonial debate, summarized in Michener, shows importance of particular details, as in South Carolina, and it neglects the role of near monies, the impact on output, and the perfect foresight of individuals. Large amounts of cash are readily handled in Japan and people seldom worry about traveling with the equivalent of several thousand dollars in their pockets. The USA and Canada are neighboring countries, very similar in many ways, yet they display divergent behavior with respect to the use of checks.⁵⁶

Such cultural differences also flow over into banking and finance. In East Asia, the financial sector shows some noteworthy features. There are exceptionally high savings rates, frequently above 30 per cent. Furthermore, most of these Savings have historically gone into bank deposits, with very little going into buying stocks or being used directly for investment. This makes the role of the banks so much more critical. Asian banks in turn are run on principles that emphasise personal relationships and long term relationships with customers. As a result, knowing people can be worth more than having transparent accounts and suffering short-term losses, and the consequent loss of liquidity, is less devastating in Asia than in America. These features are not unique to Asia, nor are they due to some “Asian values.” They were first successfully practised in Germany and the interference of banks in the stock market is a well known fact in Israel.⁵⁷

Conclusion: Forwards, sideways, Back

There are several ways to “model” money and a few words on each may be appropriate before coming to the conclusion:

A. Money in the Utility Function—favored by Patinkin, Valvanis-Vail, Grandmont.

This is truly “ad hoc” because our models can only bear real values—no one consumes money. Hence, we must move to

B. Money as a constraint.⁵⁸ Money in the constraint as a Medium of Exchange, originally formulated by Clower, put in a general equilibrium framework by Shubik-Dubey, and summarized by Kohn. This is a summary of a program to see if the barter—money transition can be effected. Overlapping Generations (OLG) models make “money” an intertemporal medium of exchange, thereby forcing several functions by fiat. An early conference led to much opposition and the comments in the published volume make interesting reading. Tobin firmly rejected the relevance of the OLG models but to no avail. Cass and Shell felt constrained to reply. The care with which they outline the fragility of any general policy based on such models is worth detailed perusal and serves to underline how such constructs can become all the more a trap for LDC’s to follow. As several scholars have noted, the New Classical theories of Money have sprung from endowing agents with more powerful maximising abilities than the old Classical had ever conceived.⁵⁹ The complexities of fiat money OLG models are quite needless from the historical and institutionalist point of view, since political power is effective only when people accept the authority of the rulers. This acceptance of legitimacy is sufficient, to a first order of approximation, to make money, even fiat money, pass as currency. The German monetary theorists had made this point in the early 1900’s and it has been established in a general equilibrium framework by Starr(1974).

C. Money for Precautionary & Transactions motives.(Baumol and Tobin.) These models take the existence and value of money for granted; they only try to see how much of *the* money commodity it is good to hold. From the review in Barro-Fischer it is clear that a ‘theory’ emerges only when we have one or two “money” commodities.⁶⁰ The empirical relevance of the entire framework has been effectively discredited by Sprenkle, who focuses upon the fact that the models depend upon centralized, coordination action by firms.

It will be shown that differences in decentralization and timing will make enormous differences in optimal cash holdings. These differences are so great that the simple models literally explain nothing. Moreover more sophisticated versions of the model will be equally unhelpful without substantial additional information and knowledge which is currently unavailable.

Sprenkle then points out that the theory focuses upon variables with the wrong order of magnitude.

What is not generally understood, however, is that although the precautionary and speculative demands for money are very low or nonexistent, there are other demands for money which in fact are huge in comparison with any conceivable transactions demand. These demands are basically caused by the fact that institutional arrangements in the U.S. are such that large economic units pay for bank services by holding deposits rather than paying fees. The profession seems to have been misled by thinking of such service balances solely in connections with bank loans.

Once the appropriate recognition of institutional factors is attained, and it is seen that service balances are held by large economic units to pay for the great array of bank services used by the large units. As a result Sprenkle is able to conclude that “although the degree of decentralization of cash management and the timing of receipts and/or payments make large differences in the transactions demand for money, no conceivable assumptions can be made for which the transactions demand is more than a small fraction of observed cash balances.”⁶¹

How far Sprenkle’s criticisms are still valid are besides the point. What is critical is to note that the institutional details and slight theoretical complexity overturn any practical use of the theory. This sets a simple test for any theory claiming to be useful: Invariance under institutional changes and robustness with theoretical advances. Once we generalize the Sprenkle critique in this fashion, recent advances are no longer very impressive. It is curious how the recent literature on buffer stocks, a more sophisticated variant of the inventory-theoretic models, tries to bypass the basic objections raised by Sprenkle by using more high-powered econometrics.⁶²

We can now turn to more mundane reasons for thinking that money is not an economic phenomenon. Consider the island of Yap. The Island of Yap provides us with some fundamental insights into money. The Yap use large circular stones as currency. Some of them are too big to move. It does not matter. Everyone knows who owns which. When a large stone was sunk during transportation between islands the elders decided that the loss was no one’s fault, so the stone still belonged to its owner. The stone has transferred hands even though it is at the bottom of the ocean! With complete trust and infinite information we would need no records. So beads, counters or rocks serve as records for lowering trust and information. We have the knowledge of a debt but it needs “triggering” with a rock and we substitute knowledge of things for persons. The Yap have taught us that money is a device to overcome deficiencies in trust and information. To explain why trust and information structures are stable we need a theory of society—a theory of money may follow.

Henry Thornton made the prescient remark in his fundamental contribution to monetary theory: “Commercial credit may be defined to be that confidence which subsists among commercial men in respect to their commercial affairs. This confidence operates in several ways. It disposes them to lend money to each other, to bring themselves under various pecuniary engagements by the acceptance and endorsement of bills, and also to sell and deliver goods in consideration of an equivalent promised to be given at a subsequent period.”⁶³

George Berkeley provides the clearest insights into the nature and functions of money. He stresses that money, although only an instrument, is an instrument of the greatest potency.

5. Whether Money be not only so far useful, as it stirreth up industry, enabling men mutually to participate in each others Labour?
6. Whether any other Means, equally conducing to excite and circulate the Industry of Mankind, may not be as useful as Money?
7. Whether the real End and Aim of Men be not Power? And whether he who could have every other thing else at his wish or will, would value Money?
42. Whether a fertile land, and the Industry of its Inhabitants, would not prove inexhaustible Funds of real wealth, be the counters for recording and conveying thereof what you will, Paper, Gold or Silver⁶⁴

The English financial system looked the most unusual in the early 18th century. It was anchored on the National Debt, undertaken as a truly National obligation, and it continued to grow faster than the National Income throughout this period. Expectations about trust were formed and maintained. Berkeley saw very clearly in 1743 the importance of this new financial institution..

233. Whether the credit of the public funds be not a mine of gold to England? And whether any step that should lessen this credit ought not to be dreaded?

Current research has brought back the old insights to our attention. In a pioneering paper, Kiyotaki and Wright allow all goods to function as money to different degrees---the multiplicity of potential monies that has been insisted upon throughout this essay. They conclude that "A critical factor determining if an object can serve as a medium of exchange is whether or not agents believe that it will. In other words, the use of money necessarily involves strategic elements and certain aspects of social custom"⁶⁵

The importance of power and trust is seen in the role played by a hegemon in International Money. The free-rider problem faces the international payments system and its stability would therefore require a hegemon in order to induce order. The evidence supports this conjecture both negatively, as the absence of a hegemon in the inter-war years led to considerable disruption, and positively, since the Bretton Woods era produced much calm under the shelter of the dollar.⁶⁶

Alexander Noyes claims that banking panics in the late 19th century were faced by relying on the strength of personal relations.

What the New York banks did in the emergency (as in 1873) was to pool their united resources under a personal dictatorship... Frederick D. Tappan was invariably put in charge when panic had to be combated – sometimes being summoned to dictatorship when he was not even a member of the official Clearing House committee... Tappan at once gave to banking institutions, far larger than his own, peremptory orders for the massing of bank credit and its use at every danger point -- much as a military commander might have moved his regiments... If a city bank was confronted with embarrassment, though its assets were sound, Tappan assessed on the stronger banks the credit requisite for relief, and disbursed the funds through his emergency committee.⁶⁷

A striking recent instance of the power of society in determining monetary relations is provided by the bank strike of 1970 in Ireland. The banks were on strike for over six months and everyone expected the strike to last a while. Some 85% of the money

supply(M2) was shut off from the public. Nonetheless, checks on the closed banks not only continued to circulate, they even formed the main medium of exchange! In a small economy, where personal contacts were frequent and close, both trust and information continued to flow and money, the visible representative of such trust and information, also circulated freely, despite the higher risk of default.⁶⁸

Let us remember that the critical question requiring an answer is why knowledgeable, maximizing, individuals will (a) continue to use one commodity as money, (b) have a stable relationship between money and economic activity. With these questions in mind, let us ask if monetary mechanisms—which I am interpreting as means to lower transactions costs and instruments to liquefy future wealth—can ever be expected to satisfy the requirements (a) and (b) above. If they cannot reasonably be expected to do so, then we must conclude that any observed stability arises from the *failure* of economic agents to be knowledgeable and maximizing. Any success for say, the Quantity Theory, is really an indication of a society where socialization has led people to suspend their money-creating activities. Why did Midwesterners try repeatedly to set up “Free Banks” and a variety of media of exchange from 1830-1860, but feel constrained by the Federal Banking System in the 1930s? Consider the raw animal spirits expressed by the following quote from a hotelkeeper in Chicago in the 1840's when banknotes of dubious worth ('wild cats') are said to have been rife.

Why sir, ...this hotel was built with that kind of stuff...I will take 'wild cats' for your bill, my butcher takes them off me, and the farmer from him...On this kind of worthless currency...and our wants, we are creating a great city, building up all kinds of industrial establishments, and covering the lake with vessels---so that suffer who may when the inevitable hour of reckoning arrives, the country will be the gainer.⁶⁹

I would suggest that the difference lies in the indoctrination of the one hundred years separating the two periods. Faith in the “system” had increased to such an extent by the 1930s that people suspended their “money making” creativity. The Quantity Theory of Money is really a theory of a “Quantity Society.”

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This paper has been evolving over many years, as noted in the Introduction. I am grateful to Larry Neal, Dan Orr, Joseph Salerno, Case Sprenkle and Ross Starr for helpful comments and conversations. An early version was presented at the Austrian Economics Conference at Auburn, 1997. I am grateful to all the participants for comments.

¹ The question of the Free State Banks and their replacement by the National Banking system has

been recently illuminated by Selgin(2000).Brainard. 1964,431-432.

² Mann, 1969, 541.

³ Hicks, 1989, 42-43 .

⁴ Einzig,1966, 440.

⁵ David Cass and Karl Shell, 1980, p251.italics in original

⁶op.cit.p252

⁷ Tobin,1980,Discussion,p83.

⁸ Chandler, 1971,pp2-3.

⁹ Menger, in Starr(1989),p71

¹⁰ Rice Vaughn made these points in the 1650's, Jevons repeated them in the 1870's and Tobin (1958)systematically incorporated monetary theory within the framework of asset choice

¹¹ .I am going to avoid all discussion of technical issues such as those raised by Alkan (1984), (Bewley (1983) or Feenstra(1986).,Huo(1987), or Kehoe and Levine (1990)

¹² De Long,(2000) shows the common attributions of precedence. On the rise and rhetoric of the Quantity Theory see Dimand(1998) on Fisher and Mayer (1997) on Friedman.

¹³ Friedman makes the transition almost entirely empirical, but this takes us far away from Fisher's claim that the transactions version was in the nature of a tautology based on the equation of exchange. Mankiw's text(1997),pp152-155, provides an ingenious evasion by assuming that T is proportional to Y.

¹⁴ This is how Irving Fisher saw it. Fisher(1925),ch3. In October 2000, the Federal Reserve bank of Cleveland is having to puzzle over the recent fact that this was one of the "remarkably few periods where M3 growth was increasing while M2 growth was decreasing"p5

¹⁵ Kinley (1910),Working (1923),Leong(1930),and more recently,on related issues,Boughton and Wicker(1979). Edgeworth has a nice pictorial representation of the Quantity Theory as envisaged by Fisher and as it needs to be to match reality. Mirowski(1994). Unfortunately, the quote is too long to include here.

¹⁶ Fisher, op cit,26-27. Fisher states several possibilities, but this is the only one he follows up.

¹⁷ Kaminow,1971,p5. In 1993 the Federal Reserve bank of Cleveland wrote in its Bulletin the "Inflation...originates from excessive growth in the money supply...[and] cannot persist without excess money growth" p7. I will not treat Wicksell's views as I find Humphreys (1997) persuasive on Wicksell's essential acceptance of the Quantity Theory.

¹⁸ Einzig,op.cit.,p450

¹⁹ Litan,1991,p15.

²⁰ Simons to Hayek, December 18, 1934.In Phillips(1995),p91. Pigou's polite demolition of this mode of thinking was much too polite. Pigou(1917). I am writing a longer critique of Fisher's monetary thought.

²¹ Carlton, p926. Carlton's conclusion for Industrial Organisation is that "If there are large shifts in the timing of when goods get consumed as demand and supply conditions change, the data should reveal large swings in delivery lags (the lag between the placement and shipment of an order). Many markets do seem to be characterized more by fluctuations in delivery dates than by fluctuations in price."

²² Monetary Trends in the United States and the United Kingdom. Chicago. University Press/NBER, 1982.

²³ Kindleberger, 1998, p7

²⁴ Hume, "Of the Balance of Trade", in Rotwein (1955). Most historical accounts focused on the Quantity Theory begin here. Irving Fisher uses a very similar example.

²⁵ Hume op.cit.,p62

²⁶ This repeats Rashid 1984

²⁷ Hahn (1980),p163. This emphasis upon process is common to several schools of thought. Ghislain Deleplace and Edward J. Nell, Monetary Circulation and Effective Demand, Introduction to Money in Motion, p11, "the claim of circulation analysis that the determination of the level of activity of an economy and of related aggregate magnitudes is not independent is not independent of the way payments are organised i.e. how money is created, spent and destroyed."

²⁸ Committee on the Working of the Monetary System, 1959: 133

²⁹ See the essay by Mayer in Mayer (1978)

³⁰ Friedman, 1973. There is a more moderate statement in the Palgraves. Friedman insists that interest is the price of credit while the general price level is the price of money. In effect Friedman is calling the price as a medium of exchange the price of money, while calling the price as a store of value the price of credit. Since both uses coalesce in one and the same object, this distinction is of little practical help.

³¹ Coats and Khatkhate(1980) reflects this.

³² Papadimitriou and Wray, 1994. Very much the same point is made by Benjamin Friedman and Kenneth Kuttner 1996 and more strongly by Alan Blinder,1998, 26-29.

³³ Miskimin(1984,1985), Rice Vaughan,op.cit.36-37,Ashton(1992), Kerridge(1988)

³⁴ Outhwaite,1969, pp29-31.

³⁵ op cit, 31

³⁶ Humphreys(1997),p71. That the stable empirical relationship between money and Income could be largely due to accounting relationships, rather than causal ones, was suggested in a little known paper of Patrick Hendershott, but it does not appear to have been followed up. See Moore,(1988),p85 for the same argument about identities and causation. Julian Simon made a somewhat similar point about long-run constancies in growth theory.

³⁷ These remarks are based on a stay at the Bangladesh Planning Commission in order to build a Monetary module for their model.

Sprenkle(1993) and Thomas(1992) show fraught with uncertainty are all measures which rely on the accuracy of official statistics. Doyle(2000) finds the proportion assigned to the USA to be too high and that too Germany too low, but also confirms the enormous worldwide currency substitution, having tripled in constant dollars in the last decade.

³⁸ Balakrishnan,(1991)188. The emphasis upon real structural factors is also a feature of Thomas Tookes analysis.

³⁹ Eshag,(1983).Terry Fitzgerald, Economic Commentary, Fed Cleveland August1, 1999.Sunkel(1966). The role of social factors is the focus of Baer(1991)

⁴⁰ Davies,(1994),200. Supple(1959),F. S. Jones, As quoted in Davies

⁴¹ Porter (1966)

⁴² Akerlof and Yellen (1985).quoted by Akerlof (2000),15.

⁴³ Davies, (1994,p.54 & 242).O'Brien (1993)

⁴⁴ Kaldor,(1982)

⁴⁵ Moore(1988) makes an extended and persuasive case for endogenous money.More orthodox economists ,such as Charles Schultze, also appear to accept its validity,pp63-71. The difficulties created for national Currencies by the new mobility of money is discussed by Tobin(1998).

⁴⁶ Davies, op cit, 281

⁴⁷ Rashid (2000). A 'practical man',James Grant, writes in the **Austrian Economics Newsletter**, Winter 1996. " However good the Fed has become at counting money, the private market has been that much better at reinventing it. "p5 . Quoted by Friedman and Kuttner(1996),p23 and also by Blinder(1998),p28.

⁴⁸ Gurley and Shaw,50.

For other examples see the barter system, LETS, in Diana Coyle, *The Weightless World*, and the recent explosion of Financial Services encouraged by the computer revolution..

Ghislain Deleplace and Edward J. Nell, *Monetary Circulation and Effective Demand*, Introduction to Money in Motion, p11, "the claim of circulation analysis that the determination of the level of activity of an economy and of related aggregate magnitudes is not independent is not independent of the way payments are organised i.e. how money is created, spent and destroyed."

⁴⁹ Menger, in Starr,79. One of the ironies of monetary history is the frequency with which famous economists wear two hats, eg., Menger, Friedman, Tobin...

⁵⁰ Fischer Black(1995)

⁵¹ Hicks,1974, 38-39. G. L. S. Shackle and the Neo-Keynesians have made this a fundamental issue in their critique.In *The Years of high Theory*(CUP 1967) Shackle describes money as " the refuge from specialized commitment, the postponer of the need to take far-reaching decisions" p6. Tobin (1980) pp25-27.

⁵² Redlich(1951). The pervasive influence of our view of money on issues like banking policy can be seen from the influential question of Gerald Corrigan , Are banks Special.? He finds the three key traits of banks to be;"First, they offer transactions accounts as defined; second, they are the backup source of liquidity for all other institutions; and third, they are the transmission belt for monetary policy",Corrigan(2000),p16.

⁵³ Lenman,(1981)pp 50-52; Mackay,(1984) 54, 85

⁵⁴ Davies,op.cit. 57, 63.

⁵⁵ It is entirely consistent with this view that some of the most persistent and credible evidence for the Quantity Theory comes from a society such as modern Japan. Ito(1968) and Yoshio(1981). With regard to Japan's recent ,prolonged slump, an article in the Economist, 'A Japanese Puzzle', Economist, June 19, 1993 noted early how the use of money for finance as opposed to transactions was an important part of Keynes' attack on the Quantity Theory in the *Treatise* and has received some support in modern Japan. As the impact of asset inflation requires attention to

inter-sectoral differences in investment preferences,(speculation), the topic is not given much attention. But see Kindleberger (1995)

⁵⁶ Seldon, 1999. The importance of institutional and historical detail for understanding even western economies can be seen for the Colonial period in Michener(1992) and for the Greenback era in Selgin(2000)

⁵⁷ Wade, 1540, Delhaisse 25,26, Blass and Grossman.

⁵⁸ One's first reaction is to exclaim, "What! Money is supposed to open up possibilities. What sort of societal arrangement would turn it into a constraint?" Nonetheless, since we can only model objective functions or constraints, these are our only choices.

⁵⁹ Howitt (1986),Kohn,(1983) and Laidler(1988).

⁶⁰ Barro and Fischer,(1976). No notice of Sprenkle's critique is taken here.

⁶¹ Sprenkle (1969)

⁶² Mizen,(1994)

⁶³ Enquiry, ed Hayek, 75 . Joseph Schumpeter aptly indicated that the value of Thornton derived from a complete familiarity with the practical details of the British monetary system.

⁶⁴ For details see Rashid(2000) on Berkeley.

⁶⁵ Kiyotaki and Wright, p928

⁶⁶ Eichengreen.(1987). A staunch supporter of the classical theory arrives at the same conclusion by a different route. Fraenkel (1977) notes clearly the central importance of trust in the establishment of capitalism. Such trust in Fraenkel's view must be embodied in money---hence his sustained opposition to the presumed monetary manipulations of the Keynesians.

⁶⁷ Noyes, pp110-111.

⁶⁸ Murphy(1978)

⁶⁹ Marvin Myers, The Jacksonian Persuasion, 137-38. I am grateful to Michael Perelman for this quote. On the importance of the financial relations in deciding hegemony between Chicago and St Louis, see William Cronon, Nature's Metropolis, Norton,1991.