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WHAT REMAINS OF THE MONETARIST COUNTER-REVOLUTION?

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Paper prepared for Howard Vane and Brian Snowdon
Reflections on the Development of Modern Macroeconomics

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WHAT REMAINS OF THE MONETARIST COUNTER-REVOLUTION?

Thomas Mayer

Although Blaug (1995, p. 27) has called the quantity theory 'the oldest surviving theory in economics' many. perhaps most economists believe that the monetarist counter-revolution has run its course: that Friedman's attempt to refurbish and revitalize the quantity theory has failed. I shall argue that this view, while correct for a hard-core version of monetarism. is not correct for a softer version. But first to delimit what I mean by monetarism and will discusr. I exclude from it new classical theory. I also do not cover some broader aspects of Thatcherite policies, such as reducing the power of unions or curbing the growth of the public sector. so that I am dealing only with issues of monetary theory and monetary policy. I relate it to mainstream Keynesian theory. such as found in modern macroeconomic textbooks. Perhaps such theory should not be called 'Keynesian' any longer, but that is a convenient label.

To show that much remains of monetarism I first summarize its basic theoretical ideas and then discuss the extent to which they have passed into modern Keynesian theory. Then, after looking briefly at interpretations of the Great Depression. I do the same for issues of monetary policy. For reasons of space I focus on the work of the three leading monetarisrs. Friedman, Brunner and Meltzer. and do not discuss the important work of others. such as Anderson, Cagan, Darby. Dewald. Hetzel, Jordan, Laidler, Poole and Rasche.

At first glance the evidence for the demise of monetarism seems overwhelming. Few articles on monetarism appear in the professional journals, and monetarism is no longer a popular topic for conferences. Just as telling is that nowadays few, if any of those starting on their careers as economists declare themselves to be monetarists. Economists who do call themselves monetarists are nearly all older, and many are close to the end of their careers. It would not be surprising if by the year 2016, that is sixty years after Friedman (1956) launched the monetarist counter-revolution, there are virtually no active monetarists left. But that does not mean much - ideas can live on even when their labels no longer do.[1]

What has happened is that much of moderate monetarist doctrine has been absorbed into the mainstream, and hence is no longer credited to monetarism. We have here a Hegelian

process of thesis, antithesis, and synthesis. Hence. if Keynesian theory is credited with victory it is in good part because it was the more flexible, willing to absorb the best that the opposition had to offer. F'erhaps this greater openness to alien ideas resulted primarily from unfolding events in the 1960s and 1970s pointing in the monetarist direction, or perhaps it was merely due to an accident of personalities, the leading Keynesians being more flexible in their thinking than the leading monetarists. It might also be due to Friedman's model being. as explained below, a special case of the Keynesian model. and it being easier to 'work down' from a general model to the specific one than the other way round. On these issues one can only speculate.

If modern mainstream Keynesian theory embodies many ideas that monetarists had earlier advocated, does that necessarily mean that monetarists should be given credit? Perhaps their arguments were ineffective, anti mainstream macroeconomists were influenced not by them, but only by emerging facts? Historians do not credit the Chartists with generating major changes in the British political system, even though all but one of their demands have since become law. There is no way of comparing the persuasive powers of monetarist arguments and of emerging facts. But it seems plausible that both played a part. And even if it were true that monetarist arguments played only a minor part. monetarists should at least be given credit tor having pointed in the right direction. Moreover. one might argue that something may remain *from* the monetarist counter-revolution. even if it is not here *because* of the monetarist counter-revolution.

If monetarism lives on in Keynesian theory does it also live on in another macroeconomic school, new classical theory:' Monetarism did influence this theory. Its early version. Lucas's island model'. dealt with the response of the economy to a money supply shock. But monetarism has less in common with the more mature new classicism of real business cycle theory than it has with Keynesian theory (Laidler, 1992); a change in the money supply is one of the variables generating income changes in the General *Theory*, but not in real business cycles theory. Moreover, Friedman is a Marshallian, not a Walrasian (see Hirsch and de Machi, 1990). He puts more stress on empirical evidence than the new classicals do, and while

both he and Lucas advocate a stable growth rate of money. they do so for very different reasons.[2]

Friedman's Monetary Theory

There are two major versions of monetarist theory. The better known Friedmanian version is a refurbished form of the traditional quantity theory, in which changes in nominal income are explained by changes in the supply and demand for money. This version of the quantity theory, unlike the old-fashioned version, does not take the demand for money to be numerically stable. Instead, it takes the demand for money to be a stable function of a limited number of predictable variables, such as real income and the opportunity cost of holding money. Friedman then adds to this money demand function the hypothesis that the observed changes in nominal income are due predominantly to changes in the supply of nominal money, not to changes in demand. This is. of course. an empirical claim whose validity depends, in part, on how variable the money supply is in a particular economy. For example, if a country had adopted Friedman's stable monetary growth-rate rule, his quantity theory would be essentially useless for analyzing its economy, since none of the observed fluctuations in its nominal income could be due to changes in the money supply

One can think of Friedman's theory as a special case of Keynesian theory. The latter looks at income as determined by the marginal propensity to consume. the marginal efficiency of investment, the demand for money (liquidity preference) and the supply of money. Friedman treats this as unnecessarily complicated, and as distracting attention from what is central. Since money holdings correspond to the difference between receipts and expenditures one can determine expenditures by looking at the excess supply or demand for money, that is at just two of the Keynesian variables, liquidity preference and the supply of money. This is a good research strategy if the demand for money is a stable function of a few measurable variables.

Don Patinkin (1969, 1972) has argued that Friedman's theory is not a genuine quantity theory, but is a Keynesian theory in disguise. One reason is that. Friedman like Keynes, but unlike the traditional quantity theorists, uses portfolio analysis to explain the demand for

money. Second, like Keynes, he formulates his analysis in terms of stocks and not in terms of flows.

Patinkin's argument is not persuasive. First, an important function of theories (or paradigms) is to generate research strategies, and Friedman's research strategy differs sharply from Keynes's. Keynes treated expenditures as determined primarily by incentives to spend. while Friedman, like traditional quantity theorists, treats expenditures as determined primarily by money holdings. Hence, Keynesian theory directs attention to explaining the motives for consumption and investment, while Friedman's theory directs attention to the motives for holding money. Second, Patinkin's argument requires that one classify theories by the analytic tools they use. and not by their assumptions and conclusions. Friedman uses some Keynesian tools bur makes traditional quantity-theory assumptions. and thereby reaches quantity-theory conclusions. In principle, the choice between classifying theories by their tools or by their empirical assumptions is a more or less arbitrary matter of convention. Hut only confusion and no benefits would result from abandoning the by now standard procedure of calling Friedman a quantity theorists and hence a monetarist. Instead. one can just say that Friedman's analysis has benefited from Keynes's insights.[3].

That the essential disagreement between Keynes's and Friedman's theories is empirical is shown by the ability to use the conceptual framework of one to generate, given the appropriate empirical data, the conclusions of the other. Suppose that (a) the marginal propensity to consume, the marginal efficiency of investment, the budget deficit and net exports, are all stable, and so is the liquidity preference function (which is also not highly interest elastic). and (b) that there are substantial and erratic changes in the money supply. A Keynesian, just like a monetarist, would then attribute most of the observed tluctuation of income to changes in the money supply. He would describe the process as follows: changes in the money supply shift the LM curve which then intersects the IS curve at a different point. so that income and interest rates change. For example, a leading exponent of Keynesian-type econometric-models models, Allen Sinai (1992, p. 1) wrote: 'Financial phenomena, ranging from crises to panics. to failures of financial institutions. to credit crunches, to busts have been decisive in virtually

every U.S. business downturn.' Conversely, suppose that the money supply is very stable. bur that, say the marginal efficiency of investment or the deficit increase sharply. Someone using a quantity theory model would then agree with Keynesians that income will rise. She would say that the increase in investment (or in the deficit) raises the interest rate, which induces the public to reduce its money holdings. so that velocity rises.

But one should not therefore say that the difference between Keynesian and Friedman's theories is 'merely empirical', because there is nothing 'mere' about empirical differences. In the empirical sciences. as distinct from logical sciences, such as mathematics, differences about empirical magnitudes are often the crux of the matter. Moreover, differences about empirical magnitudes generate differences in research strategies. A Keynesian is more likely than a monetarist to develop a hypothesis that explains the marginal efficiency of investment. and a monetarist is more likely to work on the demand for real balances.

The relative size and frequency of changes in the money supply and in such Keynesian variables as the marginal efficiency of investment are nor the only empirical magnitudes that have played a role in the monetarist debate. Another is the interest elasticity of the liquidity preference curve (demand for money). In the extreme Keynesian case. where this elasticity is infinite, a case that Keynes himself did not endorse (Keynes. 1936. p. 207). changes in the quantity of money have no effect on income. Conversely, in the extreme quantity-theory case of a completely interest inelastic and wealtli-inelastic demand for money. changes in the inierest rate. and hence changes in the marginal efficiency of investment or in the deficit have no effect on income. Indeed, at one time it seemed that the monetarist debate turned on the interest elasticity of the demand for money, because it seemed to many economists that Friedman had claimed that this elasticity is zero. But that was mistaken. Friedman (1959) had argued only that one can explain the long-run demand for money without paying attention to the interest rate, but that is different from claiming that the elasticity is trivial.[4]

Friedman does not deny that an increase in the money supply lowers the interest rate. which then lowers velocity. Instead, his argument is that an increase in the nominal money supply raises prices. so that the real money supply, and hence interest rates and velocity return

to their previous levels. (Friedman, 1972) Only in the short run. perhaps for a year and a half or two years, does an increase in the money supply lower interest rates and velocity. On the other side Keynesians agree that - ultimately - an increase in the nominal money supply leaves the real interest rate and the real money supply unaffected. but claim that the process takes much longer. Suppose the money supply increases at a time of substantial unemployment. Wages and prices then rise only little, and a substantial effect on wages and prices may not occur until well into the next expansion when unemployment has fallen to the natural rate.

A related issue is the nature of the Phillips curve. It may seem hard to believe now, but at least until about 1968 the simple Phillips curve without a price expectations term seems to have been considered adequate. Even in 1970 Paul Samuelson told beginning students that: 'the measured Phillips curve represents *short term* relationships which will shift in the longer run. ... [M]uch unemployment long maintained. may gradually *shift* the Phillips curve leftwards. But by the same reasoning continued low unemployment may shift the short-term Phillips curve rightwards.' (Samuelson. 1970. pp. 811-12. italics in original.) Nor a word about expectational effects. Lipsey and Steiner (1975 p. 833-4). after describing the hypothesis that the long-run Phillips curve is vertical, say that this hypothesis 'is currently the subject of major debate at both the theoretical and empirical level.' They list as one of points that seem agreed upon that inflationary expectations have been revised upwards, and that 'the actual rate of inflation does tend to accelerate as the expected rate accelerates'. so that one should be skeptical of claims that unemployment can be reduced to 'very low levels' with 'only a small and constant rate of inflation.' Taking only such a modest step in the direction of a vertical long-run Phillips curve is not surprising since the early empirical work on the expectations -augmented Phillips curve often found that the sum of the coefficients of the lagged inflation rate (which was then used as a measure of expected inflation) was significantly below unity.

All this is a far cry from what we believe now. However, it would be unfair to give the entire credit for the discovery of the expectaticns-augmented Phillips curve and its long-run implication to the monetarists. Edward Phelps published his version of the vertical Phillips curve in the same year as Friedman did, and Robert Gordon, a leading Keynesian, has been

the profession's leading researcher in the expectations-augmented Phillips curve. Hence, even though monetarists have been more insistent on the verticality of the long-run Phillips curve. they deserve only partial credit for correcting the earlier mistaken view of the Phillips curve. But they certainly pushed the profession in the right direction.

Another difference between monetarists and Keynesians, but one that is not fundamental is that Keynesians describe the transmission process from money to income as the economy's response to changes in relative yields, while Friedman does so as the response to a change in the quantity of money. But this difference does not involve a deep theoretical issue. Given the demand curve for money it is just a matter of wording whether one describes a movement along this demand curve in terms of a change in the cost of holding money. or in terms of the amount of money demanded. It d o e make a substantial difference on a practical level where measurement problems arise. Friedman believes that the measured interest rates used in Keynesian theory are potentially misleading because they cover a much too narrow segment of the market: for example, they exclude the imputed rate firms use to decide how much of their earnings to reinvest. Keynesians argue that the measurement of money creates even worse problems: is the proper measure M-1, M-2 or M-?.[5].

Brunner and Meltzer's Monetary Theory

I shall present Brunner and Meltzer's theory only briefly because it appears to have substantially fewer adherents among monetarists than does Friedman's theory. That does not necessarily mean that it is inferior. Its lesser influence may be due to it being more complex and less easily accessible to someone brought up on the IS-LM model than is Friedman's theory. or to Brunner and Meltzer lacking Friedman's extraordinary expository skills, or perhaps to Friedman teaching at Chicago where he had access to more top-notch graduate students than Brunner and Meltzer had.[6]. It is not due to the Brunner-Meltzer model performing less well on empirical tests, because their model is intended as a way to organize one's thinking, and not as a model to be directly confronted with the data. For empirical work Brunner and Meltzer derive from it testable hypotheses more or less similar to Friedman's.

Brunner and Meltzer provide a more developed and deeper model than Friedman does.

and spend considerable effort on modeling the economy as a whole, instead of following Friedman and concentrating on the demand for money. An aspect of the Brunner-Meltzer model that has caused much confusion is that their theoretical model itself does not point to the money supply as necessarily being the dominant variable. In principle, it could show Keynesian variables as dominating. Brunner and Meltzer then point to their empirical work, such as demonstrations of stability of the mnney demand function, as showing that money does dominate.

In their model changes in wealth and in the relative yields of asset play a prominent role. The government budget constraint, too. has a prominent role. Equilibrium is not reached unless the budget is balanced, because as long as there is a deficit the government is feeding additional bonds or money into the public's portfolio. Such a model is entirely consistent with Keynesian theory. And since it is logically coherent any debate about it must focus on the extent to which it focuses on interesting variables and 'cuts nature at its joints'. in other words on matters of scientific taste more than of truth. tor example, unlike traditional Keynesians models. tlie Brunner-Meltzer model takes the marginal efficiency of investment to be stable. Here Brunner and Meltzer are presumably :relying on indirect evidence: their finding that fluctuations in income are explicable by the behavior ot the growth rate of money. so that on reed not bother with tluctuations in the marginal efficiency of investment.7

Two Critical Issues for the Quantity Theory

Any attempt to explain changes in income by changes in the money supply faces two major critical challenges. that velocity cannot be predicted accurately enough, and that the money supply is not exogenous being itself a function of income.

The direction of causality became a serious issue as Culbertson (1960), Brainard and Tobin (1968) and Tobin (1970) showed the dangers of inferring causality from the observation that the growth rate of money usually precedes business cycle turning points. Friedman's (1970) response that the qualitative historical evidence for major cycles shows that money was causal, does not necessarily apply to the much more frequent minor cycles. More recent attempts to settle the issue by VAR techniques and Granger causality tests have been

inconclusive. Nor can the issue by resolved by arguing that the central bank can, - if it really wants to - control the quantity of money, because the issue is how to interpret the observed correlation of money and income, This correlation could well have arisen at a time when the central bank was not determined to control the money supply. The causality question is therefore an important unresolved issue in the monetarist debate.

Another serious challenge to monetarism came from the changed behavior of velocity. In the 1960s and 1970s demand functions for money had often given good fits, and M-1 velocity had risen at a remarkably steady rate each year, while M-2 velocity had been stable. But already then there were reasons for doubt. Even if a money demand function fitted to the levels of the data achieves a R^2 of 0.97, that does not suffice: a 3 per cent error in explaining the level of income is much too great. Moreover, the stability of velocity was essentially an unexplained result, there being no reason why the demand function for any good should be highly stable. And it is dangerous to trust that which we do not understand. *Perhaps* the stability could be explained by saying that money (or at least M-1) is an asset without close substitutes, but that sort of reasoning is too loose to inspire much confidence.

In any case. U. S. money demand functions began to deteriorate in the 1970s. Then in the 1980s the trend of velocity changed sharply, and, even after allowing for a new trend. velocity became more erratic. Using that most powerful tool of economic analysis. hindsight. one can say that this should not have been surprising. since technological innovations. such as wire transfers and falling costs of computations. reduced the demand for money. Moreover. as restrictions on interest payments on money were relaxed, money holdings came to include more balances that were not needed for immediate transactions. and for such balances securities are good substitutes. (Monetarists, by the way. had ardently advocated the removal of these restrictions.) Finding a measurable definition of money in a world of rapid financial and technological change is a serious problem for monetarism.

Despite numerous attempts to improve money demand functions or to redefine money so that its demand function or velocity are stable. the quantity theory can no longer be used to predict income. In the 1960s and 1970s the 'St. Louis equation' (developed by the Federal

Reserve Bank of St. Louis) had received much attention by showing that changes in the money supply and in fiscal policy predict income changes well, with money being by far the senior partner. By the mid 1980s that was no longer so. As Benjamin Friedman (1988b, p. 59) pointed out: "The double-digit average growth rate [of M-1] maintained for five years following midi-1982 represents the most rapid sustained money growth the United States has experienced since World War II, yet these same years also saw the strongest sustained deceleration of prices in the postwar period.' M-2 velocity remained stable until the 1990s. but then it, too, became erratic.

Hence, as a way of predicting quarterly or annual changes in nominal income the quantity theory seems useless. Forecasters do not follow the Friedmanian research strategy of looking almost only at the supply and demand for money, but use models derived from the IS-LM paradigm.[8] And it is precisely for such practical and 'low-level' purposes as prediction. and not for satisfying the wish for mathematical sophistication and intellectual elegance that the quantity theory is intended. Thus a major part of the monetarist research program had ended in failure.

Some Other Issues in the Monetarist Debate

Elsewhere (Mayer 1978). I characterized monetarist theory by the following five propositions in addition to the already discussed predominance of monetary factors in explaining nominal income. They are (1) validity of a monetarist model of the transition process: (2) inherent stability of the private sector: (3) irrelevance of allocative detail for explaining short-run changes in money income; and the related proposition that capital markets are fluid: (4) the need to focus on the price level as whole rather than on individual prices, and (5) that small econometric models are more reliable than large ones. To this should be added a general focus on longer run effects.

All, but the first two of these need some clarification. To understand the monetarist claim that the private sector is stable requires a definition of stability. One possible criterion. proposed by Brunner and Meltzer (1976), is whether, if the economy is shocked, it will return to equilibrium on its own without government intervention. But this is not a good criterion

because it specifies neither the time nor the intervening level of unemployment and inflation.[9] Moreover. this type of stability was accepted by many economists already before the monetarist counter-revolution. A better, though vague. criterion is whether the economy returns to equilibrium within a reasonable time, without generating unacceptable levels of unemployment or inflation. An alternative. less vague criterion is to take the observed level of instability as the criterion. and to say that we should call the private sector unstable if in the absence of stabilization policy we would experience more instability than we do now.

The two propositions about the irrelevance of allocative detail and the need to focus on the price level as a whole, are infrequently made explicit and now play a lesser role in the debate than they did in the 1970s. Some shocks, e.g., a bad harvest. directly affect only a particular sector. Since monetarists focus on equilibrium in the money market they tend to ignore such specific shocks that do not have a significant effect on the supply or demand for money. Keynesians, with their focus on the marginal efficiency of investment and the propensity to consume art. more sympathetic to looking at sectorial effects. Monetarists also focus on the price level as a whole, instead of on wage and price developments in particular sectors. Suppose that OPEC raises nil prices by 10 per cent, and that (directly and indirectly) oil accounts for 10 percent of GDP. *As a first approximation* Keynesians will tend to say that the price level will rise by one percent. while monetarists will say that it will not rise since the money supply has not risen. Keynesians were therefore much more hospitable to the cost-push explanations of intlation that were popular at one time.

In accordance with Keynes's (1924 p. 80) criticism of the quantity theory that: 'in the long run we are all dead'. Keynesians focused short run, disequilibrium situations, while monetarist focused on what happens once the economy is back in equilibrium.[10] Thus Keynes paid little attention to the fact that in his theory. too, an increase in the money supply *eventually* raises prices proportionately.

Half Full or Half Empty?

Although the difficulty of predicting velocity, and to a lesser extent the problem of determining the direction of causation, have severely damaged the hard core monetarist

hypothesis that changes in the money supply provide a reliable way of predicting changes in nominal income, a moderate version of monetarism has been much more successful. If one treats the monetarist counter-revolution as a protest against the deemphasis of changes in the supply of money as explaining income changes, then monetarism has won.

Despite the variability of velocity the quantity theory is still correct in claiming that a significant increase in the money supply will raise nominal income significantly, and that money is neutral in the long run. These propositions may seem like platitudes that no economist would ever have denied. But before the monetarist counter-revolution it was widely rejected. The standard argument was that the interest elasticity of demand for money is high, while the interest elasticity of expenditures is very low, so that even a substantial increase in the money supply changes interest rates by little, and aggregate demand by even less. In terms of the equation of exchange. changes in M are almost entirely offset by changes in V. Obviously, this is no longer the mainstream position. Massive econometric work has shown that the interest elasticity of demand lor money is moderate and the interest elasticity of expenditures is far from trivial. Moreover, imperfections of the loan market can significantly magnify the impact of monetary policy.

It is therefore not surprising that Alvin Hansen (1957, p. 50). who was widely considered the leading American Keynesian of his generation. wrote:

> I think we should do well to eliminate once and for all. the phrase 'velocity of circulation' from our vocabulary. Instead, we should simply speak of the ratio of money to aggregate spending. The phrase velocity of circulation is, I feel, unfortunate because those who employ it tend to make an independent entity out of it and imbue it with a soul. The little manikin is placed on the stage, and the audience is led to believe that it is endowed with the power of making decisions directing and controlling the tlow of aggregate spending. In fact it is nothing of the sort. It is a mere residual. We should get on much better if we substitute the word 'ratio'. The little manikin would then be forced back into oblivion where it properly belongs.

Similarly, in Britain the Radcliff Committee stated:

> 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. An analysis of liquidity on the other hand, directs attention to the behavior and decisions that do directly influence

> the level of total demand. (Committee on the Working of the Monetary System, 1959, p. 133)

Not only were the effects of a given change in the quantity of money treated as relatively minor. but economists also tended to stress the variability not of the money supply, but of the marginal efficiency of investment. Hence, it was in the animal spirits of entrepreneurs. and nor in the limited and cautious actions of central bankers that they saw the origins of economic fluctuations.

All that has changed radically, so that new-Keynesian economics, the most vibrant part of Keynesian economics, can according to two of its leading exponents 'also be called new monetarist economics.' (Mankiw and Romer, 1991, p. 3) As Mankiw stated in an interview:

> a lot of new Keynesian work is trying to reformulate the Friedman-Tobin view of the world. ... I think of myself as a Keynesian in the sense of believing that the business cycle represents some sort ot' market imperfection on a grand scale. In that sense I think of myself as Keynesian. Milton Friedman was also a Keynesian in that sense. My own views emerged as much from Milton Friedman as they have from John Maynard Keynes. ... I think that the broad theme of the *General Theory* is that the business cycle is something we really need to worry about .. In that way I am a Keynesian. but ... so is Milton Friedman. ... Most new Keynesian models involve some sort of natural rate: in that sense Milton Friedman has won the debate. ... In fact Keynes might not recognize the new Keynesians as Keynesians at all. (Snowdon and Vane, 1995. pp. 51. 53. 55. *57)*

Greewald and Stiglitz (1993. p. 23) list three propositions on which all Keynesians agree. One is that money 'matters at least most of the time, although monetary policy may be ineffective in some periods (like the Great Depression.)'

Turning to the other issues in the debate, the monetarist story of the transmission process has not made its mark. As already discussed, the Brunner-Meltzer version has few adherents. Friedman's general version (see Friedman and Schwartz, 1963b), too, has not made much of a contribution since it describes a process of asset substitution that differs little from the traditional story. Similarly, because of the failure of the small St. Louis model (the main monetarist econometric model) the monetarists' argument for small models has found little support. To be sure, distrust of econometric models in general has been bolstered by the Lucas critique, but the Lucas critique is not part of monetarism.

But three other propositions have fared better. It is extraordinarily difficult to determine

whether the private sector is stable. To a considerable extent opinions on this issue are matters of faith. (See Mayer. 1978.)[11] But it is easier to show that professional opinion has shifted in a monetarist direction. This was illustrated when as leading a Keynesian as Modigliani wrote with respect to the monetarist contention that the economy's response to demand shocks is small and temporary. that: 'it must be acknowledged that every one of the monetarists' criticism of early, simpleminded Key nesianism has proved in considerable measure correct.' (Modigliani, 1977, p. 8) Although I cannot document this I have the impression that on issues of the role of allocative detail in explaining,changes in income, and on focusing on the price level as a whole. macroeconomists are now also considerably closer to the monetarist position than they were. In particular, with respect to cost-push inflation professional opinion has moved in the monetarist direction. To be sure. the oil shocks of the 1970s have made economists more aware of supply shocks, but there is also a general recognition that in the long run such shocks can raise the price level only if' monetary policy validates them.

With respect to a long-run versus a short-run focus macroeconomics now to a substantial extent follows the monetarists in paying much attention to the long run. Growth models abound.

The Great Depression

As Lawrence Summers (1991) has pointed out. despite what they claim, economists' thinking is more intluenced by dramatic events than by sophisticated econometric evidence. It is therefore not surprising that the Great. Depression had an immense influence on macroeconomics. Before the publication of Friedman and Schwartz's *A Monetary History of the United States* (1963a) the Great Depression was treated as an unequivocal refutation of the quantity theory: without a significant change in the money supply the U.S. economy collapsed. and failed to revive despite an extraordinarily easy monetary policy. Hence, the quantity theory being unable to explain the most salient macroeconomic event of the century, must surely yield to Keynesian theory.

Friedman and Schwartz reversed this story, arguing that monetary policy was highly restrictive during the Great Depression, so that it illustrates the great importance of changes in

the money supply.[12] Their work led to an extensive and still ongoing debate. The Friedman-Schwartz thesis has taken some hits; thus, their explanation of why banks failed paid insufficient attention to the poor quality of bank assets, and their discussion of the effects of bank failures paid too little attention to the availability of loans to small firms. But their claim that monetary policy was restrictive appears to have found widespread acceptance. As a result of their work and related work by Brunner and Meltzer the Great Depression is now more likely to be cited as evidence for than against the quantity theory.

Monetary Policy

Monetarists have advanced six policy propositions: (i) the primary task of central banks is to control inflation. not unemployment: (ii) central banks need to use an explicit and validated framework of targets and indicators: (iii) the appropriate instrumental variable (proximate target) is total reserves; (iv) the central bank can control the money supply with sufficient precision: (v) the money supply is the appropriate higher-level target (except perhaps for small economies that might prefer to peg their exchange rates): and (vi) money should grow at stable or fixed rate.[13] On all but the first of these issues. and perhaps the fourth (whose vagueness makes it hard to discuss) monetarists appear to have failed to persuade many economists and central bankers. But. as shown below. that is more an apparent than a real failure.

That central banks should focus on controlling intlation is now widely though certainly not universally accepted by economists. This idea has also had practical impact. European central banks now do not respond to massive unemployment the way they would have done in the 1960s. In some countries the law now requires the central bank to give priority to controlling intlation, and this will also be the law in the EMU. In the U.S. the Fed has supported a failed attempt to impose such a law.

Monetarists have had less but by no means negligible success on the targets and instruments issue. They have failed in the basic sense that the preferred procedure is now GDP targeting. Since GDP targeting means to 'look at everything' that affects nominal GDP it is a negation of the monetarist recommendation to look only at a single target and a single instrumental variable. (See Mayer 1990, Ch. 9.) But even so, GDP targeting is a major

improvement over the focus on money market stability that was the target of so much monetarist criticism in the 1960s and 1970s.

Moreover, by criticizing the Fed's money market myopia, as well as its policy during the Great Depression, monetarists have changed the way we view central banks. Before the mergence of monetarism the prevailing view, at least in the United States, was that. while central banks have little influence over the economy, they use efficiently whatever powers they do have. Friedman and Schwartz and Brunner and Meltzer convinced much of the profession that this is not so. that the Fed has often functioned procyclically, and thus along with unfolding experience, they destroyed the myth of great central bank expertise and dispassionate judgment.

Monetarists have not been successful in inducing central banks to use a total reserves instrument. In the U.S. they seem at first glance to have failed entirely since the Fed is now as before using borrowed reserves and a short-term interest rate as its instrumental variables.[14] But this seeming failure hides some important partial successes. First. while prior to the advent of monetarism the Fed used these two variables in a naive way it has learned from the monetarists' criticism and evolving experience to use them more efficiently. It now realized that it' it keeps interest rates and borrowed reserves stable when economic activity and hence the demand for money rise. it is following not a neutral. but an expansionary monetary policy. The real bills doctrine has lost its sway.

The most discussed issue in the monetarist policy debate has been whether to use the growth rate of the money supply as the target variable. The main issue here is whether changes in the money stock have a more predictable effect on nominal income than do changes in some other controllable variable or set of variables. The monetarist position was badly damaged in the 1980s and 1990s when the demand for money became less predictable. One might. of course. argue that even so, the money growth rate is still a better predictor of GDP growth than is the short-term nominal interest rate that the central bank controls. But the case for this is much weaker than it had seemed in say. 1975. Not surprisingly, many countries that had previous targeted money ceased to do so. Moreover in recent years the Fed's policy has been

remarkably successful. even though it has paid little attention to monetary targets. That has made it hard to argue for such targets.

The boldest monetarist policy proposal is that the money supply should grow at a fixed rate (the hard-core monetarist position), or at least a stable rate.[15]. Monetarists have argued against counter-cyclical policy on two grounds. First. given the 'long' and variable lag in monetary poiicy, as well as errors in forecasting GDP and in predicting the strength of a given monetary-policy action, an intended counter-cyclical policy is more likely to have pro-cyclical than counter-cyclical effects.[16]. Second, monetarists have challenged the supposition that central banks act are motivated entirely by the public interest. They stress its self-interested behavior and its reliance on outmoded ideas (See for instance Friedman, 1982. Brunner. 1981) Friedman (Modigliani and Friedman, 1977) considers this political argument against discretionary policy to be at least as important as the argument from lags and forecast errors. In recent years this political argument has been reenforced by an extensive literature on time -inconsistency. It also gained support clue to the experience of the 1960s anti 1970s. when discretionary monetary policy, albeit aided by supply shocks, set many countries unto the path of unacceptable inflation (Cf. Darby, 1991)

These criticisms of countercyclical policy have not been answered effectively. (See Mayer, 1996.) Instead. the case for a fixed monetary growth rate rule has been undermined by the shift in the trend of velocity. Even if the monetarists are right and the central bank cannot ccunteract cyclical fluctuations successfully, it can more or less successfully adjust the monetary growth rate for changes in the trend of velocity. And it is hard to believe that self-interested behavior would prevent it from sooner or later doing so. The behavior of velocity in the 1980s and 1990s therefore drew attention to the fact that skepticism about countercyclical policy does not necessarily imply support for a fixed monetary growth rate rule.

But it is possible to adjust the monetarist position to take account of changes in the trend of velocity by advocating, as for example Meltzer (1987) and McCallum (1988) have done. a feedback rule which adjusts the monetary growth rate for longer run changes in velocity. For

example, one rule sets the growth rate of the monetary base equal to the target growth rate of nominal income minus the growth rate of velocity over the past four years plus an adjustment for misses of the growth rate of the base in the last quarter. Such as rule does nor require the central bank to forecast the business cycle or to know the lag and strength of its policy. And it does not allow the central bank to indulge in self-interested or politically motivated behavior. So it meets the concerns of the monetarists, and yet permits monetary policy to adjust - albeit with a lag - to long-run changes in velocity.

Whether such a feedback rule would perform better than discretionary policy is a debated issue, and critics, such as Benjamin Friedrnan (1988a) and Franco Modigliani (1988), have raised serious questions. But so far at least. a monetary growth rate rule in the form of a feedback rule is still an option that has to be taken seriously.

Surveys of Economist's Opinions

Table I shows the results of four surveys that contain five questions relevant for the monetarist debate. One the two U.S. surveys was taken in the heyday of monetarism and the other after M-1 velocity became unstable. Their results cannot be compared precisely both because their samples may have differed. and because the sampling errors are not known. All the same, it is notable that they show only a small. if any shift away from monetarism. Indeed. on the basic question whether inflation is primarily a moneiary phenomenon monetarism appears to have gained support. And, surprisingly it has, it' anything, gained rather than lost support also on the issue of stable monetary growth. On three other questions, it seems to have lost some support, though this is perhaps just a matter of sampling errors, and even if not, the indicated losses are small. The two other surveys do not allow one to compare shifts over time. but they do show that U.S. economists are hardly the only supporters of monetarism. A British study that provides bar charts rather than percentages shows similar results (Ricketts and Shoesmith. 1990).

Conclusion

In summary then, the strong monetarist position has not done well. It is possible that this will change, if - and this is a big if - the demand function for money again becomes predictable. It

is also possible that clumsy central bank policy will rekindle interest in strong monetarist policies. That, too, does not seem likely.

But mainstream economics has absorbed and profited from much of monetarist theory and policy analysis. The Keynesian-monetarist debate has therefore not been the waste of time that it might otherwise seem. This is not to deny that the debate has had its unsatisfactory aspects. In the 1970s at least in the U.S. the extensive debate about interest rate versus money stock targeting missed the important point that the Fed was not using the interest rate as a target variable that should be adjusted as the IS curve shifts, but instead was stabilizing the interest rate. a policy inconsistent with both Keynesian and monetarist theory. Moreover. in the debate about a stable monetary growth-rate rule monetarists made much stronger claims than their evidence justified. while Keynesians paid essentially no attention to the serious points their opponents were making (see Mayer, 1996). Rut it is far from obvious that the monetarist debate involved more confusion and waste than many other debates in economics. We must accept the fact that despite much mathematical razzle-dazzle progress in economics is slow.

ENDNOTES

1. Can one argue instead (along Lakatosian lines) that monetarism is dead because the monetarist research program is no longer generating new and startling discoveries? To be sure, monetarists are still doing valuable work, but most of it, such as the explanation of central bank secrecy, is peripheral to the central concerns of monetarism. Such an argument is unpersuasive. That a research program is not making much additional progress does not mean that its previous discoveries are now invalid. Mechanics is hardly the cutting edge of physics. hu. engineers still find it useful.

2. Friedman doe:; so because he believes that central banks lack both the knowledge and the motivation required for effective stabilization policy. By contrast. Lucas believes that stabilization policy is not needed since the private sector has enough knowledge to adjusts on its own.

3. Friedman (1969. p. 73) has described the development of his version of the quantity theory as follows: 'A more fundamental and more basic development in monetary theory has been the, reformulation of the quantity theory of money in a way much influenced by the Keynesian liquidity analysis.

4. Subsequent work by Meltzer (1963) and Laidler (1966) showed that the interest rate should be included even in long-run money demand functions.

5. Another issue in the choice of the interest rate or the money supply is that the interest rate embodies the effects of changes both in the supply of money and the demand for money, and is therefore a more complete indicator of the effect of monetary changes. The choice between the interest rate and the money supply seemed more important many years ago when econometric studies concluded that the interest elasticity of expenditures was extremely low, so that changes in the quantity of money appeared to be unimportant. But now that econometric studies show a sizable interest elasticity of investment and consumption this issue has lost its salience.

6. Another factor that may be relevant is that Brunner and Meltzer spent much effort on criticizing the IS-LM model, a model that economists are reluctant to abandon, because it provided a highly convenient language. The best way to access the Brunner-Meltzer model is to read Dornbush (1976). The best sources for understanding Brunner and Meltzer's ideas in general are Brunner and Meltzer (1976 and 1993) and Laidler (1991).

7. In more recent writings Brunner and Meltzer acknowledge that fluctuations in the marginal efficiency of investment may play some role income fluctuations.

8. That forecasters do not use monetarists models may seem to provide a powerful market test. However, this argument is subject to a qualification. Most, though not all forecasters, have to provide their clients not just with macroeconomic forecasts, but also with forecasts for specific industries. Such forecasts can more readily be generated by Keynesian models than by monetarist ones, even if monetarist models predict macro variables just as well as Keynesian models do.

9. This makes it irrelevant for both normative and positive purposes. We think very differently about two economies, both of which ultimately return to equilibrium if in one unemployment never exceeds the NAIRU by more than 0.5 percent and is near the NAURU most of the time, while in the other unemployment is often 10 percent above the NAIRU and takes 5 years to return to it

10. Friedman (1972) has criticized Keynesian for looking only at the first round effect of a change in the money stock. while Modigliani (1977, p. 20) has (with some exaggeration) equated monetarism with a 'non-monetarist world in which lags disappear.'

11. Since it is an issue that is central to one's belief about how the economy functions it is similar to what Lakatos calls a metaphysical core proposition. However. it has been treated as a testable proposition by most economists.

12. Clark Warburton (n.d.) had previously made the same argument, but in a less effective way.

13. Instrumental variables. also called proximate targets. are variables that are used as low-level targets (that is targets that are in close proximity to the Fed's tools) to attain a higher-level target. For example. the money stock is a high level target and the Fed may use the federal funds rate or borrowed reserves as instrumental variables to generate the growth rate of the money stock it desires.

14. Borrowed reserves are a very different instrumental variable from total reserves. Suppose the IS curve shifts outward and market Interest rates rise. The central bank's lending rate has not risen. so banks borrow more from it. If the central bank has a borrowed reserves target it then undertakes open market purchases to satisfy the demand for reserves, and thus bring borrowed reserves back to the desired level. By contrast, if it has a total reserves target it undertakes open market sales to offset the increase in borrowed reserves. In the, first case it accommodates the deniand for reserves, in the second case it does not. The former is preferable if the increased demand for reserves resulted from a shift in the money demand function, and the latter is preferable if it resulted from an undesired rise in nominal inconir. In the U.S. the controllability of the nioney supply through reserves, as the monetarists advocate, has probably also deteriorated for two reasons. First. the reserve requirement on time deposits has been abolished. Second. the reserve requirement on checkable deposits is no longer binding for a number of banks whose vault cash. augmented by the need to hold currency in automatic teller machines. is large enough to meet the reserve requirement. Whether that creates a serious problem is hard to say because there has

been much debatt about whether a binding reserve requirement makes actual reserve holdings all that much more predictable.

15. Although it is advocacy of a fixed rather than just a stable growth rate of money that is often taken to he basic to monetarism, that is not correct. Friedman (1983, pp. 3-4) is willing to accept as a monetarist someone who believes that the money growth rate should be 'steady and predictable , though it may vary in accordance with some rule. but is not rigidly fixed. Brunner and Meltzer, too, have never insisted, on a fixed money growth rate; in fact Meltzer advocates a feedback rule for money growth.

16. I have put 'long' in quotation marks because Friedman's estimate of the lag, while long relative to what seemed to be widely believed at the time, is not long when compared to the lags now shown by most econometric models. Friedman (1953) showed that, given his lag. plausible estimates of the relevant variances could result in policy being proc-cyclical. But lie never presented any systematic, empirical evidence that policy is actually destabilizing. Neither did Keynesians present any evidence to the contrary. (See Mayer, 1996.) Concern that due to lags policy may well be destabilizing is not confined to monetarists (see Phillips, 1957).

Table 1
Economists's Views on Monetary Economics

Survey published in:	A. - U.S. 1979 A	B	C	1992 A	B	C
	Percent					
1. Inflation is primarily a monetary phenomenon	27	30	43	40	30	28
2. Fiscal policy has a significant stimulative impact in a less than fully-employed economy	65	27	8	59	31	9
3. The money supply is a more important target than the interest rate	48	23	29	34	22	40
4. The Fed has the capacity to achieve a constant growth rate of the money supply if it so desires	35	41	34	25	36	37
5. The Fed should be instructed to increase the money supply at a constant rate.	14	25	61	13	31	54
	B - Canada[a]			C - Various countries[b]		
1. Inflation is primarily a monetary phenomenon	42	32	24	23	29	46
2. Fiscal policy has a significant stimulative impact in a less than, fully-employed economy	47	38	14	47	40	9
3. The money supply is a more important target than the interest rate	32	26	40	46	29	21
4. The central bank has the capacity to achieve a constant rate of growth of the money supply if it so desires.	31	40	27	24	45	28

5. The central banks should be instructed to increase the money supply at a fixed rate	14	29	55	15	29	53

A denotes "generally agree"
B denotes "agree with provisions"
C denotes "generally disagree".

Note: Summations do not always total 100% presumably due to nonresponses.

a. Study published in 1988.
5. .Austria,France, Germany (FRG), U.S. Switzerland. The study was published in 1984.

Source:;: Kearl et al. (1979); Frey, et al. (1984); Alston et al. (1992 Block and Walker (1988)

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