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New Frontier for the Monetarists

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By J. Dewey Daane\*

Earlier this year a very amusing incident occurred in New York, which I think should have appeared in THE NEW YORKER magazine, involving one of our Federal Reserve Bank cars and drivers. Apparently when one of the New York Fed drivers was moving along 45th Street, he passed by a stagecoach and team of horses stationed, for purpose of decor, at the door of the nearby Cattleman's restaurant. As the driver stopped at the next red traffic light he looked up in his rear-view mirror just in time to see the horses and stagecoach running wild and charging down on him. Much to his surprise, instead of stopping the horses tried to jump up on or over the car, putting hoof marks on top of it and, in fact, doing several hundred dollars' worth of damage to the car. But to me the high point of the incident was when the Bank's duty officer had to file a report and under the heading of "make and model of other vehicle" involved in the accident could only write "stagecoach"!

As I listen to the monetarists debate the issue of whether money alone controls the economy versus those non-monetarists who look primarily to the investment multiplier, I sometimes wonder whether perhaps we are not really trying to reconcile the old driverless stagecoach, pre-Bagehot, idea that money can manage itself with our very complex monetary mechanism

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as it now interacts with the economy. However, I do not think the question is that easy. Rather, posed more broadly, the question is not whether the monetarist position is simply a driverless stagecoach view of the world but rather whether it is something from which we can learn and profit in its application to our policy instruments. As one of the "monetary authorities" who have, to the chagrin of the monetarists I am sure, seemingly been substituted for rules I think we nevertheless can cheerfully accept, as we have all along, the monetarist view as a useful, although a partial and not particularly new, one. Thus, the analogy in the stagecoach episode is that it illustrates the difficulty of describing the monetarists as anything different from what they always have been -- even though now they are colliding with some quite complex machinery -- namely, "old-fashioned oversimplifiers."

My own exposure to what, even when I first encountered it in 1936, was labeled the "new religion of money", dates from my reading of Henry Simons' piece on "Rules Versus Authorities in Monetary Policy" published early in that year. Since then all of my own studies of monetary theory and policy, including more than 30 years experience as a central bank practitioner, have brought me to the following conclusions that I will state at the outset and then develop in my remarks:

that money matters--certainly

that money alone matters--certainly not

that monetary policy matters--certainly

that monetary policy alone matters--certainly not

But merely stating these simple tenets which represent my own credo is not enough. For the recent renewal of interest in monetary policy reflects not only the kind of inflationary environment in which we find ourselves but also a seemingly growing belief that monetary conditions, and the money stock itself, are the truly important determinants of economic activity and prices. Given the strength of sentiment developing for ~~the~~ monetary position, one cannot simply assert a contrary position without at least indicating some of the theoretical and practical underpinnings.

As you are all well aware, there are many schools of thought as to the significance of monetary factors in determining national income, just as there are a variety of different views concerning the variables that most accurately measure the course of monetary policy. In recent years, the most widely discussed body of opinion on these issues has come to be known as the monetarist theory. At the risk of oversimplification, this theory states that the Federal Reserve can prevent undue fluctuations in the growth of Gross National Product by keeping the money supply growing at a relatively stable rate. Supposedly, if the money supply grows at too rapid a rate, an inflationary boom will follow. On the other hand the monetarists contend, as they do so vehemently today, that too slow a growth rate will plunge the economy into a recession, particularly since we seem to be faced with significant downward rigidities in the price level.

While there are many economists who have associated themselves with one or another variant of this theory, the undisputed dean of the

monetarist school is Professor Milton Friedman of the University of Chicago. Professor Friedman's research and writings have been numerous, and have been going on for a number of years. But in the last few years they have been much more widely disseminated and discussed. Judging by the press coverage he has received, there can be little doubt that he has won converts to his view that changes in the money supply are the most important determinant of changes in GNP. But there also are many people, both professional economists and laymen, who seriously doubt whether the simple causal relationship popularized by Friedman between changes in the money supply and GNP really exists. For my part, I have always been highly skeptical of the simple causality case.

Professor Friedman's approach to understanding money, and how it affects the economy, has sometimes been called the "black box" approach. At one end of the black box, the supply of money is fed in, and out of the other end emerges a stream of spending for goods and services--or GNP. Since the actual conversion of the money supply into demands for goods and services takes place within that closed box, one never knows how the conversion was made or what is really going on inside. And Professor Friedman and his supporters generally exhibit all too little interest in the conversion process--in other words, in what goes on inside that box.

Such an approach to understanding the role of money is, it seems to me, of limited use to a policy maker. One important limitation is that the historical studies carried out by Professor Friedman and others of the money supply school do not indicate a very close and predictable relationship

between changes in the money supply and GNP. I do not suppose a policy maker would be excessively concerned about why changes in the money supply caused changes in GNP--even though, as a scientist, he might be a little curious--if he were sure he could control the growth rate of GNP within relatively narrow limits by regulating the rate of expansion in money. Unfortunately, this is not what seems to be indicated by studies tracing the course of money and GNP over the long sweep of history. Professor Friedman, for example, published a study a few years ago in which he discussed an equation that relates annual changes in money income to annual changes in the money stock, which he then defined to include all time deposits of commercial banks as well as currency and checking accounts. (More recently Professor Friedman has redefined the money stock to exclude large denomination negotiable CD's issued by banks.) The study covered the period 1870-1963. Professor Friedman found that he could explain, in a statistical sense, about half of the annual changes in income by the behavior of the money supply. But the other half is left unexplained. That is certainly far from satisfactory, given the standards for economic performance that we as a nation have set for ourselves.

Even if we could predict and control changes in GNP by regulating the growth of the money supply, however defined--and this also assumes away a significant definitional problem--it seems to me that the monetary authorities would still have to be vitally concerned with the process of conversion of money into GNP inside that "black box." Attention must be given not only to the impact of monetary policy on overall GNP growth, but

also to the effects on specific sectors of the economy. Thus, when restrictive measures are taken to dampen an inflationary boom, it is important to know whether these policies are putting excessive pressures on any specific sector of the banking system, whether financial markets in general are subject to undue strain, whether small businesses, or state and local governments, or residential home builders are bearing a disproportionate share of the burden of restraint, and so on. Such matters cannot be dismissed as side effects of regulating the money supply; they are an integral part of the main business of monetary policy. While general policy cannot, and should not be expected to, provide all the desired sectoral allocation of resources, any approach that does not at least consider the selective impacts of policy does not provide guidelines that are adequate to the needs.

Although the money supply approach has only recently come to the attention of the general public, it is an issue that has been hotly debated for many years in academic journals. My own early exposure in the mid-30's included the Simons article to which I referred. Much more recently, in 1965, there was a particularly useful exchange between Professor Friedman and his colleague Professor Meiselman, on the one side, and a group of economists that included Professors Ando and Modigliani, on the other. Professors Friedman and Meiselman, as you would expect, argued the case for the money supply theory; their opponents contended that monetary and

non-monetary factors were both of fundamental importance in determining GNP, and that fiscal as well as monetary policies can and should play an important role in the Government's stabilization program. I think it is fair to say that neither side proved its own case or disproved the other side's theory to anyone's complete satisfaction.

There was, however, one very productive aspect of that debate: it stimulated a renewed interest in research on the role of money in our economic affairs. Agreements that more research is needed are a pro forma part of every academic debate or contested issue. In this case, however, the need for intensive investigation, using more refined methods, was so obvious that it generated research efforts designed to open that "black box" and examine its contents minutely. And here the Federal Reserve has joined actively in those efforts to push forward the frontier well beyond the one-dimensional equations of the monetarists. Here I refer to a joint effort, still under way, by the staff of the Board of Governors and a team of academic economists headed by Professors Albert Ando and Franco Modigliani.

This project has tried to take advantage of recent advances in computer technology to build a conceptual framework that attempts to describe how the economy operates, and, particularly, to assess the role of monetary and fiscal policies in the determination of GNP. Specifically, the research was directed to the production of a large mathematical model of the economy which permits study in considerable

detail of the pattern of effects stemming from monetary and fiscal policies as they spread through the economy.

Today I would like to give you a brief progress report on some preliminary results of this effort. Naturally, I do not propose to go into detail on the mathematical or statistical properties of the model--that would be some distance from my own field of expertise. But in the area of stabilization policy, as well as in so many other areas of decision making, very complex models of this kind are becoming a potentially useful tool that decision makers must learn to employ productively.

Before I begin, let me emphasize the preliminary nature of the results to date. The model of the economy that serves as a framework for this research is continuously being modified and improved, and cannot yet be considered a tested and proven research product ready for use by the monetary authorities. We have not, for example, been able to make use of the model as yet for short-term projections. Building a large model of the economy is time consuming and complicated; even though work on the project has been going forward for several years, the project is not completed. Furthermore, the results of a study of this kind

are, in the sense of being subject to change, always preliminary. This follows from the fact that statistical relationships used in all models are based on averages of past information, and they may not always be indicative of current or future developments. With these caveats in mind, let me describe briefly some of the characteristics of this FRB-MIT model, as it is called, and what it seems to say about the relation between monetary policy and economic activity.

First, the model suggests that monetary policy is a more powerful tool of stabilization policy than most economists, except perhaps Milton Friedman, would have guessed--considerably more powerful, for example, than is indicated by most other large models of the economy. This result should warm the hearts of members of the monetarist school. I find it rather satisfying myself, since it would have been disheartening, indeed, if this study had concluded that central banking was just so much arm waving--in terms of its effects on GNP.

Illustrating the strength of monetary policy, the model indicates, though only in the inferential causal sense that characterizes the use of any model, that open market purchases that raised bank reserves enough to produce an eventual increase of about 4 per cent in the money supply (defined as currency and demand deposits) would lead, by the end of the year, to roughly a 1 per cent rise in current dollar GNP. By the end of two years, the effects of that policy would raise GNP by about 2-1/2 per cent, and by almost 3 per cent at the end of three years. Thus, monetary policy is powerful, but it also takes

time for policy to have its effects. The lags, in fact, are uncomfortably long--even though this research suggests that they are somewhat shorter than those found by other large models. To use monetary policy effectively as a stabilizing device, these time lags must be taken into account very carefully.

Conclusions of this kind about the effects of monetary policy seem to me eminently reasonable. But it also seems reasonable to me--and it always has--that monetary policy alone cannot account for all of the fluctuations in GNP. Do you really believe, for example, that the buildup of defense spending associated with the Vietnam War since mid-1965 had almost no influence on GNP--apart from its effects on the money stock? Do you really believe that deficits in the Federal budget affect interest rates but not GNP or prices--unless they induce the Federal Reserve to increase the money stock? These are what some of the extremists of the monetarist or money supply school would have us believe; frankly, such arguments seem to me to strain one's credulity.

Fortunately, the FRB-MIT model seems to be coming up with more readily believable results. What it says is that fiscal policy is important and fiscal actions powerful, independently of what monetary policy does. An increase in Federal Government purchases of goods and services, not accompanied by increased tax rates, produces an increase in GNP of roughly 3 to 4 times the rise in Federal outlays, even if the Federal Reserve does not finance the deficit by purchasing securities in the open market. Fiscal policy also works more quickly

than monetary policy--there is a significant effect on GNP even in the first quarter following a fiscal action. Monetary policy works more slowly, since it takes time for changes in monetary variables to work their way through the banking system, to affect financial markets more generally, and for changes in interest rates and credit availability to alter investment decisions. In short, monetary policy is quicker to change but the lag in effects is longer; fiscal policy is slower to change but the lag in effects is shorter.

As I mentioned earlier, we at the Federal Reserve are very concerned about what happens within the "black box"; that is, we want to know how monetary policy affects GNP--through what channels its effects spread throughout the economy, what sectors are likely to be affected the most, and whether, indeed, the sectoral effects of monetary policy may at any time be reinforcing, or offsetting, fiscal actions. Only by identifying the patterns that emerge following a policy change are we able to know if the effects of policy are working their way through the economic system in the expected way.

The research on the FRB-MIT model suggests that monetary policy does not affect just the money stock (defined narrowly as currency and demand deposits), but a broader range of financial assets--including time deposits of commercial banks, and also the liabilities of the major nonbank financial intermediaries. It transmits its effects through these institutions to the cost and availability of credit to private borrowers, and hence to spending. All this takes time. One of the

first noticeable effects of a monetary policy designed to brake inflationary pressures, for example, is an increase in short-term interest rates. These effects are subsequently transmitted to long-term market rates, and the movements of short-term market rates also affect inflows of funds to the principal thrift institutions. The consequence is a rise in mortgage rates and a reduction in the availability of mortgage credit to borrowers--and hence to a relatively prompt and significant effect on housing starts.

The housing sector of the model confirms what many people have contended--that homebuilding is very sensitive to changes in financial market conditions. Thus the model, as well as our experience with the response of housing to tight money both in 1966 and currently, underscores that monetary authorities need to be well aware of what goes on inside the black box. The stresses and strains placed upon particular sectors of the economy cannot be overlooked in our pursuit of stabilization policies.

In contrast to housing, the effects of monetary policy on plant and equipment expenditures, and expenditures for state and local construction, are somewhat milder and take place with a longer lag. This is perhaps not too surprising, especially for plant and equipment expenditures. Once a business decision to invest in plant and equipment has been taken, it is often very costly to change plans.

Again, our most recent experience seems to demonstrate the rightness, or reasonableness, of the model's findings.

One of the most interesting discoveries of this research--in terms of the sectors of spending affected by monetary policy--is the fact that a large dollar effect of monetary policy occurs on consumption expenditures. However, since consumer expenditures in turn are so large in dollar amounts, the effect is small in percentage terms. The way monetary policy affects consumption is, in considerable part, through its impact on the value of equities. I suppose it will come as a surprise to no one that monetary policy is revealed to have a potent effect on the stock market. And it turns out, according to this research, that fluctuations in equity prices seem to have a measurable direct effect on consumption. I think we owe a considerable debt to Professor Friedman for having stressed effects of this kind on consumption. He has always argued that monetary policy affects a wider range of spending than just the items classified as investment in the GNP accounts, and that in fact appears to be the case.

The results being obtained from this research effort to investigate the contents of the black box--the money-to-GNP conversion process--are, in my judgment, very encouraging. We are not being provided with easy answers to difficult problems. But the kind of digging done by our staff working jointly with the Ando-Modigliani group seems to be very promising for the future. It is quite clear, however, that much work remains to be done.

We know, for example, that significant improvements must be made in the housing sector of the model. With record high mortgage rates and relatively low inflows of savings into nonbank intermediaries, the model says that housing starts should have turned down sooner than they did, and should now be well below actual levels. It is clear that some important aspects of the housing market have not yet been captured in the model.

If I were to speculate on this, I would suggest that an important weakness of the model in this sector is its inability to provide adequately for the effects of inflation and inflationary expectations on home building. The structure of the model does not account for the fact that current levels of the mortgage rate do not really seem so high to potential home buyers when they see the cost of construction increasing 8 to 10 per cent a year. Also, there probably are other important factors currently sustaining housing starts that are not captured adequately by the model. For example, the effects of changes in the age composition of the population have increased greatly the demand for multi-family units, and with new sources of finance developing to sustain apartment building, the housing market has become less dependent on traditional sources of mortgage funds. Clearly these are matters that will have to be investigated and, in fact, some such work is already under way.

These analytical problems with the housing sector are perhaps illustrative of a more general problem that plagues all statistical

research, and can be expected to cause problems in the foreseeable future. It is extremely difficult to interpret and assess properly the most recent patterns of behavior by individuals, businesses, and financial institutions. All models, by their very nature, are based upon past relationships. This holds true for Professor Friedman's simple relationships between GNP and the money stock, as well as for more complex mathematical representations of the economy. When new behavior patterns occur, it is often nearly impossible to decide with any degree of assurance whether they represent temporary aberrations or structural changes of lasting significance. And in the latter case, it may take a considerable period of time to gather enough data to judge the meaning of these developments.

To cite just two illustrations, the FRB-MIT model fails to capture adequately the effects of the introduction of time certificates of deposit in 1961, and the subsequent growth of that instrument to its present prominent place in financial markets. Some work is under way to take the CD development into account explicitly, and it is hoped that shortcoming will be remedied very soon. A second important institutional innovation not reflected in the work up to this point is the opening up or enlargement by banks of new sources of funds, including Euro-dollars and also commercial paper issued through holding companies. The omission of Euro-dollars is a subset of a much broader problem--the entire foreign sector of the model has received inadequate attention. Work on that sector is going forward, too, and it is hoped to have results in the near future.

I will conclude these remarks with a few personal judgments as to what the results of our research at this juncture seem to show. They are consistent with, and seem to me to support, the views which I stated at the outset:

- 1) Monetary policy does appear to be an important, effective component of our economic stabilization programs.
- 2) Since its effects on the economy occur with significant lags, monetary policy must be used carefully to make its maximum contribution to achieving stable economic growth without inflation.
- 3) Fiscal policy is also a very potent stabilization instrument, and can play an important role in smoothing economic fluctuations. The money supply school's dismissal of fiscal policy as an ineffective tool for influencing the course of GNP is, I think, not justified. We need to use fiscal policy rationally if we expect to come close to realizing our national economic objectives. The results show that we are going to have fiscal effects anyway so why not have a policy for affecting them?

4) Finally, I think that perhaps the biggest lesson to be learned from the exercise of building a large model of the economy is that the world is extremely complex. Simple decision rules based upon still simpler economic relationships are of very limited value. Moreover, human judgment will never become technologically unemployed as a result of even the most sophisticated model of the economy. Certainly the preliminary results that I have been describing are not the basis for making all the decisions of monetary policy. Public policies require the exercise of balanced judgment; a model can help us to make better decisions, but it can never do our job for us.