

“The Counter-Revolution in Monetary Theory”

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It is a great pleasure to be with you today, partly because I am honored at being the first of the Harold Wincott lecturers, partly because economics owes so much to the work that has been done on this island. Coming back to Britain, as I am fortunate enough to be able to do from time to time, always means coming back to a warm circle of friends or friendly enemies.

I am going to talk this afternoon primarily about a scientific development that has little ideological or political content. This development nonetheless has great relevance to governmental policy because it bears on the likely effects of particular kinds of governmental policy regardless of what party conducts the policy and for what purpose.

A counter-revolution must be preceded by two stages: an initial position from which there was a revolution, and the revolution. In order to set the stage, I would like first to make a few remarks about the initial position and the revolution.

It is convenient to have names to describe these positions. The initial position I shall call the quantity theory of money and associate it largely with the name of an American economist, Irving Fisher, although it is a doctrine to which many prominent English economists also made contributions. The revolution, as you all know, was made by Keynes in the 1930s. Keynes himself was a quantity theorist, so that his revolution was from, as it were, within the governing body. Keynes's name is the obvious name to attach to the revolution. The counter-revolution also needs a name and perhaps the one most widely used in referring to it is 'the Chicago School'. More recently, however, it has been given a name which is less lovely but which has become so attached to it that I find it hard to avoid using it. That name is 'monetarism' because of the renewed emphasis on the role of the quantity of money.

A counter-revolution, whether in politics or in science, never restores the initial situation. It always produces a situation that has some similarity to the initial one but is also strongly influenced by the intervening revolution. That is certainly true of monetarism which has benefited much from Keynes's work. Indeed I may say, as have so many others since there is no way of contradicting it, that if Keynes were alive today he would no doubt be at the forefront of the counter-revolution. You must never judge a master by his disciples.

I. Irving Fisher and the Quantity Theory

Let me then start briefly to set the stage with the initial position, the quantity theory of money as developed primarily by Irving Fisher who is to my mind by far the greatest American economist. He was also an extraordinarily interesting and eccentric man. Indeed, I suspect that his professional reputation suffered during his life because he was not only an economist but also involved in many other activities, including being one of the leading members of the American prohibitionist party. He interviewed all potential presidential candidates for something like 30

years to find out what their position was on the subject of alcohol. His best-selling book, which has been translated into the largest number of languages, is not about economics at all but about health. It is about how to eat and keep healthy and is entitled *How to Live* (written jointly with Dr E. L. Fisk). But even that book is a tribute to his science. When he was a young man in his early thirties, he contracted tuberculosis, was given a year to live by his physicians, went out to the Far West where the air was good and proceeded to immerse himself in the study of health and methods of eating and so on. If we may judge the success of his scientific work by its results, he lived to the age of 80. As you may know, he was also a leading statistician, developed the theory of index numbers, worked in mathematics, economics and utility theory and had time enough besides to invent the Kardex filing system, the familiar system in which one little envelope flaps on another, so you can pull out a flat drawer to see what is in it. He founded what is now Remington-Rand Corporation in order to produce and distribute his invention. As you can see, he was a man of very wide interests and ability.

$$MV = PT$$

The basic idea of the quantity theory, that there is a relation between the quantity of money on the one hand and prices on the other, is surely one of the oldest ideas in economics. It goes back thousands of years. But it is one thing to express this idea in general terms. It is another thing to introduce system into the relation between money on the one hand and prices and other magnitudes on the other. What Irving Fisher did was to analyze the relationship in far greater detail than had ever been done earlier. He developed and popularized what has come to be known as the quantity equation: $MV = PT$, money multiplied by velocity equals prices multiplied by the volume of transactions. This is an equation that every college student of economics used to have to learn, then for a time did not, and now, as the counter-revolution has progressed, must again learn. Fisher not only presented this equation, he also applied it in a variety of contexts. He once wrote a famous article interpreting the business cycle as the 'dance of the dollar', in which he argued that fluctuations in economic activity were primarily a reflection of changes in the quantity of money. Perhaps even more pertinent to the present day, he analyzed in detail the relation between inflation on the one hand and interest rates on the other. His first book on this subject, *Appreciation and Interest*, published in 1896, can be read today with profit and is immediately applicable to today's conditions.

In that work, Fisher made a distinction which again is something that went out of favor and has now come back into common use, namely the distinction between the nominal interest rate in pounds per year per hundred pounds and the real interest rate, i.e., corrected for the effect of changing prices. If you lend someone £100 today and in 12 months receive back £106, and if in the meantime prices rise by 6 per cent then your £106 will be worth no more than your £100 today. The nominal interest rate is 6 per cent, but the real interest rate is zero. This distinction between the nominal interest rate and the real interest rate is of the utmost importance in understanding the effects of monetary policy as well as the behavior of interest rates. Fisher also distinguished sharply between the actual real rate, the rate realized after the event, and the anticipated real rate that lenders expected to receive or borrowers expected to pay. No one would lend money at 6 per cent if he expected prices to rise by 6 per cent during the year. If he did lend at 6 per cent, it must have been because he expected prices to rise by less than 6 per cent: the realized real rate was less than the anticipated real rate. This distinction between the actual real rate and the anticipated real rate is of the greatest importance today in understanding the course

of events. It explains why inflation is so stubborn once it has become imbedded, because as inflation accelerates, people come to expect it. They come to build the expected inflation into the interest rates that they are willing to pay as borrowers or that they demand as lenders.

Wide Consensus

Up to, let us say, the year 1930, Irving Fisher's analysis was widely accepted. In monetary theory, that analysis was taken to mean that in the quantity equation $MV = PT$ the term for velocity could be regarded as highly stable, that it could be taken as determined independently of the other terms in the equation, and that as a result changes in the quantity of money would be reflected either in prices or in output. It was also widely taken for granted that short-term fluctuations in the economy reflected changes in the quantity of money, or in the terms and conditions under which credit was available. It was taken for granted that the trend of prices over any considerable period reflected the behavior of the quantity of money over that period.

In economic policy, it was widely accepted that monetary policy was the primary instrument available for stabilizing the economy. Moreover, it was accepted that monetary policy should be operated largely through a combination of two blades of a scissors, the one blade being what we in the USA call 'discount rate' and you in Britain call 'Bank rate', the other blade being open-market operations, the purchase and sale of government securities.

That was more or less the initial doctrinal position prior to the Keynesian revolution. It was a position that was widely shared. Keynes's *A Tract on Monetary Reform*,² which I believe remains to this day one of his best books, reflects the consensus just described.

II. The Keynesian Revolution

Then came the Keynesian revolution. What produced that revolution was the course of events. My colleague, George Stigler, in discussing the history of thought, has often argued that major changes within a discipline come from inside the discipline and are not produced by the impact of outside events. He may well be right in general. But in this particular instance I believe the basic source of the revolution and of the reaction against the quantity theory of money was a historical event, namely the great contraction or depression. In the United Kingdom, the contraction started in 1925 when Britain went back on gold at the pre-war parity and ended in 1931 when Britain went off gold. In the United States, the contraction started in 1929 and ended when the USA went off gold in early 1933. In both countries, economic conditions were depressed for years after the contraction itself had ended and an expansion had begun.

Wrong Lessons from Great Depression

The Great Depression shattered the acceptance of the quantity theory of money because it was widely interpreted as demonstrating that monetary policy was ineffective, at least against a decline in business. All sorts of aphorisms were coined that are still with us, to indicate why it was that providing monetary ease would not necessarily lead to economic expansion, such as 'You can lead a horse to water but you can't make him drink' or 'Monetary policy is like a string: you can pull on it but you can't push on it', and doubtless there are many more.

As it happens, this interpretation of the depression was completely wrong. It turns out, as I shall point out more fully below, that on re-examination, the depression is a tragic testament to the effectiveness of monetary policy, not a demonstration of its impotence. But what mattered for the world of ideas was not what was true but what was believed to be true. And it was believed at the time that monetary policy had been tried and had been found wanting.

In part that view reflected the natural tendency for the monetary authorities to blame other forces for the terrible economic events that were occurring. The people who run monetary policy are human beings, even as you and I, and a common human characteristic is that if anything bad happens it is somebody else's fault. In the course of collaborating on a book on the monetary history of the United States, I had the dismal task of reading through 50 years of annual reports of the Federal Reserve Board. The only element that lightened that dreary task was the cyclical oscillation in the power attributed to monetary policy by the system. In good years the report would read 'Thanks to the excellent monetary policy of the Federal Reserve...' In bad years the report would read 'Despite the excellent policy of the Federal Reserve...', and it would go on to point out that monetary policy really was, after all, very weak and other forces so much stronger.

The monetary authorities proclaimed that they were pursuing easy money policies when in fact they were not, and their protestations were largely accepted. Hence Keynes, along with many others, concluded that monetary policy had been tried and found wanting. In contrast to most others, he offered an alternative analysis to explain why the depression had occurred and to indicate a way of ameliorating the situation.

Keynes's Critique of the Quantity Theory

Keynes did not deny Irving Fisher's quantity equation. What Keynes said was something different. He said that, while of course MV equals PT , velocity, instead of being highly stable, is highly adaptable. If the quantity of money goes up, he said, what will happen is simply that the velocity of circulation of money will go down and nothing will happen on the other side of the equation to either prices or output. Correspondingly, if something pushes the right-hand side of the equation, PT or income, up without an increase in the quantity of money, all that will happen will be that velocity will rise. In other words, he said, velocity is a will-of-the-wisp. It can move one way or the other in response to changes either in the quantity of money or in income. The quantity of money is therefore of minor importance. (Since I am trying to cover highly technical material very briefly, I am leaving out many qualifications that are required for a full understanding of either Fisher or Keynes. I do want to stress that the statements I am making are simplifications and are not to be taken as a full exposition of any of the theories.)

What matters, said Keynes, is not the quantity of money. What matters is the part of total spending which is independent of current income, what has come to be called autonomous spending and to be identified in practice largely with investment by business and expenditures by government.

Keynes thereby directed attention away from the role of money and its relation to the flow of income and toward the relation between two flows of income, that which corresponds to autonomous spending and that which corresponds to induced spending. Moreover, he said, in the modern world, prices are highly rigid while quantities can change readily. When for whatever

reason autonomous spending changes, the resulting change in income will manifest itself primarily in output and only secondarily and only after long lags in prices. Prices are determined by costs consisting mostly of wages, and wages are determined by the accident of past history.

The great contraction, he said, was the result of a collapse of demand for investment which in turn reflected a collapse of productive opportunities to use capital. Thus the engine and the motor of the great contraction was a collapse of investment transformed into a collapse of income by the multiplier process.

The Implications for Policy

This doctrine had far-reaching implications for economic policy. It meant that monetary policy was of little importance. Its only role was to keep interest rates down, both to reduce the pressure on the government budget in paying interest on its debts, and also because it might have a tiny bit of stimulating effect on investment. From this implication of the doctrine came the cheap money policy which was tried in country after country following World War II.

A second implication of the doctrine was that the major reliance for economic stabilization could not be on monetary policy, as the quantity theorists had thought, but must be on fiscal policy, that is, on varying the rate of government spending and taxing.

A third implication was that inflation is largely to be interpreted as a cost-push phenomenon. It follows, although Keynes himself did not draw this conclusion from his doctrine, that the way to counteract inflation is through an incomes policy. If costs determine prices and costs are historically determined, then the way to stop any rise in prices is to stop the rise in costs.

These views became widely accepted by economists at large both as theory and as implications for policy. It is hard now at this distance in time to recognize how widely they were accepted. Let me just give you one quotation which could be multiplied many-fold, to give you the flavor of the views at the end of World War II. Parenthetically, acceptance of these views continued until more recently in Britain than in the United States, so it may be easier for you to recognize the picture I have been painting than it would be now for people in the United States. I quote from John H. Williams, who was a Professor of Economics at Harvard University, a principal advisor to the Federal Reserve Bank of New York, and widely regarded as an anti-Keynesian. In 1945 he wrote: 'I have long believed that the quantity of money by itself has a permissive rather than a positive effect on prices and production'. And in the sentence I want to stress he wrote: 'I can see no prospect of a revival of general monetary control in the post-war period'. That was a very sweeping statement, and one that obviously proved very far indeed from the mark.

The high point in the United States of the application of Keynesian ideas to economic policy probably came with the new economists of the Kennedy administration. Their finest hour was the tax cut of 1964 which was premised entirely on the principles that I have been describing.

Having sketched briefly the initial stage of the quantity theory, and the revolutionary stage of the Keynesian theory, I come now to the monetarist counter-revolution.

III. The Counter-Revolution

As so often happens, just about the time that Keynes's ideas were being triumphant in practice, they were losing their hold on the minds of scholars in the academies. A number of factors contributed to a change of attitude towards the Keynesian doctrine. One was the experience immediately after World War II. On the basis of the Keynesian analysis, economists and others expected the war to be followed by another great depression. With our present experience of over two decades of inflation behind us it is hard to recognize that this was the sentiment of the times. But alike in the United States, in Great Britain and in many other countries, the dominant view was that, once World War II ended, once the pump-priming and government spending for military purposes ended, there would be an enormous economic collapse because of the scarcity of investment opportunities that had been given the blame for the Great Depression. Massive unemployment and massive deflation were the bugaboos of the time. As you all know, that did not happen. The problem after the war turned out to be inflation rather than deflation.

A second post-war experience that was important was the failure of cheap money policies. In Britain, Chancellor Dalton tried to follow the Keynesian policy of keeping interest rates very low. As you all know, he was unable to do so and had to give up. The same thing happened in the United States. The Federal Reserve System followed a policy of pegging bond prices, trying to keep interest rates down. It finally gave up in 1953 after the Treasury-Federal Reserve Accord of 1951 laid the ground-work for setting interest rates free. In country after country, wherever the cheap money policy was tried, it led to inflation and had to be abandoned. In no country was inflation contained until orthodox monetary policy was employed. Germany was one example in 1948; Italy shortly after; Britain and the United States later yet.

Reconsideration of Great Depression

Another important element that contributed to a questioning of the Keynesian doctrine was a re-examination of monetary history and particularly of the Great Depression. When the evidence was examined in detail it turned out that bad monetary policy had to be given a very large share of the blame. In the United States, there was a reduction in the quantity of money by a third from 1929 to 1933. This reduction in the quantity of money clearly made the depression much longer and more severe than it otherwise would have been. Moreover, and equally important, it turned out that the reduction in the quantity of money was not a consequence of the unwillingness of horses to drink. It was not a consequence of being unable to push on a string. It was a direct consequence of the policies followed by the Federal Reserve system.

From 1930 to 1933, a series of bank runs and bank failures were permitted to run their course because the Federal Reserve failed to provide liquidity for the banking system, which was one of the main functions the designers of the Federal Reserve System intended it to perform. Banks failed because the public at large, fearful for the safety of their deposits, tried to convert their deposits into currency. In a fractional reserve system, it is literally impossible for all depositors to do that unless there is some source of additional currency. The Federal Reserve System was established in 1913 in response to the banking panic of 1907 primarily to provide additional liquidity at a time of pressure on banks. In 1930–33, the system failed to do so and it failed to do so despite the fact that there were many people in the system who were calling upon it to do so and who recognized that this was its correct function.

It was widely asserted at the time that the decline in the quantity of money was a consequence of the lack of willing borrowers. Perhaps the most decisive bit of evidence against that interpretation is that many banks failed because of a decline in the price of government securities. Indeed, it turned out that many banks that had made bad private loans came through much better than banks that had been cautious and had bought large amounts of Treasury and municipal securities for secondary liquidity. The reason was that there was a market for the government securities and hence when bank examiners came around to check on the banks, they had to mark down the price of the governments to the market value. However, there was no market for bad loans, and therefore they were carried on the books at face value. As a result, many careful, conservative banks failed.

The quantity of money fell by a third and roughly a third of all banks failed. This is itself a fascinating story and one that I can only touch on. The important point for our purposes is that it is crystal clear that at all times during the contraction, the Federal Reserve had it within its power to prevent the decline in the quantity of money and to produce an increase. Monetary policy had not been tried and found wanting. It had not been tried. Or, alternatively, it had been tried perversely. It had been used to force an incredible deflation on the American economy and on the rest of the world. If Keynes—and this is the main reason why I said what I did at the beginning—if Keynes had known the facts about the Great Depression as we now know them, he could not have interpreted that episode as he did.

Wider Evidence

Another scholarly element that contributed to a reaction against the Keynesian doctrine and to the emergence of the new doctrine was extensive empirical analysis of the relation between the quantity of money on the one hand, and income, prices and interest rates on the other. Perhaps the simplest way for me to suggest why this was relevant is to recall that an essential element of the Keynesian doctrine was the passivity of velocity. If money rose, velocity would decline. Empirically, however, it turns out that the movements of velocity tend to reinforce those of money instead of to offset them. When the quantity of money declined by a third from 1929 to 1933 in the United States, velocity declined also. When the quantity of money rises rapidly in almost any country, velocity also rises rapidly. Far from velocity offsetting the movements of the quantity of money, it reinforces them.

I cannot go into the whole body of scientific work that has been done. I can only say that there has arisen an extensive literature concerned with exploring these relations which has demonstrated very clearly the existence of a consistent relation between changes in the quantity of money and changes in other economic magnitudes of a very different kind from that which Keynes assumed to exist.

The final blow, at least in the United States, to the Keynesian orthodoxy was a number of dramatic episodes in our recent domestic experience. These episodes centered around two key issues. The first was whether the behavior of the quantity of money or rates of interest is a better criterion to use in conducting monetary policy. You have had a curious combination in this area of central bankers harking back to the real bills doctrine of the early 19th century on the one hand, and Keynesians on the other, who alike agreed that the behavior of interest rates was the relevant criterion for the conduct of monetary policy. By contrast, the new interpretation is that

interest rates are a misleading index of policy and that central bankers should look rather at the quantity of money. The second key issue was the relative role of fiscal policy and of monetary policy. By fiscal policy, I mean changes in government spending and taxing, holding the quantity of money constant. By monetary policy, I mean changes in the quantity of money, holding government spending and taxing constant.

Fiscal Versus Monetary Policy

The problem in discussing the relative roles of fiscal policy and monetary policy is primarily to keep them separate, because in practice they operate jointly most of the time. Ordinarily if a government raises its spending without raising taxes, that is if it incurs a deficit in order to be expansionary, it will finance some of the deficit by printing money. Conversely if it runs a surplus, it will use part of that surplus to retire money. But from an analytical point of view, and from the point of view of getting at the issue that concerns the counter-revolution, it is important to consider fiscal policy and monetary policy separately, to consider each operating by itself. The Keynesians regarded as a clear implication of their position the proposition that fiscal policy by itself is important in affecting the level of income, that a large deficit would have essentially the same expansionary influence on the economy whether it was financed by borrowing from the public or by printing money.

The ‘monetarists’ rejected this proposition and maintained that fiscal policy by itself is largely ineffective, that what matters is what happens to the quantity of money. Off-hand that seems like an utterly silly idea. It seems absurd to say that if the government increases its expenditures without increasing taxes, that may not by itself be expansionary. Such a policy obviously puts income into the hands of the people to whom the government pays out its expenditures without taking any extra funds out of the hands of the taxpayers. Is that not obviously expansionary or inflationary? Up to that point, yes, but that is only half the story. We have to ask where the government gets the extra funds it spends. If the government prints money to meet its bills, that is monetary policy and we are trying to look at fiscal policy by itself. If the government gets the funds by borrowing from the public, then those people who lend the funds to the government have less to spend or to lend to others. The effect of the higher government expenditures may simply be higher spending by government and those who receive government funds and lower spending by those who lend to government or by those to whom lenders would have loaned the money instead. To discover any net effect on total spending, one must go to a more sophisticated level—to differences in the behavior of the two groups of people or to effects of government borrowing on interest rates. There is no first-order effect.

Evidence from US ‘Experiments’

The critical first test on both these key issues came in the USA in 1966. There was fear of developing inflation and in the spring of 1966 the Federal Reserve Board, belatedly, stepped very hard on the brake. I say ‘stepped very hard’ because the record on the Federal Reserve over 50 years is that it has almost invariably acted too much too late. Almost always it has waited too long before acting and then acted too strongly. In 1966, the result was a combination of a very tight monetary policy, under which the quantity of money did not grow at all during the final nine months of the year, and a very expansive fiscal policy. So you had a nice experiment. Which was going to dominate? The tight money policy or the easy fiscal policy? The Keynesians

in general argued that the easy fiscal policy was going to dominate and therefore predicted continued rapid expansion in 1967. The monetarists argued that monetary policy would dominate, and so it turned out. There was a definite slowing down in the rate of growth of economic activity in the first half of 1967, following the tight money policy of 1966. When, in early 1967, the Federal Reserve reversed its policy and started to print money like mad, about six or nine months later, after the usual lag, income recovered and a rapid expansion in economic activity followed. Quite clearly, monetary policy had dominated fiscal policy in that encounter.

A still more dramatic example came in 1968 and from 1968 to the present. In the summer of 1968, under the influence of the Council of Economic Advisers and at the recommendation of President Johnson, Congress enacted a surtax of 10 per cent on income. It was enacted in order to fight the inflation which was then accelerating. The believers in the Keynesian view were so persuaded of the potency of this weapon that they were afraid of 'overkill'. They thought the tax increase might be too much and might stop the economy in its tracks. They persuaded the Federal Reserve system, or I should rather say that the Federal Reserve system was of the same view. Unfortunately for the United States, but fortunately for scientific knowledge, the Federal Reserve accordingly decided that it had best offset the overkill effects of fiscal policy by expanding the quantity of money rapidly. Once again, we had a beautiful controlled experiment with fiscal policy extremely tight and monetary policy extremely easy. Once again, there was a contrast between two sets of predictions. The Keynesians or fiscalists argued that the surtax would produce a sharp slow-down in the first half of 1969 at the latest while the monetarists argued that the rapid growth in the quantity of money would more than offset the fiscal effects, so that there would be a continued inflationary boom in the first half of 1969. Again, the monetarists proved correct. Then, in December 1968, the Federal Reserve Board did move to tighten money in the sense of slowing down the rate of growth of the quantity of money and that was followed after the appropriate interval by a slow-down in the economy. This test, I may say, is still in process, but up to now it again seems to be confirming the greater importance of the monetary than of the fiscal effect.

'This Is Where I Came In'

One swallow does not make a spring. My own belief in the greater importance of monetary policy does not rest on these dramatic episodes. It rests on the experience of hundreds of years and of many countries. These episodes of the past few years illustrate that effect; they do not demonstrate it. Nonetheless, the public at large cannot be expected to follow the great masses of statistics. One dramatic episode is far more potent in influencing public opinion than a pile of well-digested, but less dramatic, episodes. The result in the USA at any rate has been a drastic shift in opinion, both professional and lay.

This shift, so far as I can detect, has been greater in the United States than in the United Kingdom. As a result, I have had in the UK the sensation that I am sure all of you have had in a continuous cinema when you come to the point where you say, 'Oh, this is where I came in'. The debate about monetary effects in Britain is pursuing the identical course that it pursued in the United States about five or so years ago. I am sure that the same thing must have happened in the 1930s. When the British economists wandered over to the farther shores among their less cultivated American brethren, bringing to them the message of Keynes, they must have felt, as I have felt coming to these shores in the opposite direction, that this was where they came in. I am

sure they then encountered the same objections that they had encountered in Britain five years earlier. And so it is today. Criticism of the monetary doctrines in this country today is at the naïve, unsophisticated level we encountered in the USA about five or more years ago.

Thanks to the very able and active group of economists in this country who are currently working on the monetary statistics, and perhaps even more to the effect which the course of events will have, I suspect that the developments in this country will continue to imitate those in the United States. Not only in this area, but in other areas as well, I have had the experience of initially being in a small minority and have had the opportunity to observe the scenario that unfolds as an idea gains wider acceptance. There is a standard pattern. When anybody threatens an orthodox position, the first reaction is to ignore the interloper. The less said about him the better. But if he begins to win a hearing and gets annoying, the second reaction is to ridicule him, make fun of him as an extremist, a foolish fellow who has these silly ideas. After that stage passes the next, and the most important, stage is to put on his clothes. You adopt for your own his views, and then attribute to him a caricature of those views saying, 'He's an extremist, one of those fellows who says only money matters—everybody knows that sort. Of course money does matter, but...'

IV. Key Propositions of Monetarism

Let me finally describe the state to which the counter-revolution has come by listing systematically the central propositions of monetarism.

1. There is a consistent though not precise relation between the rate of growth of the quantity of money and the rate of growth of nominal income. (By nominal income, I mean income measured in pounds sterling or in dollars or in francs, not real income, income measured in real goods.) That is, whether the amount of money in existence is growing by 3 per cent a year, 5 per cent a year or 10 per cent a year will have a significant effect on how fast nominal income grows. If the quantity of money grows rapidly, so will nominal income; and conversely.
2. This relation is not obvious to the naked eye largely because it takes time for changes in monetary growth to affect income and how long it takes is itself variable. The rate of monetary growth today is not very closely related to the rate of income growth today. Today's income growth depends on what has been happening to money in the past. What happens to money today affects what is going to happen to income in the future.
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 that does not hold in every individual case. Sometimes the delay is longer, sometimes shorter. 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 for Japan, for India, for Israel, for the United States. Some of our students have studied it for Canada and for a number of South American countries. Whichever country you take, you generally get a delay of around six to nine months. How clear-cut the evidence for the delay is depends on how much variation there is in the quantity of money. The Japanese data have been particularly valuable because the Bank of Japan was very obliging for some 15 years from 1948 to 1963 and produced very wide movements in the rate of change in the quantity of money. As a result, there is no ambiguity in dating when it reached the

top and when it reached the bottom. Unfortunately for science, in 1963 they discovered monetarism and they started to increase the quantity of money at a fairly stable rate and now we are not able to get much more information from the Japanese experience.

4. The changed rate of growth of nominal income typically shows up first in output and hardly at all in prices. If the rate of monetary growth is reduced then about six to nine months later, the rate of growth of nominal income and also of physical output will decline. However, the rate of price rise will be affected very little. There will be downward pressure on prices only as a gap emerges between actual and potential output.

5. On the average, the effect on prices comes about six to nine months after the effect on income and output, so the total delay between a change in monetary growth and a change in the rate of inflation averages something like 12–18 months. That is why it is a long road to hoe to stop an inflation that has been allowed to start. It cannot be stopped overnight.

6. Even after allowance for the delay in the effect of monetary growth, the relation is far from perfect. There's many a slip 'twixt the monetary change and the income change.

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. What happens to output depends on real factors: the enterprise, ingenuity and industry of the people; the extent of thrift; the structure of industry and government; the relations among nations, and so on.

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. However, there are many different possible reasons for monetary growth, including gold discoveries, financing of government spending, and financing of private spending.

9. Government spending may or may not be inflationary. It clearly will be inflationary if it is financed by creating money, that is, by printing currency or creating bank deposits. If it is financed by taxes or by borrowing from the public, the main effect is that the government spends the funds instead of the taxpayer or instead of the lender or instead of the person who would otherwise have borrowed the funds. Fiscal policy is extremely important in determining what fraction of total national income is spent by government and who bears the burden of that expenditure. By itself, it is not important for inflation. (This is the proposition about fiscal and monetary policy that I discussed earlier.)

10. One of the most difficult things to explain in simple fashion is the way in which a change in the quantity of money affects income. Generally, the initial effect is not on income at all, but on the prices of existing assets, bonds, equities, houses, and other physical capital. This effect, the liquidity effect stressed by Keynes, is an effect on the balance-sheet, not on the income account. An increased rate of monetary growth, whether produced through open-market operations or in other ways, raises the amount of cash that people and businesses have relative to other assets. The holders of the now excess cash will try to adjust their portfolios by buying other assets. But one man's spending is another man's receipts. All the people together cannot change the amount

of cash all hold—only the monetary authorities can do that. However, as people *attempt* to change their cash balances, the effect spreads from one asset to another. This tends to raise the prices of assets and to reduce interest rates, which encourages spending to produce new assets and also encourages spending on current services rather than on purchasing existing assets. That is how the initial effect on balance-sheets gets translated into an effect on income and spending. The difference in this area between the monetarists and the Keynesians is not on the nature of the process, but on the range of assets considered. The Keynesians tend to concentrate on a narrow range of marketable assets and recorded interest rates. The monetarists insist that a far wider range of assets and of interest rates must be taken into account. They give importance to such assets as durable and even semi-durable consumer goods, structures and other real property. As a result, they regard the market interest rates stressed by the Keynesians as only a small part of the total spectrum of rates that are relevant.

11. One important feature of this mechanism is that a change in monetary growth affects interest rates in one direction at first but in the opposite direction later on. More rapid monetary growth at first tends to lower interest rates. But later on, as it raises spending and stimulates price inflation, it also produces a rise in the demand for loans which will tend to raise interest rates. In addition, rising prices introduce a discrepancy between real and nominal interest rates. That is why world-wide interest rates are highest in the countries that have had the most rapid rise in the quantity of money and also in prices—countries like Brazil, Chile or Korea. In the opposite direction, a slower rate of monetary growth at first raises interest rates but later on, as it reduces spending and price inflation, lowers interest rates. That is why world-wide interest rates are lowest in countries that *have had* the slowest rate of growth in the quantity of money—countries like Switzerland and Germany.

This two-edged relation between money and interest rates explains why monetarists insist that interest rates are a highly misleading guide to monetary policy. This is one respect in which the monetarist doctrines have already had a significant effect on US policy. The Federal Reserve in January 1970 shifted from primary reliance on ‘money market conditions’ (i.e., interest rates) as a criterion of policy to primary reliance on ‘monetary aggregates’ (i.e., the quantity of money).

The relations between money and yields on assets (interest rates and stock market earnings-price ratios) are even lower than between money and nominal income. Apparently, factors other than monetary growth play an extremely important part. Needless to say, we do not know in detail what they are, but that they are important we know from the many movements in interest rates and stock market prices which cannot readily be connected with movements in the quantity of money.

V. Concluding Cautions

These propositions clearly imply both that monetary policy is important and that the important feature of monetary policy is its effect on the quantity of money rather than on bank credit or total credit or interest rates. They also imply that wide swings in the rate of change of the quantity of money are destabilizing and should be avoided. But beyond this, differing implications are drawn.

Some monetarists conclude that deliberate changes in the rate of monetary growth by the authorities can be useful to offset other forces making for instability, provided they are gradual and take into account the lags involved. They favor fine tuning, using changes in the quantity of money as the instrument of policy. Other monetarists, including myself, conclude that our present understanding of the relation between money, prices and output is so meager, that there is so much leeway in these relations, that such discretionary changes do more harm than good. We believe that an automatic policy under which the quantity of money would grow at a steady rate—month-in, month-out, year-in, year-out—would provide a stable monetary framework for economic growth without itself being a source of instability and disturbance.

One of the most widespread misunderstandings of the monetarist position is the belief that this prescription of a stable rate of growth in the quantity of money derives from our confidence in a rigid connection between monetary change and economic change. The situation is quite the opposite. If I really believed in a precise, rigid, mechanical connection between money and income, if also I thought that I knew what it was and if I thought that the central bank shared that knowledge with me, which is an even larger ‘if’, I would then say that we should use the knowledge to offset other forces making for instability. However, I do not believe any of these ‘ifs’ to be true. On the average, there is a close relation between changes in the quantity of money and the subsequent course of national income. But economic policy must deal with the individual case, not the average. In any one case, there is much slippage. It is precisely this leeway, this looseness in the relation, this lack of a mechanical one-to-one correspondence between changes in money and in income that is the primary reason why I have long favored for the USA a quasi-automatic monetary policy under which the quantity of money would grow at a steady rate of 4 or 5 per cent per year, month-in, month-out. (The desirable rate of growth will differ from country to country depending on the trends in output and money-holding propensities.)

There is a great deal of evidence from the past of attempts by monetary authorities to do better. The verdict is very clear. The attempts by monetary authorities to do better have done far more harm than good. The actions by the monetary authorities have been an important source of instability. As I have already indicated, the actions of the US monetary authorities were responsible for the 1929–33 catastrophe. They were responsible equally for the recent acceleration of inflation in the USA. That is why I have been and remain strongly opposed to discretionary monetary policy—at least until such time as we demonstrably know enough to limit discretion by more sophisticated rules than the steady-rate-of-growth rule I have suggested. That is why I have come to stress the danger of assigning too much weight to monetary policy. Just as I believe that Keynes’s disciples went further than he himself would have gone, so I think there is a danger that people who find that a few good predictions have been made by using monetary aggregates will try to carry that relationship further than it can go. Three years ago I wrote:

We are in danger of assigning to monetary policy a larger role than it can perform, in danger of asking it to accomplish tasks that it cannot achieve and, as a result, in danger of preventing it from making the contribution that it is capable of making.³

A steady rate of monetary growth at a moderate level can provide a framework under which a country can have little inflation and much growth. It will not produce perfect stability; it will not produce heaven on earth; but it can make an important contribution to a stable economic society.

Notes

* The First Wincott Lecture, delivered at the Senate House, University of London, 16 September 1970.

¹ I chose this title because I used it about a dozen years ago for a talk at the London School of Economics. At that time, I was predicting. Now, I am reporting.

² Macmillan, 1923.

³ Milton Friedman, "The Role of Monetary Policy," Presidential Address to the American Economic Association, 29 December 1967; *American Economic Review*, March 1968 (reprinted in *The Optimum Quantity of Money and Other Essays*, Aldine, Chicago, 1969, pp. 95-110 – quotation from p. 99).

Reprinted in: (1) Milton Friedman, *Monetarist Economics*, pp. 1-20. Oxford: Basil Blackwell Ltd, 1991. (2) Milton Friedman and Charles A. E. Goodhart, *Money, Inflation and the Constitutional Position of the Central Bank*, pp. 64-90. London: Institute of Economic Affairs, 2003.

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