

**Comment on
Friedman's and Schwartz's
MONEY AND BUSINESS CYCLES**

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"Money and Business Cycles" is an important addition to previous studies by Friedman and his associates on the relationship between the stock of money and the level of economic activity. The empirical findings offered by Friedman and Schwartz are impressive. Nobody can justly quarrel with their claim that the paper "demonstrates beyond any reasonable doubt that the stock of money displays a systematic cyclical behavior." But, as the authors point out with care and clarity, these empirical results are just as consistent with the view that changes in aggregate activity influence the money supply as they are with the position that changes in the money supply affect economic activity. While we can all agree that the lines of causation run in both directions, the key conclusion of their paper is that the causality runs substantially from money to income, substantially enough to warrant a monetary theory of business cycles. Indeed,

the monetary view of economic fluctuations stands as the principal characteristic of Friedman's extensive research in this area.

To state my own principal conclusion directly, I do not agree with the Friedman and Schwartz appraisal of the importance of money. I find their view of the world fascinating and stimulating, but I am not converted. So far, this rejection stands merely as a testament of my faith. I shall use these comments to explain my misgivings about their theoretical position.

The Money Multiplier

In effect, Friedman and Schwartz ask me to believe that a \$1 billion open market purchase of government securities will raise annual GNP by more than \$20 billion. The \$1 billion rise in high-powered money should increase total money by more than \$5 billion, or more than 2 per cent. (That is my estimate — not that of the authors — but I would not expect serious argument.) In turn, according to the Friedman and Schwartz estimate of 2 for the elasticity of net national product with respect to money, this expansion of the money supply should raise national product by more than 4 per cent — or more than \$20 billion.

This money multiplier estimate has extremely significant implications for economic policy. It brings monetary policy to the fore and pushes fiscal policy into the background. To see these implications concretely, consider a combined fiscal-monetary action whereby a reduction in personal taxes of \$1 billion is financed entirely by the creation of new high-powered money. This action may be divided into two steps. The first step consists of a purely fiscal action: taxes are cut by \$1 billion and the reduction is financed by an issue of interest-bearing marketable government securities. The second step is then a purely monetary action: the central bank buys the \$1 billion of government securities for cash on the open market. The combined multiplier-accelerator effects on GNP of the fiscal action might be estimated anywhere from \$1.5 to \$5 billion, but nobody's estimate of that step would approach the \$20 billion attributed to the monetary action, in line with Friedman and Schwartz. To follow them, one must believe

that the monetary step generates 80 to 90 per cent of the total stimulus in the combined action.

Under typical conditions in the American economy, I would be inclined to reverse the allocation, putting 80 to 90 per cent of the weight on the fiscal step. I should expect a tax rebate that came to its recipients in the form of readily marketable government securities (the equivalent of the purely fiscal action) to be considerably more than half as expansionary as an equal rebate in the form of cash. In the world we inhabit, money substitutes are plentiful and fill the spectrum between money and capital goods. Government securities share many of the properties of cash and few of the characteristics of capital. The *form* of the increase in the public's net worth (as between money and Treasury securities) seems less vital to aggregate demand than the *fact* of this increase generated by the fiscal action.

If Friedman and Schwartz are right, the nation is going far astray in current discussions of tax reduction, when we can get all the stimulus we need from moderate shifts in monetary policy toward greater ease. Their verdict on the power of money would not be accepted by the makers of monetary policy, their most ardent critics, or the majority of monetary economists. Even the original architects of quantity theory expected only half as much bang from a new buck when they took proportionality of money and income as a first approximation. The distance of the Friedman and Schwartz position from most professional thinking on stabilization issues does not prove they are wrong. Collective professional judgment has been in error before, but I am orthodox enough to believe that it deserves some credit.

Money and Permanent Income

The quantitative estimates of large monetary effects on income are vital to the Friedman and Schwartz qualitative view that money accounts substantially for fluctuations in income. Percentage fluctuations in the path of money over cycles are considerably smaller than the percentage variations in income. The relatively stable money variable can be responsible

for these wide movements in income, only if money operates on income with great leverage. Friedman and Schwartz account for their large estimates of leverage through the permanent income formulation of the demand for money. The short-run income elasticity of demand for money is found to be low because (1) the demand depends on permanent income, and (2) permanent income varies from year to year by only an estimated one-third as much as aggregate measured income. Then, on the assumption that any imbalance between supply and demand for cash is equilibrated by changes in measured income, a change in the money supply must induce magnified income changes.

If I translate from permanent income to wealth—just because it is a more familiar language to me for some purposes—I can see some point to Friedman's formulation of the demand for money. While I should expect the transactions demand for money to contract along with measured income in a recession, the asset demand for money will not decline so long as wealth is growing. Except for the most severe depressions, wealth in real terms has kept growing through all phases of the cycle. But the market valuation of wealth in portfolios is presumably most important to the asset demand for money, and I doubt that the market value of wealth has fared any better than incomes have in recessions. If my guess on wealth values is correct, I see no reason for a particularly low short-run income elasticity of demand for money.

In Friedman's view, the short-run elasticity is low because transitory income is not used to increase money holdings. Previously, we were told that transitory income does not go into current consumption outlays. I will feel more comfortable about both those propositions when I am told how and where transitory income does get allocated.

In sharp contrast to the low short-run income elasticity of demand for money, their estimate of the long-run elasticity is 1.8. I see no logical reasons for money to be such a luxury—with an income elasticity rivalling that of steak—and I am not prepared to accept the finding as a structural characteristic of demand. Since time deposits of commercial

banks are the component of Friedman and Schwartz money that contributes most to the large coefficient, I wonder whether the result may stem from institutional developments affecting the supply conditions for time deposits by commercial banks.

The Transmission Mechanism

How does a rise in the money supply increase the level of income? Obviously, people who have been induced to part with an earning asset and to take on cash cannot simply decide to get themselves more income and more wealth in order to restore balance to their portfolios. Some adjustment and transmission mechanism must be involved.

I was surprised to find that the transmission mechanism described by Friedman and Schwartz is so similar to the one I visualize. In their view and mine, money is one ingredient of a general equilibrium theory of asset holdings. Changes in the stock of money will produce waves and ripples that influence the demand for all assets, extending to newly produced goods and services. When the monetary authorities induce people to part with bonds, these people are not really demanding extra cash to hold. They absorb it as a temporary matter before turning to other earning assets. When the resulting expansion in the demand for nonmonetary assets gets reflected in an increased demand for reproducible "capital" and its services, it stimulates either production or prices or both. But there are many links in this chain of asset adjustments running from cash to capital, and I would expect some of them to be rather weak links much of the time.

If monetary factors have the leverage on income that Friedman and Schwartz expect, they must have a better fulcrum than the general equilibrium asset model implies. If I accepted their empirical conclusions, I should be looking carefully at the mechanics of "credit availability." At any time, some firms and households are prevented from acquiring all the goods and services they would like because of their limited ability to borrow. Their portfolios are not in balance and they remain hungry for more capital (or more dissaving).

If an expansion of the money supply channels more funds into the hands of these eager spenders, it can have a large and direct effect on aggregate activity. We do not know that monetary expansion is accompanied by greater ease of credit in this manner, but this disequilibrium mechanism deserves exploration.

The Role of Interest Rates

The strength of the links in the money-capital chain depends, in large measure, on the importance of interest rates as equilibrators of portfolios. In relying on the general equilibrium fulcrum, Friedman and Schwartz contend that changes in the rates of return on earning assets do not affect substantially the desired ratio of money to total wealth (or to permanent income). In that case, output and prices are linked rigidly and inexorably to the money supply. The money-income relationship is then the key determinant of the time path of the system, playing the same dominant role as the capital-output relationship does in Harrod's growth model.

If, however, changes in the opportunity cost of holding money can make people hold significantly more cash in their portfolios, the chain is weakened and money is no longer an irresistible force. Over the long run, the economy can move along any one of a large number of possible money-income paths so long as there are compensating changes in rates of return. In the short run, too, changes in yields give flexibility to the economy, preventing the full force of a change in the money supply from impinging on the demand for output. If variations in the prices of earning assets put portfolios back in balance, then the output of capital goods will be less affected by a changing money supply.

The Friedman-Schwartz conclusion on the small role of interest does not rest firmly on either theoretical or empirical evidence. I am not satisfied with their discussion of Latané's results. Latané excludes time deposits of commercial banks from his measure of money; Friedman and Schwartz offer the opinion that different definitions of the money supply may give totally different results on the role of interest rates. They cannot afford to stop

there. We need to know which set of results offers the more appropriate guide for estimating the economic impact of conventional actions of monetary policy. Furthermore, Friedman and Schwartz seem obliged to explain how time deposits in commercial banks can be a close substitute for demand deposits and yet not be closely substitutable for savings bank deposits, savings and loan shares, and others. This is one example of a repeated puzzle in their analysis: asset prices and returns play a key and oft-cited role in encouraging substitution among nonmonetary earnings assets, but somehow do not influence the demand for those assets which are counted as money.

Nor can I accept the procedures in Friedman's quantitative work on the demand function for money. There, other variables get the first chance to explain demand while interest rates wait in line and are given only the opportunity to eat the leftovers, the residuals of the basic equations. Friedman and Schwartz tell us they are treating money as they would any other stock of assets, such as houses. I feel confident they would give much more prominent treatment to the prices of houses and rental services in estimating demand for that stock than Friedman has given to the opportunity cost of money.

The Direct Link

The Friedman and Schwartz monetary view of fluctuations is sharply distinguished from the investment approach. Suppose monetary impulses were the principal cause of changes in investment demand and that these investment changes in turn induced fluctuations in consumption and additional responses in investment through a multiplier-accelerator process. Then, economic fluctuation could be equally well described either as a monetary or an investment phenomenon, and presumably would be best described as a money-through-investment matter. But they argue that the direct route from money to income offers a more satisfactory explanation than the path that travels from money to interest to investment to income.

In espousing the direct linkage of money to income, Friedman and Schwartz are armed

with the powerful empirical results of the Friedman and Meiselman study. There, it was shown that aggregate consumer expenditure has historically been much more closely related to the money supply than to the level of "autonomous expenditures," defined as net private investment plus the government deficit. I have some reservations about the tests, particularly the treatment of the government deficit as autonomous. I also find some of the results puzzling: for example, (1) the "money multiplier" is much smaller than Friedman's other work implies; (2) surprisingly, money explains consumption better than it explains investment. Furthermore, the results may simply mean that changes in the money supply can be rather accurately described as "meeting the needs of trade." With all these lines of defense, I would be less than candid if I dismissed the findings. Had I known what variables were going to be correlated, I would have been willing to bet my nickel on the side that turned out to be the decisive loser. Until and unless there is a satisfactory explanation of these results, the unconverted cannot rest easy.

On the other hand, I doubt that Friedman and Schwartz can feel comfortable with their explanation of the direct linkage. They point out that the direct influence of money extends beyond the items classified as investment in the national accounts, impinging on consumer durable goods, consumer inventories of items classified as nondurable, on the rental services of capital goods, and perhaps on investment in human capital. If it were possible to adjust the national accounts to get a better measure of capital items, this strategy would be indicated. But the current-capital distinction is a blurred one and many items may have both capital and current aspects that defy classification. Hence, in their view, precision may be lost rather than gained by tracing from money to any concept of capital items before moving along to the impact on income.

Certainly, any line separating current from capital items must be a fuzzy one. I share Friedman's view that major consumer durable goods belong in the capital account and do not find them a serious conceptual problem. Elsewhere, the range of fuzziness seems small

relative to the magnitude of total investment expenditures. The doubtful items listed by Friedman and Meiselman and by Friedman and Schwartz look rather trivial to me. The battle between velocity and the multiplier is most unlikely to turn upon the impact of monetary changes on pantry and boudoir stocks held by households or on private educational expenditures, and even less likely to hinge on the substitution of auto rentals for new car purchases. In general, the difficulties of drawing a line between capital and current outlays seem less serious than those associated with dividing liquid assets between money and nonmoney.

The Cyclical Mechanism

The monetary cycle outlined by Friedman and Schwartz is monetary both in its impulse and its overshoot mechanism. In their example, which is explicitly not meant to be preclusive, an increase in the money supply starts the fluctuation. The cyclical character of the fluctuation comes from an overshooting monetary cobweb: as prices and incomes adjust to the expansionary impact of the monetary stimulus, people have to scramble back for some of the cash they unloaded initially. Presumably, the authors prefer the double monetary version of the cycle, but it seems worth noting that they could be "half right." Disturbances of a nonmonetary origin could produce cyclical movements through the Friedman and Schwartz monetary cobweb; alternatively, disturbances of a monetary character could be the usual shocks in a world where the overshoot mechanism was not monetary.

At first glance, a monetary explanation of business cycles seems impossible because the money supply does not decline in many cyclical recessions of economic activity. However, Friedman and Schwartz meet this challenge. They advance a monetary accelerator hypothesis whereby a slowdown in growth of the money stock can produce an absolute downturn in income. The workings of the monetary accelerator are not explained lucidly by Friedman and Schwartz. It would have been helpful if they had included a verbal description of a cycle that was initiated by a reduced (but continued positive) growth rate of money.

The following model has some of the characteristics of a monetary accelerator, and I offer it because it may resemble the Friedman and Schwartz view:

1. The stock of money determines the desired stock of capital, in line with some rigid desired portfolio balance.
2. Then, the growth rate of money fixes the growth rate of desired capital.
3. Investment depends on the excess of desired capital over actual capital.

In a moving state of exponential equilibrium, the percentage excess of desired over actual capital must be constant. Now, if the growth rate of money declines, the growth rate of desired capital falls, reducing the excess of desired over actual capital. As a result, investment declines absolutely. This is potentially a cycle model; but, as I see it, the overshoot mechanism lies in the way investment adjusts actual to desired stocks. A slowdown in monetary growth can be the initiator of recession in this world, but it does not look like a double monetary version of the cycle to me. I look forward to a more explicit formulation of the Friedman and Schwartz cycle model in their future work.

Conclusion

I consider Friedman's works on money a major challenge to the unconverted. They are full of stimulating ideas and significant facts and parameters, and they offer some explanation for all the empirical findings. While I protest against a few of the empirical procedures, the research techniques generally command praise and admiration. I find many of the results and their explanation paradoxical and implausible, yet I cannot really account for them on other grounds. So I feel very uneasy. I wonder whether I can appropriately hold strong intuitive views about relationships and parameters I have never estimated. I wonder, on the other hand, how Friedman can disregard all intuitive evidence.

In reviewing the Friedman and Schwartz paper, I feel as though I am commenting on a highly competent and comprehensive demand study with some astonishing results: coffee and tea are found to be independent commodities while coffee and champagne are

close substitutes; bus rides have an estimated income elasticity of 1.8; the knowledge whether a family owns an auto offers no assistance in explaining its outlays for gasoline. But the values of parameters in aggregative relationships have far more consequence for

the direction of economic policy and economic research than any coffee-tea examples. The disciples and the critics of this school of monetary analysis have a social and a scientific responsibility to pursue the issues with intensive empirical and theoretical research.