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One of the cleverest features of the rational expectations revolution was the appropriation of the term "rational." Thereby, the opponents of this approach were forced into the defensive position of either being irrational or of modeling others as irrational, neither of which are comfortable positions for most economists. In fact, much of the rational expectations view—that expectations are formed sensibly given the information that people have (and are motivated to acquire)—has been generally accepted. This viewpoint has permanently and usefully altered the way that most macroeconomists build models and carry out evaluations of shifts in governmental behavior. In this sense the rational expectations revolution has triumphed decisively.[1]

The phrase, rational expectations macroeconomics, also suggests a particular theory of business fluctuations. This well-known theory shows how incomplete information about the quantity of money and the general price level can lead to nonneutrality of money. Specifically, changes in money lead to temporary confusions between general and relative prices, which lead in turn to adjustments of production and employment. Some extended versions of this model allow the real effects of monetary disturbances to persist over periods that are long enough to correspond to real world recessions and booms. There are also some intriguing implications for monetary policy—namely, the systematic part does not matter (aside from the inflation tax), and the erratic behavior tends to be harmful.

The rational expectations theory of business fluctuations and the empirical work that relates to this theory are surely interesting and suggestive. However, it seems a fair assessment that this research has not provided a definitive analysis of either monetary nonneutrality or of the business cycle more generally. Consequently, this work has received much criticism, some of which has even been insightful. But I should stress that the serious problems all arise in the attempt to explain the nonneutrality of money, which is surely the hardest problem in macroeconomics. Some recent research, which I discuss later, suggests that the solution to this problem may not be as crucial for the understanding of business cycles as many of us used to think.

One troublesome aspect is the place of rational expectations macroeconomics in the often political debate over Keynesian economics. At least implicitly, many people feel that what's bad for the rational expectations viewpoint is good for the Keynesian one, and vice versa. But it is hard to see how the problems in using the rational expectations approach to explain monetary nonneutrality can alleviate the theoretical and empirical shortcomings of the Keynesian model. This model is basically an incomplete theory that provides many prescriptions for activist macro policies, but which retains some serious inconsistencies with the rational behavior of individuals. Specifically, no one has been able to use elements such as information and mobility costs—which are obvious candidates for explaining the coordination problems of private markets—in order to

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[1]Even many Keynesian models now employ rational expectations, although amidst sticky prices and rationed quantities. Frankly, one has to wonder about the internal consistency of this procedure—as Laurence Weiss puts it, "If one is willing to posit 'reasonable' descriptions of how wages and prices are determined without reference to an explicit optimizing justification, then why not simply assert that expectations can be similarly modeled?" (1983, p. 6).

generate results that look Keynesian.[2] Similarly, the Keynesian model still has its difficulties with inflation and supply shocks—difficulties that were the prime reasons for the widespread and growing dissatisfaction with this model since the late 1960's.

If we look beyond the issue of monetary nonneutrality, then we do find areas of macroeconomics that use rational expectations and in which important recent progress has been made. One area concerns real theories of business fluctuations—that is, fluctuations in real economic activity that reflect underlying shocks to technology. Often people express skepticism that aggregate real shocks occur with sufficient size and frequency to account for a major part of the business cycle. For example, after mentioning the oil crises and harvest failures, one is often asked to name the third example of an important real shock. In this regard, I find David Lilien's research (1982) to be particularly promising. He shows that greater dispersion in the shifts to technology and tastes—with no necessary aggregate bias—can lead to significant and persistent effects on the aggregates of output and employment. In assessing the empirical significance of this approach, we could look at the major changes in patterns of international comparative advantage that have occurred since the early 1970's. These changes show up, for example, as a faster rate of decline in the share of U.S. output that is accounted for by the manufacturing sector. We would look also at the volatility in the relative prices of internationally traded goods, which are not limited to oil. These fluctuations in relative prices seem to have a great deal to do with the gyrations in real exchange rates over the last decade. Overall, it seems that real theories are especially promising for explaining the sharp fluctuations in real economic activity and the tendency for increases in unemployment rates since the early 1970's.

[2] One of the more remarkable recent developments is the view that long-term contracts can rescue the old Keynesian case for policy activism. It is hard to see how the ability to contract could lessen the private economy's ability to deal with disturbances and thereby enhance the case for Keynesian macropolicies.

The other main objection to real business cycle theory is that it fails to address the link between money and real variables. At least through the 1930's, the main positive association between monetary aggregates and real variables derives from fluctuations in the quantity of financial intermediation—that is, the volume of deposits and loans—rather than from shifts in the monetary base. In many cases, the economic contractions were accompanied by banking panics, which tended to feature the suspension of convertibility between deposits and currency. As Ben Bernanke (1983) has stressed, it is not difficult to see why a sudden decline in the quantity of financial intermediation would have adverse real consequences for the economy. In fact, a cutback in financial intermediation is not so different from a negative shock to production functions, which is the type of disturbance that appears in real theories of business cycles. Thus, the main challenge is to explain why the earlier financial system was subject to occasional crises—not why these crises, once they occurred, would have serious repercussions on output and employment. It seems likely that deposit insurance plays an important role in this story.

Even in the post-World War II period, there is evidence that much of the interplay between money and real activity reflects fluctuations in deposits and in credit aggregates, rather than the monetary base. Thus, money may serve more as an indicator of changes in business conditions, rather than as a major exogenous influence on real variables. However, evidence on the interactions between the monetary base and real variables still suggests some amount of monetary nonneutrality, which we would like to explain. In fact, this type of interplay between monetary and real variables during relatively minor recessions may be quantitatively in line with the rational expectations models, which stress the role of incomplete information about money and prices. Thus, we may be able to resolve the puzzle of monetary nonneutrality by arguing first, that much of the empirical association between money and real variables is not evidence of nonneutrality, and second, that the existing theories can account for the relatively small amount of nonneutrality that remains.

Another area in which important progress has been made concerns fiscal variables—that is, government expenditures, taxes and deficits. Here, the rational expectations viewpoint is consistent with real effects from some types of systematic macropolicies. For example, economic activity would generally respond to changes in the level or timing of government purchases and public services, as well as to the timing of taxes if these levies are not lump sum. However, the "Ricardian Theorem" says that choices between deficits and lump sum taxes do not matter for real variables. (They may or may not matter for the price level.)

There is empirical evidence that documents the expansionary effect on output from government purchases, especially for the sharp, temporary buildups that accompany wars. However, it is harder to verify the real effects from shifts in the timing of non-lump-sum taxes, probably because governments typically tailor their debt-management policies to avoid major swings in tax rates. In fact, this perspective leads to a useful positive theory of deficits—namely, they are increased by wars and recessions and, it turns out, by higher rates of expected inflation. This viewpoint explains U.S. deficits reasonably well since World War I, including the experience for 1982–83. Finally, there is little evidence that shifts in deficits are an independent source of business fluctuations (or of changes in interest rates). Thus, the Ricardian Theorem seems to be in good shape—and to have become remarkably respectable.

As to more progress, our understanding of macropolicy has been expanded particularly by Finn Kydland and Edward Prescott (1977), who brought out the essential distinction between rules and discretion. A rule provides commitments about future governmental behavior, for example, to honor patents on inventions or not to default on public debts. These commitments, which amount to a rule of law in the framing of governmental policy, can encourage efficient behavior of individuals, such as to invent things and to hold the government's debt. Thus, there can be a gain from the government's "tying its hands" in advance, rather than following the discretionary approach of optimizing at each date with the current state always taken as given (which might call for disallowing existing patents and defaulting on existing debts). This viewpoint has important insights for the desirability of rules in the context of monetary and fiscal policies. The gold standard and constitutional limits on money, taxes and spending can be viewed from this perspective as possibly useful rules. Further, if rules are absent, then the theory of discretionary policy provides predictions about the outcomes for inflation, monetary growth and other variables. In other words, we can derive a positive theory of governmental behavior that complements the usual theory of individual behavior. Proceeding this way, we can account for the high and variable inflation that prevails under the present "unruly" structure for monetary policy.

It is easy for me to appreciate the recent progress in macroeconomics since I have only to recall the level of knowledge that prevailed during my student days at Harvard. I remember vividly a lecture when I was a new graduate student in 1966. The opening speaker announced gleefully that the business cycle was dead. Then the main lecturer —on leave from Harvard at the Council of Economic Advisers—told us how the wonders of fine-tuning in macropolicy had been used virtually to eliminate recessions. (He even divided the gain in *GNP* by the number of economists in the United States to show how valuable each economist was, which made us students feel very warm and self-satisfied.)[3] No doubt we are sorry that the world does not work this way, but it must be progress to have found out.

The truth is that in the mid-1960's there was an artificial, essentially political consensus on the Keynesian model, which was not built on much supporting economic theory or empirical evidence. The evaporation of that consensus produced a letdown among many macroeconomists, not to mention policymakers and news reporters. But this breakdown was necessary in order for us to

[3] Probably there should be a distinction here between the average economist and the marginal economist. But that falls into the domain of price theory.

begin learning about the macroeconomy and to stimulate the development of superior methods of theoretical and empirical analysis. Over the last fifteen years we have generated a significant array of findings about the macroeconomy, and there is the promise of much more to come. Often people downgrade this progress because of a focus on the one area—namely the nonneutrality of money—in which the most problems have arisen. But overall we are in much better shape in macroeconomics—in terms of what we know and of knowing what we don't know —than we were fifteen years ago. Why, even the undergraduate textbooks in macroeconomics are getting better.

REFERENCES

Bernanke, Ben, Monetary Effects of the Financial Crises in the Propagation of the Great Depression,"*American Economic Review*, June 1983, *73*, 257–76.

Lilien, David, "Sectoral Shifts and Cyclical Unemployment," *Journal of Political Economy*, August 1982, *90*, 777–93.

Kydland, Finn and Prescott, Edward, "Rules rather than Discretion: The Inconsistency of Optimal Plans," *Journal of Political Economy*, June 1977, *85*, 473–91.

Weiss, Laurence, "Rational Expectations Models in Macroeconomics," unpublished, University of Chicago, 1983.