

Lecture Notes: Chapter 17: The Future of Macroeconomics

J. Bradford DeLong

The Past of Macroeconomics

The Age of John Maynard Keynes

Macroeconomics as a discipline is to a remarkable extent the creation of John Maynard Keynes.

Keynes's 1936 book *The General Theory of Employment, Interest, and Money* shifted economic research and macroeconomic thought into new and different directions that have led us where we are today.

The *General Theory's* extraordinary impact was in large part a result of the then-ongoing Great Depression.

Keynes's book emphasized:

- the role of expectations of future profits in determining investment
- the volatility of expectations of future profits
- the power of the government to affect the economy through fiscal and monetary policy
- the multiplier process which amplified the effects of both private-sector shocks and public-sector policies on aggregate demand.

It swept the intellectual field, and shaped modern macroeconomics.

By a decade or so after World War II much of the analytical apparatus used in this textbook was already in place.

- The IS-LM model was developed by economists John Hicks and Alvin Hansen.

Other economists developed:

- the approaches used in this textbook to understanding consumption (Milton Friedman and Franco Modigliani)
- investment (Dale Jorgenson, James Tobin, and many others)
- the relationship between interest rates and the money supply (James Tobin once again, along with many others)
- the difference between the behavior of the macroeconomy in the flexible-price long-run and the fixed-price short run (here Franco Modigliani was again the major contributor).
- the Solow growth model was developed by—no surprise—Robert Solow.

This is not to say that the bulk of this textbook stands as it would have been written back in 1960. Macroeconomics textbooks in 1960 had next to no discussion of the relationship between production and inflation. They had little discussion of expectations. The short run was seen as lasting for decades, and analysis of the long-run flexible-price model was rarely included in undergraduate courses. Textbooks in 1960 also downplayed monetary policy and emphasized fiscal policy: investment was seen as responding little to changes in interest rates, and estimates of the multiplier were much higher than we now believe to be correct now or to have been correct then.

The Age of Milton Friedman and Robert Lucas

Between 1960 and 1980 a good deal of the rest of the meat of this textbook was put into place. Powerful critiques of the then-established conventional wisdom of macroeconomics were made first by Milton Friedman and then by Robert Lucas, both of whom made their intellectual home at the University of Chicago.

Milton Friedman's critique of the then-dominant tradition in macroeconomics had four major parts:

- the then-standard models greatly overestimated the government's ability to manage and control the economy. Great uncertainty, long lags, and variable effects of policy actions placed extremely tight limits on the ability of the government to smooth out recessions and avoid periods of high unemployment.
- the then-standard models greatly overestimated the power of fiscal policy and greatly underestimated the power of monetary policy

- the measurement of the money supply told you most of what you needed to know about how economic policy was working.
- the idea of that natural rate of unemployment, developed by Friedman and Edward Phelps in the second half of the 1960s. To the extent that macroeconomists in the early 1960s talked about aggregate supply and inflation at all, they tended to follow the lead of economists who took the location of the short-run Phillips curve to be fixed. A given level of unemployment would produce a fixed, unchanging rate of inflation with no feedback of past inflation on expected inflation and no shifts in the natural rate of unemployment. Friedman and Phelps argued that high past inflation would raise expected inflation, and that if unemployment were kept below its natural rate then the Phillips curve would shift upward over time, generating higher and higher inflation.

The “stagflation” of the 1970s proved Friedman and Phelps to be completely correct on their fourth point. In less than a decade the economics profession shifted to the “accelerationist” Phillips curve that we use today. Friedman’s first and second points also became part of the received wisdom. Only the claim that the money supply was the sole important variable for understanding macroeconomic policy failed to win broad acceptance.

But Milton Friedman’s “monetarist” critique was only the first half of the successful revisionist challenge to the doctrines of the post-World War II Keynesians. The “rational expectations” macroeconomists—Robert Lucas, Thomas Sargent, Robert Barro, and others—argued that Keynesian economics had failed to think through the importance of expectations.

The rational expectations economists assumed that people were doing the best they could to figure out the structure of the economy in which they lived. Because standard Keynesian models did not pay enough attention to expectations, they failed to recognize that systematic changes in economic policy would change the parameters of the consumption and investment functions as well as the location of the Phillips curve. Thus macroeconomic models that took estimated consumption functions, investment functions, and Phillips curves as building blocks would blow up in the face of policy makers.

Once again the critique was incorporated into the mainstream quite rapidly. As MIT economist Olivier Blanchard puts it, the “idea that rational expectations was the right

working assumption gained wide acceptance... not... because all macroeconomists believe that people, firms, and participants... always form expectations rationally... [but because] rational expectations appears to be a natural benchmark, at least until economists have made progress... understanding... actual expectations.” By the mid-1980s the intellectual structure of the version of modern macroeconomics presented in this book was largely complete.

And since? The late 1980s and 1990s were a time of idea generation and exploration. They saw macroeconomists exploring and testing a large number of different ideas and models. It was an age in which the set of possible approaches expanded, but in which the mainstream policy-analytic position of macroeconomists did not shift much. If the past is any guide, such a period of exploration and experimentation will eventually be followed by another period of successful critique, during which the mainstream of macroeconomics will once again change substantially and rapidly as it did in the 1970s and early 1980s.

What might the future of macroeconomics bring?

The Future of Macroeconomics: “Real” Business Cycles

One place where the future of macroeconomics might lie is in the theory of “real” business cycles. The fundamental premise of this line of thinking is that all the other macroeconomists took a wrong turn a long time ago. It is more than half a century since economists turned away from the line of analysis of Joseph Schumpeter and toward that of the monetarists and Keynesians. One possibility is that this was, in the long run, a mistake

John Maynard Keynes, Irving Fisher, Milton Friedman, Paul Samuelson, and all of the economists working in both Keynesian and monetarist traditions believe that there are two key elements to understanding business cycles. First you need to understand the determinants of nominal aggregate demand. Second, you need to understand the division of changes in nominal aggregate demand into changes in production (and employment) on the one hand and changes in prices (inflation or deflation) on the other. Thus Keynesians and monetarists think about the velocity of money, the determinants of

investment spending, the multiplier, crowding out, the natural rate of unemployment, the rate of expected inflation, the Phillips curve, and other related topics

To real business cycle economists in the Schumpeterian tradition like Edward Prescott, most of this seems to be a waste of time. There are changes in nominal aggregate demand, but their impact falls mostly on prices and only a little in output and employment. To understand the roots of real fluctuations—fluctuations in the real economy—you need to follow a different road.

If I thought this line of research truly will be the future of macroeconomics, I would have written a different book. Nevertheless there are important points made especially by what I see as the Schumpeterian wing of the real business cycle tradition. Economic growth *is* not smooth. It *does* proceed sector-by-sector. Shifts in investment—big backwards-and-forwards moves in the position of the IS curve—do arise out of changing beliefs about the current productivity of the economy and the future value of new investment.

The existence of real business cycle theory is a call for all economists to spend more time thinking about the determinants of investment fluctuations: either tying them to changes in productivity and the value of investment, or developing useful social-psychological theories of the shifts in animal spirits that cause such large movements in investment over time. My guess is that a lot of what is now called real business cycle analysis will be incorporated into mainstream macroeconomics over the next two decades as the theory of growth is integrated with the theory of business cycles, and as economists make progress in understanding why investment is so volatile.

Recap: Real Business Cycle Theory

Real business cycle theorists see booms as generated when rapid technological innovation opens up new industries and new possibilities for investment. At such moments the stock market will be high, the returns to investment large, and so investment spending will be high. Real business cycle theorists see recessions as generated when entrepreneurs conclude that those who came before them have been overoptimistic. The socially optimal thing to do is not to invest, but instead to retrench: to cut back on investment spending and scrap capital until it becomes clear where there will be opportunities for profitable large-scale investment.

The Future: New Keynesian Economics

The second possible future for macroeconomics sees the continued development of the mainstream research program, as its weaknesses and incoherencies are slowly repaired.

Certainly the area of modern macroeconomics that is in least satisfactory shape is the area of aggregate supply. Why do changes in nominal aggregate demand show up as changes in the level of production and employment, and not just as changes in the level of prices? Since at least the 1930s, the mainstream of macroeconomics has attributed the sluggishness of aggregate supply—the fact that the Phillips curve has a slope, and is not vertical—to stickiness in wages and prices. Thus fluctuations in the nominal level of aggregate demand cause fluctuations in output and employment. But where does this stickiness and slow adjustment of wages and prices come from? Given that business cycles appear to be so unpleasant and costly to society as a whole that by now a way should have been found to greatly reduce the harmful macroeconomic consequences of price stickiness.

Thus a direction that might be the future of macroeconomics is that of deep investigation into the sources of sluggish wage and price adjustment, and of aggregate supply. This research program has gained the name of *New Keynesian Economics*.

Recap: New Keynesian Theories

Why do changes in nominal aggregate demand show up as changes in the level of production and employment, and not just as changes in the level of prices?

The mainstream of macroeconomics has attributed this to stickiness in wages and prices. But where does this stickiness come from? One possibility is that small costs of changing prices on the part of individual firms have large effects because a price adjustment or a failure to adjust prices on the part of one firm affects other firms through *aggregate demand externalities*. Another possibility is that prices and wages are sticky because agents in the economy do not all make long-run decisions at the same time.

Debts and Deficits, Consumption and Saving

The standard view of debts and deficits has been subject to a powerful challenge, a challenge which may become an important part of the future of economics and whether it is successful or not is likely to change the way we think about how the government's budget affects the economy. This alternative view of the long run (and of the short run too) effects of debts and deficits is called "Ricardian" after David Ricardo (who does not seem to have held it) and that should be called "Barrovian" after its most effective and powerful advocate, Harvard macroeconomist Robert Barro.

Robert Barro's View

Think of it this way: The government is, in a sense, our agent. It buys things for us (government purchases) and it collects money from us to pay for the things it buys on our behalf. The monies it collects from us are called "taxes." Sometimes the government collects as much from us as it buys on our behalf: then the government budget is balanced. Sometimes the government collects less from us than it spends on our behalf: then the government budget is in deficit, and the government makes up the deficit by borrowing money now and implicitly committing to raise taxes to repay the debt (interest and principal) at some time in the future).

Suppose that the government spends an extra \$1,000 on your behalf and at the same time raises your taxes by \$1,000. Because your after-tax income has gone down by \$1,000, you cut back on consumption spending. Now suppose that the government spends an extra \$1,000 on your behalf, but doesn't raise taxes—instead it borrows the \$1,000 for one year, and announces that it is going to raise taxes next year to repay the debt. What is the difference between these two situations? In one case, the government has collected an extra \$1,000 in taxes from you this year. In the other case, the government has announced that it will collect an extra \$1,000 in taxes from you next year. In either case you are poorer. In the first case you cut back on your consumption. Shouldn't you cut back on your consumption in the second case too—set aside a reserve to pay the extra taxes next year, and invest it, perhaps in the bonds that the government has issued? After all, the effect of the government policy on your personal private wealth is identical in the two cases.

Robert Barro would say yes. He would say that what matters for the determination of consumption spending is not what taxes are levied on you this year, but what all of the changes in government policy tell you about the value of the total stream of taxes this year, next year, and on into the future. Government policy thus ought to affect consumption only to the extent that it tells you about how much the government is going to spend—and thus what will be the total lifetime tax bill levied on your wealth.

Counterarguments

Many economists point out that the theoretical elegance of Barro's view is broken by a number of different considerations.

Myopia. Perhaps people are not far-sighted enough to fully work out what an increased deficit in the present implies for their future taxes.

Liquidity constraints. Barro's argument implicitly assumes that it is easy for people to borrow and lend. If a good many people can't borrow and lend—would wish to spend more if only they could borrow it on reasonable terms—then you would expect consumers to react to tax cuts by increasing consumption spending even if they knew full well that the government was going to recapture those tax cuts with tax increases later.

People are different. I am the beneficiary from increased spending this year, but the extra taxes that the government will exact two decades hence may well not be paid by me but by someone who isn't even in the labor force today.

But are any of these—or all of them together—really enough to make us confident that changes in the timing of taxes (holding government spending patterns constant) will have a big effect on overall consumption? Even if Barro's challenge to the conventional wisdom is unsuccessful, it will only become clear that it is unsuccessful when we have a much better understanding of how and why people divide their income between consumption and saving.

Consumption and Saving

In the early part of the twentieth century it was relatively easy to justify a relatively high marginal propensity to consume. Most households had little if any savings. Most households found themselves unable to borrow. Hence they were *liquidity constrained*: they wished to spend more today, but could not find anyone to lend them the liquid wealth to enable them to do so. Thus one would expect a boost to income today to generate a large rise in consumption spending. Add to this the fact that buying consumer durables is in a sense as valid a way of saving for the future as putting money in the bank, and a high marginal propensity to consume and a strong multiplier process seemed easy to understand.

The past fifty years, however, have seen steady and large increases in the flexibility of the financial system. Few Americans today are without the ability to borrow to increase current consumption should they so wish. Those Americans who are credibly liquidity constrained today receive a very small portion of total income, and a small portion of increases in total income. Thus economists' theories would predict that the marginal propensity to consume would have dropped far by today, and that the multiplier process would be more or less irrelevant to aggregate demand. Nevertheless, consumption still declines significantly when the economy goes into recession.

This consumption puzzle is another substantial hole in today's current macroeconomic knowledge. Many economists are trying to close it. Some, like Johns Hopkins macroeconomist Chris Carroll, argue that the typical consumer is both *impatient* and strongly *risk averse*. Risk aversion makes him or her unwilling to borrow. Impatience makes him or her eager to spend increases in income. Thus the fact that improvements in financial flexibility means that consumers could borrow doesn't mean that they will. Other economists focus on the persistence of income changes, and say that current income is a good proxy for permanent income and hence should be a strong determinant of consumption. Still others—led by Chicago economist Richard Thaler—argue that it is time for economists to throw the simple-minded psychological theory of utility maximization overboard, and to take seriously what psychologists have to say about how humans reason.

It is unclear how this hole in macroeconomists' understanding will be resolved. It is clear, however, that whatever answer is reached to the puzzles regarding consumption and saving will also have a powerful impact on the debate over debts and deficits as well.

Does Monetary Policy Have a Long-Run Future?

When the Federal Reserve uses open market operations to affect interest rates, it does so because its purchases or sales of Treasury Bills raise or lower the supply of bank reserves in the economy, and so make it easier or harder for businesses to borrow money. But total commercial bank reserves in the U.S. amount to less than half a percent of GDP. A typical open market operation is a few billion dollars.

In the context of an economy in which annual GDP is more than \$11 trillion and in which total wealth is something like \$40 trillion, how is it that a swap of one government promise to pay (a Treasury Bill) for another (a dollar bill) can cause big changes in the cost of borrowing money, and ultimately in the level and composition of economic activity?

This question has not been asked often enough in the past hundred years. Economists have tended to assume that monetary policy is powerful and that the reasons for its power are relatively uninteresting. They have by and large ignored the fact that to shift from an extremely tight monetary policy in which long-run nominal GDP growth is zero and a loose one in which long-run nominal GDP growth is ten percent per year requires that the Federal Reserve increase purchases of Treasury Bills by an average of only some \$20 million a day.

Monetary policy is certainly powerful. But in at least one of the potential futures of macroeconomics the reasons for its power become very interesting indeed. For it is at least possible that the future evolution of the financial system might undermine the sources of influence that monetary policy today possesses.

The reasons that monetary policy has power today that economists usually bring forward rest on what Harvard macroeconomist Benjamin Friedman calls—politely—“a series of ... familiar fictions: [like that] households and firms need currency to purchase goods... nonbank financial institutions [cannot] create credit... [and] so on.”

The standard explanation is that open market purchases of Treasury Bills increase the reserve balances held by the bank where the seller of the Treasury Bills receives payment. Thus the total volume of reserves in the banking system as a whole rises, and the banking system responds to this increase in reserves by increasing total credit in the economy by more than ten times the reserve increase. Because commercial banks must hold reserves, and because only the Federal Reserve can change the total amount of reserves, it has a uniquely strong ability to affect interest rates. In the standard story the central bank's power is further boosted because everyone in financial markets takes its actions today as a powerful signal of what its actions will be in the entire future.

This Federal Reserve power, however, would be of little use if nobody much cared about keeping deposits at commercial banks, and nobody used reserve-backed commercial bank deposits as transactions balances. When we look to the future, we see a future in which more and more transactions are carried out not through cash or check but through credit cards, debit cards, smart cash cards that we see in Europe, or other forms of electronic funds transfer at points of sale.

Will the future hold a gradual weakening of central bank power? Macroeconomists know that central banks today are powerful and are likely to remain so for at least a generation. But forecasting beyond that point requires a deeper knowledge and better models of the sources of central bank power than macroeconomists currently possess. This is thus another area in which the macroeconomics taught in the future is likely to be substantially different from the macroeconomics taught in the past