A brief history of macro

How we got here

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MAINTSTREAM macroeconomics has a pretty poor reputation these days, both among the public at large and among economists in other fields. This is hardly surprising. There is little consensus on even the most basic questions in macro. Ask top academics why America's post-crisis recovery has been so slow (http://www.economist.com/blogs/freeexchange/2012/10/polling-experts) and you will get many different conflicting answers (http://www.economist.com/blogs/freeexchange/2012/10/polling-experts-o). But the most obvious reason for the widespread disdain is that the profession failed to predict that the biggest and most painful downturn since the Great Depression was even possible.

Now, several groups of economists are trying to rebuild macro, often melding previously discarded ideas with sophisticated new mathematical and computational techniques. This week's print edition gives an overview (http://www.economist.com/news/finance-and-economics/21569752-efforts-are-under-way-improve-macroeconomic-models-new-model-army) of some of the interesting new developments, but in this post, I want to look more at the history of the field. The following slideshow (http://prezi.com/zr8i4xdaqou/a-brief-history-of-macroeconomics/) by Markus Brunnermeier and Delwin Olivan of Princeton is a good place to start:

As the slideshow makes clear, macro has evolved in fits and starts. Existing models seem to work until something comes along that forces a rethink. Then academics tinker and fiddle until the next watershed. In response to the Great Depression, John Maynard Keynes developed the revolutionary idea that individually beneficial actions could produce undesirable outcomes if everyone tried to do them at the same time. Irving Fisher explained that high levels of debt make economies
vulnerable to downward spirals of deflation and default. Simon Kuznets did not develop any new theories but he played a key role in the creation of the national income and product accounts. Before him, policymakers, investors, and citizens had little way of knowing whether the economy was even shrinking or growing. FDR had to rely on indicators like the price of pig iron or the volume of freight car traffic, rather than gross domestic product.

By the late 1940s, the Depression was over and Keynes was dead. Paul Samuelson was the man who set the agenda for the coming decades by taking some of the ideas from Keynes's *General Theory of Employment, Interest, and Money* and articulating them in mathematical models. (For those who are interested, Keynes's entire book can be read for free online here.) Samuelson's contributions were important but unfortunately he left many things out, particularly Keynes's insights on the nature of the financial system. To Samuelson and his disciples, banks and other intermediaries were merely a “veil” between savers and borrowers in the nonfinancial sector, rather than profit-seeking firms that make loans opportunistically. While there were some early dissenters, notably John Gurley and Edward Shaw, the mainstream believed that finance was unimportant right up until the crisis.

Many macroeconomists were comfortable ignoring finance because they exclusively studied the United States, a country that had not experienced a significant crisis since the 1930s. The government had responded by creating deposit insurance and breaking the last vestiges of the gold standard, which together, many economists concluded, would make future crises impossible in rich countries. For decades, the evidence appeared to support this thesis, although astute observers of events in the Nordics and Japan would have been more cautious.

So the original postwar macro models left out the financial system. What did they include? The standard “empirical” models were based on the idea that the relationships observed in the past would generally continue into the future. This is not necessarily unwise. For example, changes in the number of people employed correspond pretty well to changes in the level of joblessness. Thousands of linear equations based on these sorts of relationships were combined into enormous systems. For several decades, these models actually did a pretty good job. Most famously, economists predicted in the early 1960s that John Kennedy’s proposed tax cuts would not add to the deficit because they would induce faster growth, which turned out to be true.

Problems developed in the 1970s. “Stagflation,” the ugly portmanteau that describes an economy beset with rapid price increases and high levels of unemployment was not supposed to be possible—yet it was afflicting all of the world’s rich countries. The problem was that some relationships observed in the past can break down once policymakers deliberately try to take advantage of them. In this case, policymakers leaned too heavily on the Phillips Curve. A.W. Phillips had found that, historically, faster increases in nominal wages coincided with high rates of employment, while slower wage increases went alongside higher levels of joblessness. Before him, Irving Fisher (the same man who invented the concept of debt-deflation), had discovered a similar relationship between changes in nominal wages and changes in employment in America. While Phillips himself did not presume to suggest that the relationship he had discovered was an iron law of nature, other economists, including Paul Samuelson, did. They proposed that policymakers faced a simple tradeoff between unemployment and inflation, represented by Phillips’s curve. Policymakers could choose any point on the curve they desired.

The problem with this sort of modelling exercise is that it ignored the human element. Unexpected changes in the price level or nominal wages alter real interest rates, real debt burdens, and real labour costs. That means that a sudden spurt of inflation can cause the economy to temporarily boom, which, among other things, would temporarily suppress the jobless rate. Similarly, unanticipated disinflation could cause a great deal of damage. Both Fisher and Phillips were looking at data from the era of the gold standard, when people generally expected prices to be stable. Any sustained change would have been a deviation from expectations, which is why the relationships they discovered appeared to be so robust. But if people came to
expect the unexpected and adapted to the new, faster rate of inflation, the observed historical relationship would no longer hold. That is what happened in the 1970s. By then, people had come to realise that any economic slowdown would encourage policymakers to goose activity by demanding faster and faster inflation. No longer believing that rapid price increases were a “temporary” phenomenon, they pulled money out of the regulated banking system, which was unable to pay competitive rates on deposits compared to the new money market mutual funds. The cost of equity financing (roughly speaking, earnings yields) soared. It all added up to persistently higher levels of unemployment than most would have expected.

A new generation of macroeconomists, including Ed Phelps, Robert Lucas, Thomas Sargent, Christopher Sims, and Robert Barro, responded to the challenge in the late 1970s and early 1980s. They replaced the mechanistic “empirical” models with ones that were simple and elegant—just a handful of equations in most cases. Instead of plugging in aggregate variables like the number of hours worked or the level of retail sales, these new “dynamic stochastic general equilibrium” (DSGE) models were based on individual households and businesses that tried to do the best they could in a challenging world. It is easy to mock the techniques used by these revolutionaries. No one actually makes day-to-day decisions while thinking about how to maximise the net present value of their future income. (This is what people mean when they talk about “rational expectations.”) Even if they did, no one has perfect knowledge of the world in which they live, much less perfect knowledge of the future. Moreover, this being the 1970s, there was not enough computing power to represent more than one household or business at a time. The founders of DSGE also chose to ignore the banking system for the same reasons as their “Keynesian” forebears.

Despite these many drawbacks, DSGE models got one big thing right: they could explain “stagflation” by pointing to people's changing expectations. At first, a sudden unanticipated spurt of inflation could lead to rapid economic growth. Over time, however, people would come to believe that this rate of inflation would be the new normal. Real interest rates, wages, and debt burdens would eventually adjust to their old levels. The gains in employment would be temporary—eventually it would settle at its “natural rate.” Moreover, savers and investors would become increasingly wary of the government's willingness to induce inflation and increase the risk premium they demand on long-duration assets. The government could try to make prices increase faster and faster, hoping that policy would outrun people's rapidly-adjusting expectations, but the consequences would likely be dire.

Mathematically, DSGE models represent the economy as a ball that rests at the bottom of a rounded valley. This state is equivalent to steady growth. When the expectations of households and businesses are hit by a “shock,” the ball rolls up and down either side until it eventually returns to its resting place. This reflects the economy's tendency to recover rapidly after recessions, as well as the fact that booms are rarely sustainable. Economists improve the realism of DSGE models by adding in “frictions” and “accelerators” that affect the motion of the ball after it is struck. The most common are based on the observation that it is easier to raise wages and prices than it is to lower them, which makes it hard for an economy to respond to “shocks” without faster inflation or higher unemployment. DSGE models with this (significant) tweak are known as “New Keynesian” or NK models. The original versions without the tweak are known as “Real Business Cycle” or RBC models.

Financial “frictions” and “accelerators” for DSGE models were not developed until relatively recently, although those at the forefront of the new macro derisively refer to it as “tinkering.” After all, it still assumes that banks and other intermediaries are just a “veil” between savers and borrowers, rather than profit-seeking firms that make loans opportunistically. This is not to say that macroeconomists completely ignored the financial system. A few, including Ben Bernanke, the current chairman of the Federal Reserve, were studying financial crises using data from the Great Depression back in the early 1980s. But the knowledge gained from these efforts was not incorporated into more generalised macroeconomic models. For example, Mr Bernanke co-wrote a well-known model (http://www.nber.org/papers/w6455.pdf) in 1999 where the existence of debt makes downturns deeper and longer. While an improvement over what had existed before, the model fails to explain why most recessions do not go hand-in-hand with severe crises; the “frictions” and “accelerators” produced by the existence of debt are always proportional to the size of the “shocks” endured by the real economy. For economists like Gary Gorton, this completely misses the point that financial crises are distinct events with distinct causes. The shortcoming can be at least partially attributed to the fact that Mr Bernanke and his co-authors (Mark Gertler and Simon Gilchrist) left banks out of their model.
As this week’s article (http://www.economist.com/news/finance-and-economics/21569752-efforts-are-under-way-improve-macroeconomic-models-new-model-army) makes clear, however, a new generation of reformers and revolutionaries are figuring out how to realistically depict the financial system. Subsequent posts will discuss these and other worthwhile ideas that may reshape the field.