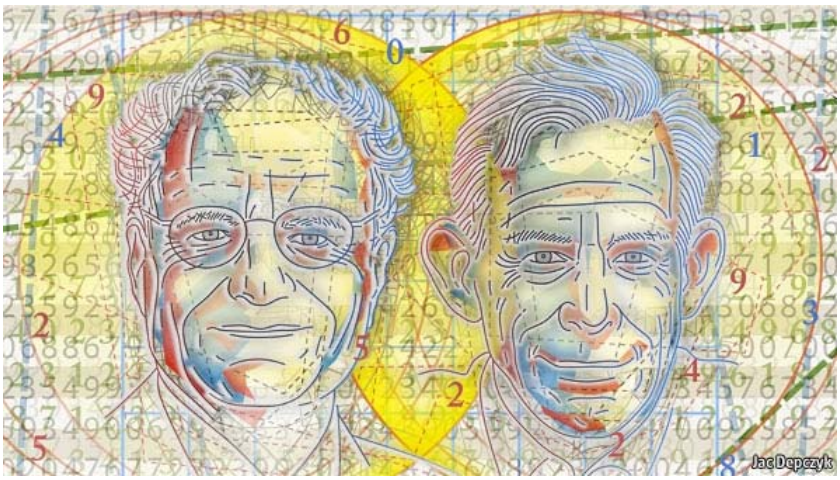
The Economist

Economics focus

Realism rewarded

Thomas Sargent and Christopher Sims have won this year's Nobel prize for economics

Oct 15th 2011 | from the print edition



MACROECONOMISTS are widely disparaged for getting most things wrong, but really it is a wonder that they know anything at all. Chemists and biologists can repeat experiments at will, slightly changing one factor or another to see how things respond. Macroeconomists must piece truths together one disaster at a time. That dismal scientists can tell us anything is in large part due to Thomas Sargent of New York University and Christopher Sims of Princeton University, who were awarded the Nobel prize for economics on October 10th.

Their work supported a revolution in macroeconomic thinking in the 1970s and 1980s. At the time a Keynesian view of the world, based on a settled relationship between broad economic aggregates such as employment and investment, prevailed. Keynesian models of ever-increasing complexity were a linchpin of policy analysis. Led by Robert Lucas, another Nobel winner, a new generation of economists argued that these models were not reliable predictors of the impact of policy changes.

The fundamental relationships in these models, noted Mr Lucas, were themselves shaped by policy. Inflation should not be expected to influence unemployment in a constant way, for instance, as the models assumed. Instead, people adjust their inflation expectations in response to changes in policy, blunting their impact. That explained why expansionary policies could unexpectedly lead to both rising inflation and rising unemployment.

A new theory of "rational expectations" developed to replace the older paradigm. The problem was finding ways to test the claims of the new theory. Into this breach stepped Mr Sargent. His idea was to build structural models of the economy based on microeconomic factors that would not change unexpectedly with policy. These "deep" parameters, such as the way consumers value goods across different time periods, can be used to make accurate predictions, in the way a stable gravitational constant can be relied upon to predict the flight of a tossed ball. If an economist could create such a model, he would have a laboratory to predict how an economy might react to future policy changes.

Mr Sargent pioneered techniques for building such laboratories. In a paper published in 1973 he

showed how a model of this sort could be assembled and used to analyse a macroeconomic question—in that case, the nature of the relationship between interest rates and expected inflation. A 1976 paper built a model of the American economy and laid the groundwork for later efforts to study economic fluctuations generated by non-monetary shocks. A 1981 paper with Neil Wallace used Mr Sargent's methods to detail "some unpleasant monetarist arithmetic", implying that reckless fiscal policy could produce inflation despite the best efforts of central banks to turn the monetary screws.

Mr Sims shared Mr Sargent's distaste for the older models, which were vast and complex. To impose some order, model-makers needed good theory to explain which variables caused changes in others. But the theory wasn't as good as the model-builders pretended. In their only published collaboration, in 1977, Messrs Sargent and Sims complained that modellers relied on historical relationships as if they were theoretical laws. Mr Sims wanted to let the data speak more freely, dropping ill-founded assumptions. In a landmark 1980 paper, not so subtly called "Macroeconomics and Reality", Mr Sims offered a new way forward. His contribution, known as vector auto-regression (VAR), came to dominate many aspects of macroeconomic analysis.

Mr Sims's technique uses a handful of equations that relate the present value of a few variables (such as output, employment and the price level) to the past values of those variables plus something called an "error term". For example, current GDP is influenced by what happened to GDP, employment, and inflation in the past, and by unexpected shocks (the error term).

He next sought to study how such shocks affect the macroeconomy. Mr Sims used a dash of theory to analyse the error terms in his equations and isolate the impact of the "fundamental shock", the primary source of unanticipated variation. Mr Sims used the information gathered on fundamental shocks to conduct "impulse-response analysis". A one-off shock can be introduced into the VAR and then observed as it ripples across the system. Central banks rely on this method to estimate the impact of monetary-policy decisions. Studies using this technique found that an interest-rate rise immediately depresses output and only gradually reduces prices, creating an unpleasant "pain first, gain later" trade-off. Many of the arguments for or against fiscal interventions in this crisis also rely on Mr Sims's work.

Inventors of the toolkit

Although their intellectual paths split after 1977, the two laureates' work ended up being highly complementary. Mr Sargent's structural models could guide assumptions in Mr Sims's VAR equations. Mr Sims's pioneering data analysis informed the choices of economists who were building structural models.

Both spent critical parts of their careers at the University of Minnesota, a so-called "freshwater school" after the lakeside universities that have espoused the importance of microeconomic principles. It would be a mistake to pigeonhole them, however (not least since both have now moved to "saltwater" universities that are historically better disposed to government action). The laureates' work facilitated a broad shift in monetary policy toward practical interventions rooted in a more nuanced understanding of rational expectations. Mr Sargent, for instance, studied episodes of high inflation and found that expectations aren't formed quickly but through a slow process of learning. This shift provided the ballast for the inflation-taming efforts of the 1980s. It also encouraged a move toward greater transparency in central banking. As economists again try to learn from disaster, the laureates' tools will be used by researchers of every stripe.

from the print edition | Finance and economics