

Rational Expectations and the Business Cycle*

by

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In recent years the rational expectations approach to business cycle theory has become widely adopted by academic economists engaged in macroeconomic research. It is clear, however, that business economists engaged in forecasting and industry analysis have not yet adopted the approach. One reason for the slow diffusion from universities to industry might be confusion about what the techniques are for, what they imply, and how they can be used. I would therefore like to take this opportunity to address you today by explaining the motivation behind the rational expectations approach and by clarifying its implications and potential applications.

Original Empirical and Policy Motivations

In my first lecture each year to new students in macroeconomics I like to start off with the basic facts of the business cycle - not the current facts that have occurred in the last few weeks - but the longer running statistical patterns that have been part of most business cycles throughout history. Were it not for these regularities, I tell the students, macroeconomics would not have much of a scientific basis.

To my mind the most conspicuous and fascinating fact of the business cycle is the close relationship between production and inflation. With few exemptions, when production is above normal, inflation is also above normal, or rising from recent levels and visa versa. The relationship is not a new phenomenon, although it has shifted over time as expectations of inflation have changed. It's in

the data as far back as data on business cycles exist. Irving Fisher, and Wesley Clair Mitchell, in the United States as well as Pigou and Keynes in England wrote about it. It received even wider notice after A.W. Phillips estimated his famous equation. And, of course, particular manifestations of the relationship have always been major new events; the 1980-82 recession with the dramatic decline in the inflation rate is the most vivid example of this old relationship that we have seen in recent years.

The relationship also has had great policy relevance. In the 1920s business cycle theorists drew conclusions about stabilization policy from it. Examining data for the United States, Irving Fisher argued that fluctuations in economic activity could be reduced by a macroeconomic policy that simply stabilized the aggregate price level. Noting similar correlations in the United Kingdom, Pigou argued for a similar policy. In 1923 Keynes argued for a policy of price stabilization citing Fisher's evidence in the U.S. The causal assumption implicit in such policy recommendations clearly is that price or inflation fluctuations are the direct cause of production and employment fluctuations.

Although based on the same Phillips curve type correlations, policy recommendations in the 1960s and 1970s were quite different. Many macroeconomists argued that a policy of price stabilization, or a low inflation target, would disrupt production and increase unemployment. More recently price stabilization rules have been revived by so-called supply side economists.

Given such wide differences in policy recommendations, all arising from the same statistical correlation, the need for a clear and quantifiable theory to explain and understand this correlation seems obvious.

Rational expectations was brought into business cycle theory in the early 1970s in response to this need. By that time Edmund Phelps and Milton Friedman had improved the level of discussion greatly by showing that there is an important distinction between the long-run and the short-run output-inflation relationship. Any stimulating effects to production or employment associated with a steady rise in prices could not last, because firms and workers would eventually expect these movements and adjust their behavior accordingly. Their theory was elegant and indeed empirically accurate in its predictions for the long run inflation-output correlation. The problems with the theory are in its description of the short run correlations between inflation and output. For the short-run it relied on adaptive expectations to explain why firms and workers would be slow to adjust their expectations to business cycle conditions.

The adaptive expectations assumption might be a reasonable description of how expectations adjust after a major unprecedented development, but it seems particularly inappropriate as an explanation of a phenomenon that has been observed regularly as part of economic fluctuations for hundreds of years. To the extent that business cycles are recurrent phenomena, the assumption that people form expectations adaptively, learning from scratch about the dynamics of each business

cycle as if it were a unique event, does not seem appropriate. Almost all applications of economic theory are based on the assumption that individual beliefs are influenced by experience. There is no reason why macroeconomic applications should be different. Muth's idea of rational expectations - that people have already learned from past experience and look-forward based on this experience - is more satisfactory for recurrent phenomena like business cycles, and this is why it was taken up and used by macroeconomists.

Diffusion and Promotion of the Idea

Since these early beginnings rational expectations has been applied in many other areas of macroeconomics. Rational expectations is now the rule rather than the exception in academic research. Some of my younger colleagues now complain that they can't get an article published if it doesn't have rational expectations. This is quite a change from the original resistance to the new idea in the early 1970's. In fact rational expectations has come to involve much more than a way to model expectations. Most important in my view, it has evolved into a new way to do econometric modelling and policy evaluation. It has led to a research agenda similar to the Cowles commission program on simultaneous equations models that revolutionized quantitative macro economics in the 1940's and 1950's.

Rational expectations got a significant boost in popularity among academic economists from the dismal economic conditions of the 1970's. In his recent critical survey of economic theory, Lester Thurow says "if supply side economics was the emotional 'gut' response to the economic

failures of the 1970's rational expectations was the sophisticated intellectual response to the same failures."

In my view much like supply side economics, rational expectations was oversold by some of its more enthusiastic proponents. Some of its more dramatic versions and implications were emphasized. This was good promotion for a while and certainly generated the controversy and interest necessary to get the new idea popularized. But as with many successful high pressure sales it has lead to some disappointment and disillusion which may have temporarily slowed down diffusion of the subject. It has also lead to confusion about what rational expectation really means. At this time I sense that there is still considerable confusion among many economists as well as non-economists about what rational expectations is and what it implies for the business cycle and policy.

Four Central Issues

Let me try to clarify the central issues that seem to generate confusion. I'll do this by focussing on two things that rational expectations does not imply, and two that it does imply.

First, rational expectations does not imply that policy is ineffective. This is still the most confusing issue. The idea is due to a paper written by Tom Sargent & Neil Wallace as well as to the way that rational expectations was originally introduced into macro. In his first attempt to use rational expectations to explain the output price correlation over the business cycle Bob Lucas used a market clearing

model. This model does have the policy ineffectiveness property as Sargent & Wallas pointed out.

But the Lucas market-clearing model was not the only type of model to which rational expectations had been introduced. As early as 1975 business cycle models with price or wage rigidities were developed using rational expectations by Stanley Fischer, Edmund Phelps, myself and others. These models do not possess the policy ineffectiveness result. Looking over all of macro--including open economy macro--these rational expectations models with market clearing are an exception. I should emphasize that rational expectations models with price and wage rigidities are much different than Keynesian traditional models.

Second, rational expectations does not imply that disinflation can be achieved instantaneously without recession. This is probably the most widely circulated idea about rational expectations. Some even used rational expectations arguments to predict that monetary tightening in 1979-80 in the U.S. could reduce inflation without a recession. There are two errors in this type of argument. One, any reasonable model with wage contracts or price rigidities implies that a quick disinflation will cause a recession even if expectations are rational. Prior commitment to wage agreements are difficult and costly to break after they have been set in place. Moreover, rational expectations - as I mentioned at the start - would not be expected to hold during transition from one type of policy to another.

Now two things that rational expectations does imply.

First, rational expectations does imply that economic policy designed to stabilize the business cycle cannot be evaluated with conventional econometric models; it does, however, provide for an alternative econometric methodology that is still being developed.

Traditional econometric models use adaptive expectations; as I discussed earlier this may be reasonable for transition periods, but not for examining whether an alternative policy will work better at controlling the business cycle over a long span of time. New econometric methods are being designed to deal with non-linear or large scale models. Much work is currently being done in this area.

Second, rational expectation does imply that we ought to think about macro policy as a rule rather than as discretion. Expectations of future policy matter so it is necessary to specify how future policy will evolve; this specification is nothing more than a policy rule or a contingency plan for policy. Moreover, without a commitment to a future policy rule there will be incentive for policymakers to change policy in the future and this can make things worse.