Press Release - The Sveriges Riksbank (Bank of Sweden) Prize in Economic Sciences in Memory of Alfred Nobel

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THE ROYAL SWEDISH ACADEMY OF SCIENCES

10 October 1995

The Royal Swedish Academy of Sciences has decided to award the Bank of Sweden Prize in Economic Sciences in Memory of Alfred Nobel, 1995, to

Professor Robert E. Lucas, Jr., University of Chicago, USA,

for having developed and applied the hypothesis of rational expectations, and thereby having transformed macroeconomic analysis and deepened our understanding of economic policy.

Robert Lucas is the economist who has had the greatest influence on macroeconomic research since 1970. His work has brought about a rapid and revolutionary development: **Application of the rational expectations hypothesis**, emergence of an equilibrium theory of business cycles, **insights into the difficulties of using economic policy to control the economy**, and possibilities of reliably evaluating economic policy with statistical methods. In addition to his work in macroeconomics, Lucas's contributions have had a very significant impact on research in several other fields.

Rational Expectations

Expectations about the future are highly important to economic decisions made by households, firms and organizations. One among many examples is wage formation, where expectations about the inflation rate and the demand for labor in the future strongly affect the contracted wage level which, in turn, affects future inflation. Similarly, many other economic variables are to a large extent governed by expectations about future conditions.

Despite the major importance of expectations, economic analysis paid them only perfunctory attention for a long time. Twenty years ago, it was not unusual to assume arbitrarily specified or even static expectations, for example that the expected future price level was regarded as the same as today's price level. Or else **adaptive expectations were assumed**, such that the expected future price level was mechanically adjusted to the deviation between today's price level and the price level expected earlier.

Instead, rational expectations are genuinely forward-looking. The rational expectations hypothesis means that agents exploit available information without making the systematic mistakes implied by earlier theories. Expectations are formed by constantly updating and reinterpreting this information. **Sometimes the consequences of rational expectations formation are dramatic, as in the case of economic policy**. The first precise formulation of the rational expectations hypothesis was introduced by John Muth in 1961. But it did not gain much prominence until the 1970s, when Lucas extended it to models of the aggregate economy**. In a series of path-breaking articles, Lucas demonstrated the far-reaching consequences of rational expectations formation, particularly concerning the effects of economic policy** and the evaluation of these effects using econometric methods, that is, statistical methods specifically adapted for examining economic relationships. Lucas also applied the hypothesis to several fields other than macroeconomics.

The Phillips Curve Example

The change in our understanding of the so-called Phillips curve is an excellent example of Lucas's contributions. **The Phillips curve displays a positive relation between inflation and employment**. In the late 1960s, there was considerable empirical support for the Phillips curve; it was regarded as one of the more stable relations in economics. **It was interpreted as an option for government authorities to increase employment by pursuing an expansionary policy which raises inflation. Milton Friedman and Edmund Phelps criticized this interpretation and claimed that the expectations of the general public would adjust to higher inflation and preclude a lasting increase in employment: Only the short-run Phillips curve is sloping, whereas the long-run curve is vertical.** This criticism was not quite convincing, however, because Friedman and Phelps assumed adaptive expectations. Such expectations do

in fact imply a permanent rise in employment if inflation is allowed to increase over time. **In a study published in 1972, Lucas used the rational expectations hypothesis to provide the first theoretically satisfactory explanation for why the Phillips curve could be sloping in the short run but vertical in the long run.** In other words, regardless of how it is pursued, stabilization policy cannot systematically affect long-run employment. **Lucas formulated an ingenious theoretical model which generates time series such that inflation and employment indeed seem to be positively correlated. A statistician who studies these time series might easily conclude that employment could be increased by implementing an expansionary economic policy. Nevertheless, Lucas demonstrated that any endeavor, based on such policy, to exploit the Phillips curve and permanently increase employment would be futile and only give rise to higher inflation.** This is because agents in the model adjust their expectations and hence price and wage formation to the new, expected policy. Experience during the 1970s and 1980s has shown that higher inflation does not appear to bring about a permanent increase in employment. **This insight into the long-run effects of stabilization policy has become a commonly accepted view; it is now the foundation for monetary policy in a number of countries in their efforts to achieve and maintain a low and stable inflation rate.**