

SVARs INTUITION

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Use of SVAR's to analyze the effects of variations in monetary policy is sometimes taken to be "subject to the Lucas Critique". The Lucas critique observed that SEM-style models that assume that private agents' expectations are fixed linear functions of lagged data are likely to be mistaken in projecting the effects of systematic changes in monetary policy. Such a policy change would be likely to change the optimal forecasting formula, and thus to change the dynamics of private sector behavior, according to the SEM models themselves.

The interventions a monetary policy SVAR is designed to analyze are precisely the sort of thing Lucas warned could lead to inconsistencies—changes in monetary policy behavior equations. However, SVAR's, unlike the old SEM's, do not contain fixed-coefficient expectational rules. **They are best thought of as giving linear approximations to the behavior of the private sector and monetary authorities.** The private behavior they model thus implicitly includes dynamics arising from revision in forecasting rules as well as other sources of dynamics.

Suppose for example that policy alternates at random but fairly long intervals between two distinct linear behavioral rules for interest-rate setting. The private sector will therefore constantly be assessing the history of interest rate changes, trying to decide which rule is currently in effect. There will be some local linear approximation to the actual nonlinear behavioral rule, and disturbances from that linear approximation will have effects both directly and indirectly through their effects on the public's assessment of the probabilities of the two regimes. An approximate linear SVAR may do quite well in projecting the effects of its identified monetary policy shocks, so long as the model's

nonlinearity is not too severe.

A setup like this was modeled by Cooley, Leroy, and Raymon (1984). The same arguments would apply even if the policy regimes jumped in a non-stationary way from one linear rule to another instead of varying over a given finite set. Of course if policy is jumping between linear rules and the public is trying to assess when the rule changes and how, the entire model will be nonlinear, so that linear approximations could be inaccurate. How inaccurate they are will depend on how great the nonlinearity is and on exactly what sequence of shocks is fed into the model. If the model appears to fit historical data well and shows little sign of nonlinearity in the sample period, then policy changes that produce policy equation disturbances in patterns similar to what has been observed in the past are likely to be projected accurately by the model, even if they have been generated by a “change in rule”, in the sense of a change in the coefficients in a linear policy behavior equation.