

How Does Methodology Matter?

Nancy J. Wulwick*

Most methodologists today accept that scientific methods of theory appraisal have been hard to apply in economics. They associate scientific method with experiment, testing, matching up theory to reality. In economics, this is the province of economic history and econometrics. I am going to give a potted history of econometrics. Methodologists, I conclude, have a role to play in making sense of this history.

Let us go back to the foundation of the Cowles Commission for Research in Economics, when econometrics in America came into its own. The researchers at the Cowles Commission intended econometrics to be analogous to experiment in the natural sciences. Their program went as follows: Economists assume a model of agents' tastes and optimising behavior. This theoretical model imposes restrictions on the values of the parameters of a system of structural equations. Suitability combined, these structural equations yield the reduced form, regression equations. Economists then determine the free parameters of the structural equations from the estimates of the reduced form equations. A structural model is identified if it (1) corresponds to the reduced form equations and (2) is the only structural model that corresponds to the reduced form. If more than one structural model corresponds to the reduced form equations, then these models are observationally equivalent.

Koopmans, like Haavelmo, Marschak and others at the Cowles Commission saw that identification of a structure served two purposes. First, identification provided a means of statistical inference in light of theory, both in order to evaluate the effects of policy changes on structure and understand the pattern of observations obtained under a constant structure. Second, identification served to test hypotheses. In short, the early Cowles program saw identification of a structure as the key to scientific method.

* Jerome Levy Economics Institute at Bard College, Annandale-on-Hudson, New York 12504. This paper was presented at the panel discussion "Does Methodology Matter to the Historian of Thought or Economist?" held at the Annual Meeting of the History of Economics Society, Richmond, Virginia, June 1989.

By the time the Cowles Commission left Chicago, the focus of econometrics shifted from evaluation of theory to estimation. Economists, assuming no structural change, treated the reduced form system-equations of the 1960s as structural models. While modellers in the early days formalised econometrics to test Keynesian theory, Klein by the second edition of *The Keynesian Revolution* found the theory to be too aggregative to fully address policy questions. He expected to see less theory as "econometric research will now go forward on its own."

After the breakdown of the Keynesian consensus in the 1970s, American econometrics has divided in three directions. First, the new classical economists have revived the Cowles approach with alacrity. They identify structure models using cross equation restrictions. They treat observational equivalence as a problem. The consequences of the assumption of rational expectations, conditional upon structure, are testable. Secondly, the a-theoretical macroeconomics developed by Sims has revived the pre-Cowles NBER style of research, in which the data are supposed to induce the theory. Thirdly, the Bayesian econometrics fostered by Leamer has rejected classical statistical inference as unsuitable for nonexperimental science. The Bayesian techniques allow for conflicting prior assumptions and specification searches.

As leading econometricians have remarked, looking back, the success of econometrics seems limited. It is not altogether clear that the Cowles approach, which approximates traditional scientific method, has done all that badly. Indeed, one of the attractions of the new classical economists is their technical aptitude and success. Yet, their procedures raise methodological problems. For instance, new classical economists apply the Granger-Sims test of causality, which concerns temporal ordering. As Granger (1980) explained, the results of this test are conditional upon the specification of the model to be tested. However, economists have disagreed about the true model. Hence the most this causality test could accomplish, from Granger's experience, was to organise the data so that some economists would consider changing their prior probabilities. He (1980), like Leamer (1975), invited the methodologists to explain the implications of such a realistic view of testing procedures on scientific method.

Three members of this panel recently have written about the methodological implications of aspects of the history of econometrics. Such methodology has a real chance to make an impact on the profession. Perhaps in future we shall be able to say, turning a classic phrase:

The power of [methodology] almost dead and rotten ... has grown up anew, with much more strength, and far less odium, under the name of Influence.