Foreword

I've been basking in Michael Caputo's reflected glory since he was my graduate student in the 1980s, and I am pleased to do it again with the publication of this book. Michael is carrying on the tradition of exploring mathematical models not for their elegance or descriptive qualities, but for the refutable implications they generate. It was Paul Samuelson, who, in 1947, in his *Foundations of Economic Analysis*, first articulated the methodology that equilibrium conditions themselves were typically unobservable and sterile, and that meaningful theorems in economics consisted of statements that restricted the direction of change of decision variables when the data or parameters of a system changed in an observable way. In the traditional comparative statics models, such as those I analyzed in *The Structure of Economics*, refutable propositions emerged from a maximization hypothesis in a static framework. However, there has never been until now, a treatise that extended Samuelson's methodology to dynamic models, where decisions today affect the entire time path of events in the future.

Michael Caputo's contribution here and elsewhere has been to keep resource and other economists focused on this central issue of scientific methodology so that we can see the scientific usefulness of dynamic models: what refutable implications do they generate? If some initial stock or other parameter in a dynamic resource model, say, increases, under what circumstances can we make a definitive statement about the way the path or terminal conditions of the state and control variables respond? Here at last we have a systematic treatment of this class of problems that comprise positive or scientific economic analysis of dynamic models.

Professor Eugene Silberberg
Department of Economics,
University of Washington