

Teaching Bayesian Statistics : From Economic to Statistical Rationality

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1. Introduction and summary

In this paper we examine, from the point of view of teaching statistical methods to future economists, some relationships between the concepts of rationality in economics and in statistics. Based on the authors' research and teaching experience, this paper discusses both the major benefits and difficulties in teaching statistical methods for economists following a Bayesian stream of thinking.

In the first part, we examine reasons for believing that Bayesian reasoning may be useful in the statistical education of future economists. The Bayesian approach may be viewed first of all as a theory about learning that is very natural when modelling economic behaviour under uncertainty. Thus, the statistician's "learning by observing" and the economist's "learning with a purpose (decision-making)" are most easily made congruent within a Bayesian framework. Teaching Bayesian thinking therefore endows the student with a better understanding of economic models and with statistical tools appropriate for the theories he will confront with observation. Furthermore, statistical methods in economics and in management are most naturally used within a decision theory framework for which the Bayesian approach is particularly relevant.

Also, students are easily convinced that specifying operational models requires specifying distributions on imperfectly known parameters: expert opinions (think, for instance, of the "tea room elasticities" used in applied general equilibrium models), unobservable individual heterogeneity components, and deficiencies in available economic data are examples of uncertainties which are most easily represented in terms of prior probabilities. Insofar as economic theory typically does not provide the statistician with a completely specified model, the Bayesian framework appears to be well-suited to discussing the concept of a "best" model, thanks to the concept of encompassing. Finally, presenting the results of a statistical analysis in a Bayesian format appears to be easier for students in economics to understand than in a classical (or sampling theory) format.

