Abstract of Organized Symposium

The Role of Mathematics in Agricultural Economic Education and Research

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Since the 1950s, each decade finds a significantly greater mathematical content in economics research and training than the preceding one. The trend towards increasing mathematical rigor is encouraged in the disciplinary/research literature, sometimes stubbornly accepted in the classroom, and often unwelcome outside of an academic setting. A number of economic prescriptions derived from mathematically based models have filtered out of the literature and into the real world.

The adoption of mathematics in economic analysis brings a high level of precision to the analysis; assumptions are clearly stated, procedures are specified, and the logical consistency of mathematically based models is (often) easier to check than nonmathematical models. On the one hand, why shouldn't economics have a mathematical content since economists often deal with quantifiable concepts such as the search for equilibrium using quantifiable variables? On the other hand, in reducing problems into a tractable formulation, have we assumed away the real-world character of the issues? Possible responses to the latter question can range from (1) do not even attempt to reduce or limit the problem at hand by developing a mathematical model to (2) we need to develop even more sophisticated mathematical models!

The role of mathematics in training students has received attention recently in the published findings of the Commission of Graduate Education in Economics. As a discipline motivated by real-world issues, legitimate concerns have emerged regarding the practical relevance of economics as presented in the classroom and in the journals. Important questions to be addressed include: Has graduate training in agricultural economics become a distinctly different discipline from the undergraduate major? Is this training emphasizing technique over the analysis of economic issues? As a result, are graduates not as broadly trained? The challenge to instructors and students is to distinguish between teaching tools (e.g., problem-solving techniques, knowledge of theorems and concepts) and demonstrating the uses of mathematics in economic analysis by focusing on logic and model-formulation skills.