Agricultural Economics and Interdisciplinary Work

Patricia Duffy
“All Experience is an Arch”

“Yet all experience is an arch
wherethrough gleams that untraveled world. . .”

William Butler Yeats, Ulysses
“Becoming Interdisciplinary”

- Title of a book by Tanya Augsburg
- Recently used it to teach an introductory course to our new major in Interdisciplinary University Studies
- Question: Does one become interdisciplinary, or does one become “disciplinary” and then need to relearn more integrative thinking?
Julie Klein traces the emergence of modern disciplines to the nineteenth century. Disciplines arose in response to technical change that required more specialized knowledge. Disciplines address distinct problems with a set of tools and methods. There are standards of proof. There may be specialized forms of discourse.
Modern Education

- Undergraduate education provides a broad basis in a number of “core” disciplines, then becomes increasingly specialized.
- Graduate students generally increasingly trained in the tools of one discipline.
A Few Terms

- Multidisciplinary work involves a juxtaposition of disciplines, rather than an integration of concepts in a shared analysis.

- Cross-disciplinary work involving an analysis that draws critically from one primary discipline so that the area of the second discipline becomes a passive subject matter.

- Instrumental interdisciplinary work involves borrowing methods and tools from other disciplines.

- Interdisciplinary work involves a deeper collaboration. It is a means of solving complex problems that do not yield well to the perspectives or approaches of any one discipline.


Nature of Agricultural Economics

- Field came into being at beginning of the 20th Century
- Response to demand for professional to address special economic and business concerns of the agricultural sector
- 1919, Journal of Farm Economics launched
- 1967, American Journal of Agricultural Economics (name change)
Are We a Sub-Field of Economics?

- Gail Cramer, recent book, said no, we are multi-disciplinary
- That may be true of undergraduate education, which may even be interdisciplinary at times
- Outreach teams usually interdisciplinary or multi-disciplinary
- Graduate education, much research, looks to me to be disciplinary or cross-disciplinary
- Economic models, theory, applied to agriculture, natural resources, etc.
Barriers and Incentives

- Of all people, economists should know that “incentives matter.”
- Incentives for interdisciplinary work have improved significantly over the last few decades.
- Barriers remain.
Incentives

- Granting agencies increasing want interdisciplinary or multi-disciplinary teams to address problems.
- New journals are receptive to interdisciplinary work.
- There are increasing numbers of interdisciplinary educational programs.
- One sees increasing recognition that difficult problems may not always yield to one discipline.
Barriers: Institutional/External

- Institutional emphasis on disciplinary contributions for promotion and tenure
- Importance of publication in journals in one’s home discipline
- Need in the early career to become competent in the home discipline
A faculty member engaged in research/creative work has an obligation to contribute to his or her discipline through applied and/or basic research, through creative endeavors, or through interpretive scholarship. To a large extent, each discipline and each department must determine how much and what quality of research/creative work is appropriate for promotion (and/or tenure) and judge its candidates accordingly. In appraising the candidate's work, faculty members should consider the quality and significance of the work, the quality of the outlet for publication or exhibition, and, in cases of collaborative work, the role of the candidate (chapter 3).

Same passage was quoted in a 1997 article by Duffy, Guertal, and Muntifering on the Pleasures and Pitfalls of Interdisciplinary Research.
Institutional Culture

- Institutional and departmental culture determine how interdisciplinary work is valued.
- Senior faculty can work a positive influence on culture.
- We must recognize that good interdisciplinary work comes from a solid grounding in the disciplines and is not “sloppy science.”
Additional Barriers

- Poor timing
- Unrealistic expectations
- Mutual ignorance
Poor Timing and Unrealistic Expectations

- These barriers are often related.
- If economists are brought in after the data is collected, some interesting analyses may be ruled out by data at hand.
- Dobbs (1987) said some natural scientists may view agricultural economists as “clerks” or “parasites,” depending on how we use the data.
- Ongoing collaborations can reduce these barriers.
Mutual Ignorance

- Petrie (1976) talks about different cognitive maps.
- Swanson (1979) for example noted that agricultural economists and natural scientists may have different paradigms of causality, feedback loops versus uni-dimensional.
- Mathematical modeling favored by economists may increase mutual ignorance.
- (See Axel Leijonhufvud, “Life Among the Econ,” for a humorous treatment.)
Mutual Ignorance and Economic Models of Behavior

Zilberman (1994) noted that public health professionals may not accept the models of profit or utility maximization and that it may be necessary to persuade that “incentives matter.”

The notion that “incentives matter” may have gained more traction since his article as in my experience this can be a starting point for collaboration.
Personal Perspective

- In farm management, collaboration with agronomists, animal scientists, horticulturalists etc important to get the job done.
- “Welfare Reform” provided me with a motivation to branch out into other collaborations, addressing new areas of research.
My Experiences: Agricultural Scientists

- Like Zilberman, I have generally found collaborations with other scientists in the College of Agriculture fairly easy.
- We share a common college culture.
- They do not have competing models of human behavior.
- Articles in their journals are succinct, logical and do not rely on a specialized vocabulary (outside Latin names).
My Experience: Other Social Scientists

- These collaborations can be more difficult.
- They often do have competing models of human behavior, sometimes more than one.
- These models are usually not expressed mathematically, as economists favor.
- They may have a specialized vocabulary.
- Tremendous amounts of “background reading” may be necessary to publish successfully in their journals.
My Experience: Other Natural Sciences

- I have worked with a Nutrition Scientists.
- Their standards of proof are tighter (e.g. higher t-values needed).
- They may prefer figures to tables of numbers.
- Writing style is different and not quite as easy to master as the writing style in, for example, Agronomy.
Conclusions

- Typical academic career spans several decades.
- Addressing interesting problems is a way to keep intellectually satisfied.
- Sandra Batie spoke about the need to address “wicked problems,” or “social messes, “which are innately interdisciplinary.
- We should not relegate disciplines to the “dustbins of history,” but we should make room for interdisciplinary work and not view it as second best.