Teaching Small Business Management and Entrepreneurships: The Emerging Role of Agricultural Economists

Organizer and Moderator: C. Lynn Fife (University of Vermont)
Presenters: C. Lynn Fife (University of Vermont), Michael A. Hudson (Cornell University), and Linda Lee (University of Connecticut)

In recent years, the number of students majoring in agricultural economics programs or enrolling in traditional agricultural economics courses has declined in most departments in the Northeast. This parallels the decline in the number of farms and the number of businesses supplying inputs to, or marketing the output of, the farms in the region. As a result, some departments have changed their focus or downsized their faculties.

In the same period, the number of small, nonfarm businesses has increased dramatically. There appears to be a strong demand for entrepreneurship training, which has largely been ignored by business schools.

Five years ago the University of Vermont instituted a program in Small Business Management. Seven to ten of the courses in this program are taught within the department. The number of majors has doubled, with 86% of the students choosing the Small Business Management option. Likewise, the number of students taught in the department has nearly doubled, with 81% of the enrollments being in Small Business Management courses.

Two years ago, Connecticut changed the names (and content) of two of its courses. Agricultural Finance was changed to Small Business Finance and Farm Management was changed to Small Business Management. Enrollments in both courses have approximately tripled with the same instructor.

Cornell University offered its first course in Personal Enterprise and Small Business in 1986 to 60 students. Presently the program enrolls over 200 students. Students are exposed briefly to accounting, tax and contract law, marketing, and insurance. They then study small-business case histories and prepare and defend a business plan for a hypothetical small business.

Production Agriculture in the Sustainability Era

Organizer and Moderator: Gerard D'Souza (West Virginia University)
Presenters: James C. Hanson (University of Maryland), Wesley Musser (The Pennsylvania State University), and Gerard D'Souza (West Virginia University)

The interactions among technology, profitability, and ecology at the farm level, and the off-farm impacts thereof, are the subject of much recent debate and analysis. The purpose of this symposium was to contribute to a better understanding of this process by exploring emerging issues, supporting evidence, and alternative approaches for the analysis of sustainability issues.

Hanson discussed the possible impacts of sustainable agriculture on farm profitability and risk, as well as problems likely to be encountered in the transition from conventional to alternative production systems. He identified research needs such as the need to better determine what constitutes a sustainable system and the need for more farmer surveys to enhance understanding of sustainable cultural practices and their anticipated rate and location of adoption.

Musser built on this discussion by addressing additional conceptual and empirical issues. Included in his discussion was a description of how thought in the sustainability area evolved. He presented findings from a recent study, in the process identifying data limitations that could constrain research in sustainable agriculture. In addition, he explored some policy and management myths pertaining to sustainability.

D'Souza introduced issues relating to the appropriateness of the existing theoretical framework in analyzing sustainable agriculture problems, as well as the likelihood of adoption of sustainable agriculture. A conclusion was that if sustainable agriculture becomes widely adopted, the existing analytical framework could need substantial revision to become sustainable itself.

Audience discussion centered on the possible extent of adoption and resulting impacts on producers' profits and risk, as well as on more general farm policy, trade, and societal issues as they relate to sustainability.

The Infrastructure Problem: Critical Issues for Rural Communities

Organizers: John M. Halstead (University of New Hampshire) and Steven C. Deller (University of Maine)
Moderator: James C. McConnon, University of Maine
Speakers: Steven C. Deller (University of Maine), Charles H. Goodspeed (University of New Hampshire), and John M. Halstead (University of New Hampshire)

Infrastructure provision and financing in the United States has become a problem of major proportions for rural communities. This symposium discussed the nature of these problems and examined possible solutions.

Deller pointed out that investment in infrastructure has been declining over the past several decades; this trend has created a barrier to higher rates of growth in economic well-being and overall quality of life in some areas of the country. The relationship of infrastructure to economic growth was also discussed. Goodspeed and Halstead focused on two particular aspects of infrastructure: roads and bridges, and solid-waste management. Goodspeed noted problems encountered at the local level with planning for repair, construction, and maintenance. In particular, road-maintenance scheduling is crucial; unfortunately, cash flow problems in local communities often disrupt the optimal timing of road repairs, resulting in major increases in total system costs. Halstead noted the substantial increases in local costs of solid-waste disposal were charted over the past decade and discussed how some New England communities were responding with alternative management approaches. The difficulties in reaching proposed recycling targets of 40% and above were also discussed.

Abstracts of Selected Papers

"The Impact of the Tax Reform Act of 1986 and the 1983 Social Security Amendments on Farmers." Michael Compson and Ron Durst (USDA/ERS)

This paper examines the impact of the Tax Reform Act of 1986 and the 1983 Social Security amendments on average effective tax rates and average tax payments for farmers. It utilizes the 1987 IRS Individual Public Use Tax File to estimate 1987 and 1990 tax rates and burdens. Our results suggest that despite recent reductions in marginal income tax rates, the federal income tax continues to be progressive. However, the regressive nature of the Social Security and self-employment tax greatly reduces the progressivity of the combined federal income and payroll tax burden. For most farmers, combined Social Security and self-employment tax payments exceed federal income tax liability.

"Accuracy of Assessment Ratios in Equalizing Land Values." D. E. Morris and G. E. Frick (University of New Hampshire)

Two methods of evaluating land for property taxation purposes are compared. One is the annual updating of a town's assessment ratio by the state and the other is a complete revaluation of all property in the town. Significant differences were found. The revaluation procedure averaged $4,610 per acre higher than the annual adjustment. A structural equation is specified and estimated showing the relationship between population density, tax base in land, and time between revaluations to the assessed valuation differences. All explanatory-variable coefficients were significant at the 1% level or better. Implications for communities, property taxation, and land use are discussed.

"Short- and Long-Run Substitution of Agricultural Inputs." Jorge Fernandez-Cornejo (USDA/ERS)

Short- and long-run Hicksian and Marshallian elasticities are estimated, along with Allen and Morishima elasticities of substitution, using a restricted profit function and a series of decomposition equations. Convexity in prices and concavity in quasi-fixed factors of the restricted profit function are simultaneously imposed using Bayesian techniques. The empirical model is disaggregated in the input side, utilizes a Fuss-quadratic flexible functional form, incorporates the impact of agricultural policies, and introduces a new weather index. The methodology is applied to Illinois's agriculture, and implications for agriculture in the Corn Belt and Northeast are briefly discussed.

"A Comparison of Factors Affecting Off-Farm Labor Participation in the Northeast." Steven E. Hastings and Jaideep Mukherjee (University of Delaware)

Off-farm work by farm operators and their spouses is prevalent in the Northeast. Researchers in several states in the region are investigating the factors that influence the off-farm work-participation decisions of farm operators and their spouses. This paper presents the results of such analysis in Delaware and compares the findings to those in other states. Implications of the comparisons for further research are presented.

"Predicting Probability of Technology Adoption: A Tobit Framework." Ganesh P. Rauniyar and Frank M. Goode (The Pennsylvania State University)

The study examines socioeconomic factors associated with adoption of five technological practices relevant to Swaziland's maize production on small farms. A field survey was conducted during the 1987–88 cropping season. Adoption models were estimated by the maximum-likelihood method. The results suggest that factors vary with the type of technological practice. Human capital, off-farm employment, less variation in rainfall, proximity to output market, and proximity to the nearest employment centers are important variables that are likely to increase predicted probability of adoption on farms that have not yet adopted a technology.

"Exhaustible Resources, Technological Adoption, and Farm Heterogeneity." Farhed Shah (University of Connecticut), David Zilberman (University of California at Berkeley), and Ujjayant Chakravorty (University of Hawaii)

The groundwater stock in a farming region is viewed as an exhaustible resource. The farms vary in land quality and crops are irrigated using either a traditional technology or a water-conserving technology. The groundwater stock is treated by farmers as a common-property resource. In early years, the rate of adoption of the water-conserving technology is less than optimal and the rate of depletion of the stock is excessive. A first-best government policy is available to correct this inefficiency, but the cost of implementing it may be high. A second-best corrective policy is proposed for such circumstances.

"The Protest Bid Problem in Contingent Valuation: Some Experimental Evidence." John M. Halstead (University of New Hampshire), Albert E. Luloff (The Pennsylvania State University), and Thomas H. Stevens (University of Massachusetts)

Protest bids are often excluded during analysis of CVM

data. We suggest, however, that this procedure might introduce significant bias. Some protest bids are registered by respondents who may actually place a higher- or lower-than-average value on the commodity in question but refuse to pay for ethical or other reasons. Exclusion of protest bids may therefore bias WTP results, but the direction of bias is indeterminate a priori. Discriminant analysis was unable to conclusively distinguish between protest and nonprotest bidders in a CVM study of wildlife. Consequently, we conclude that protest bids be legitimately included in the analysis.

"The Cost Efficiency of Elementary Education: The Case of Maine." Steven C. Deller and Edward Rudnicki (University of Maine, Orono)
The cost efficiency of providing public educational services is examined. A stochastic frontier cost function, upon which individual observations are compared, is estimated using a sample of Maine elementary public schools. A Farrell-type measure of managerial efficiency is computed and analyzed. A recursive model linking a traditional educational production function and a general cost function is employed. The empirical results suggest that due to managerial inefficiencies, costs are not minimized. If managerial inefficiencies were eliminated, total school costs may decrease on average by 7%. In addition, the reorganization of school administrative functions may result in cost savings.

"Composite Time/Money Pricing of Recreation Trips." John Mackenzie and Benaifer R. Eduljee (University of Delaware)
This paper constructs a composite recreation-trip price by inverting the first principal component of trip expenditures, equipment expenditures, and travel distance. The price function embodies the marginal rate of substitution between travel time and trip expenditures. In an empirical application, the composite price is used to derive consumer-surplus measures for each of Delaware's 13 public waterfowl hunting sites. In this particular case, the implied cost of travel time is approximately double the hourly wage equivalent, and the composite trip price thus yields higher consumer-surplus estimates than conventional travel cost analyses.

"Measuring the Differential Impact Associated with Higher Recreational Fees." Stephen D. Reiling, Hsiang-tai Cheng, and Cheryl Trott (University of Maine)
Numerous authors refer to the differential impact higher fees at public resource-based recreation areas may have on current users with different income levels. Some researchers argue that higher fees force low-income users to reduce their use of recreation facilities proportionally more than high-income users, and that the differential impact should be considered by policy makers responsible for setting fee levels. Neoclassical demand theory is used to develop a method to measure the existence of a differential impact. Using data from Maine state park campground users, a statistically significant differential impact was found in the study.

"The Potential for Electronic Marketing of Trucking Services for Produce." Timothy Shell (Computer Powers, Inc.), and Richard Beilock and Eric Thunberg (University of Florida)
The acceptability of electronic marketing of transportation services for produce is examined. Three-quarters of owner-operators surveyed expressed an interest in this technology. Multivariate analysis suggests that this support is not concentrated in any subgroup of owner-operators. Half of the brokers and 22% of the shippers questioned also expressed interest in electronic marketing. The majority of both groups indicated electronic marketing would become increasingly important in the transportation industry.

"The Location Decision of Hardwood Manufacturing in the Northern and Central Appalachian States." John E. Bodenman, Stephen M. Smith, and Stephen B. Jones (The Pennsylvania State University)
The northern and central Appalachian region has seen a revival of interest in hardwood-based economic development. This study attempted to identify and understand the factors important to the hardwood processors' location decision. Concepts from neoclassical and behavioral location theory were integrated to develop a general framework for analyzing these decisions. Logit regression analysis was used to determine those establishment characteristics related to the likelihood of location search. To a great extent, establishments locate based on personal ties. The majority of variables found to influence the likelihood of search are not controllable by state or local governments.

"The Effects of Increased Juice Imports on the U.S. Apple Industry: An Econometric Analysis." Lois Schertz Willett (Cornell University)
The specification of a dynamic national apple industry model is presented. The model includes relationships describing bearing acres, production, utilization, and allocation to the fresh, canned, frozen, juice, dried, and other markets. Demands in each of these markets are modeled. Model coefficients are obtained using seemingly unrelated regression. Short- and long-run elasticities are compared with other studies. The effects of a 15% increase in juice imports are analyzed. Results indicate expanding juice imports leads to increased volatility in all apple-product prices. This volatility is reduced slightly when exports of fresh apples are increased.

"Using Futures Prices to Forecast Producers' Season-Average Prices: The Case of Soybeans." Linwood A. Hoffman and Cecil W. Davison (USDA/ERS)
A model was developed using current futures prices to forecast soybean producers' season-average prices. An historical monthly average basis was computed and deducted from the nearby futures price, resulting in a monthly farm price forecast. Next, a weighted season-average price was computed. Model results provide timely and reasonably accurate forecasts of season-average soybean producer prices.

"Pesticide Residue Concerns and Supermarket-Type Behavior: A Predictive Logit Model." Patrick J. Byrne, J. Richard Bacon, and Ulrich C. Toensmeyer (University of Delaware)
The paper assesses the marginal probability effects of demographic and attitudinal variables on consumers' pesticide and herbicide residue concerns, as well as their effects on consumer likelihood to shop at a supermarket that offers higher-priced pesticide-residue-free produce. Evidence suggested that factors other than residue concerns may affect consumer shopping likelihood. Based on results, direct measurements of consumer attitudes have generally been shown to be more significant prediction variables than demographic characteristics. The study concludes that marketers should consider the overall effects of carrying pesticide-residue-free produce, rather than just the direct profits or losses.

"Pesticide Use in Tomato Production: Consumer Concerns and Willingness-to-Pay." Robert D. Weaver, David J. Evans, and A. E. Luloff (The Pennsylvania State University)
Consumer attitudes toward pesticide use and residues in fresh produce and tomatoes were surveyed using personal interviews of shoppers in produce sections of retail grocery stores. Results indicated a lower frequency of concern for pesticide use than that found in past studies. Concerns for both personal and external effects of pesticide use were found. Forty-seven percent of the respondents indicated a willingness to accept cosmetic defects in chemical-pesticide-residue-free (CPRF) tomatoes. Nineteen percent of respondents indicated unwillingness to pay more for CPRF tomatoes, while 55% indicated willingness to pay (WTP) up to 10% more, and nearly 26% stated a WTP more than 10% for CPRF tomatoes.

"Estimation of Productivity and Risk Effects of a Veterinary Resident in Egg Production." Milton E. Madison (The Pennsylvania State University)
Profit maximization and risk are important in the producer's decision to employ a veterinarian. A mean-variance expected-utility framework is presented to model a producer's decision process when both risk and profit are important. Production data were obtained from a firm for periods when a veterinary resident was employed and when one was not. A three-step estimation procedure is used to account for heteroscedasticity. Two versions of the model are estimated, giving benefit/cost estimates of the employment decision of 1.0 and 2.8. The veterinary service appears to be at least break-even.

"The Financial Feasibility of Processing Recycled Waste Newspapers into Farm-Animal Bedding." James G. Beierlein, William T. McSweeney, and Barbara A. Woodruff (The Pennsylvania State University)
It is financially feasible to use recycled waste newspapers as farm-animal bedding in a number of different situations. Centralized processing rather than on-farm processing was found to be the lowest-cost alternative. Transportation was also found to be a significant part of the cost of this activity. Analysis of transportation costs showed that waste newspapers could be transported a considerable distance and still cost less than other forms of purchased animal bedding.

"Specialization versus Integration in Aquaculture Production." Conrado M. Gempesaw II, Ferdinand F. Wirth, and J. Richard Bacon (University of Delaware)
Hybrid striped bass (HSB) aquaculture production can be categorized in a number of production systems; that is, (1) hatchery spawning, egg, and fry production, (2) growth of fry to phase I fingerlings (1–2 inches), (3) production of phase II fingerlings (6–8 inches), and (4) grow-out of phase II fingerlings to 1.5-pound market-size fish. The HSB enterprise can specialize in one of the four production stages or integrate in two or more stages. This study has found that the expected returns of the representative HSB producer were relatively substantial. However, the wide fluctuation in returns indicated a significant amount of risk. Full integration appeared to minimize the large deviations in expected returns.

"Economic Implications of Constraining Nitrogen Use on Dairy Farms to Protect Groundwater Quality." Andrew W. Franklin (University of Connecticut)
A corn growth simulation model (CERES-Maize) is used to simulate nitrogen contamination and yield effect of reduced fertilizer application in the first year of a reduction program. Soil characteristics, cover-crop use, manure use, and seed genealogy are considered. A dairy forage system model (DAFOSYM) estimates change in net return. Machinery cost and use, herd size, feed management program, and availability of diet supplements are considered. Eleven years of weather data are used to simulate production in a variety of weather patterns. Averaged results show decreases in yield and soil nitrogen. Increase in net return results from substitution of diet mix and decreased fertilizer expense.

"Contingent Surveys for Policy Evaluation and Differential Impacts on Socioeconomic Groups: A Landfill-Siting Case." Stephen K. Swallow, Thomas Weaver, James J. Opaluch, and Dennis Wichelns (The University of Rhode Island)

In many studies of nonmarket resources, economists possess the data necessary to disaggregate results according to subpopulations within the full study population. Disaggregated results can increase the social value of economic analyses, improve public confidence in the results, and permit public officials to evaluate equity concerns. This paper outlines an approach to providing disaggregated results in contingent valuation (CV) studies using discrete-choice, paired-comparison data. The paper discusses an application to public preferences regarding landfill-siting decisions. Discussion illustrates interpretation of results and bias in willingness-to-pay estimated from aggregated parameters. (RI AES Contr. no. 2660.)