

credibility issue is central to the consumer acceptance of the production-enhancing BSt hormone in milk, according to Preston and others. Neither of the chapters develops the economic implications of identified risk behavior, however. Attention should also have been given to the new bio-engineered food products and their potential for success in view of apparent consumer skepticism. Many studies of the consumer demand response to food safety and health information, such as "willingness to pay" surveys, have relied on hypothetical situations. The degree to which these controlled experiments approximate actual consumer tastes and preferences in the marketplace is debatable.

A final set of articles is devoted to private and public food safety strategies. Caswell and Johnson distinguish between individual firm strategies according to their purpose: differentiation strategies attempt to improve a competitive position, risk management strategies attempt to minimize liability resulting from a hazardous product or violation of government regulation, and proactive strategies attempt to guide the regulatory process in the best interests of the firm. The authors present a number of case studies involving agricultural producers, food processors, and retailers. The Caswell and Johnson article lacks for empirical support that would quantify the returns to food safety strategies. Clearly, the decision to implement a given strategy should take into account

tangible and intangible costs and benefits. Because differentiation strategies constitute firm or product differentiation, how does one disaggregate the costs and returns of the multiple strategies involved? Finally, to what extent do private initiatives substitute for greater government oversight and regulation? From a social welfare perspective, which approach—public or private—best addresses food safety and health risks?

French and Neighbors offer essentially an accounting model for determining the firm costs of food labeling compliance, an important policy consideration. Mauskopf and Chapman attempt to improve the efficiency of the imported foods enforcement program. They develop a model of firm compliance behavior given a dynamic enforcement program. Product sampling rates are thus adjusted to minimize program costs and maximize firm compliance. While superior to the existing dynamic sampling approach, successful implementation may hinge on fairness and equity issues raised by the firms subject to enforcement.

The *Economics of Food Safety* contains a collection of literature addressing the conceptual and empirical issues that will likely give considerable value to the uninitiated researcher, so I would recommend the book to all who wish to better inform themselves in this emergency area.

On the Jobs

Multiple Job-holding among Farm Families.
Edited by M C Hallberg, Jill L Findels, and Daniel A Lass. Ames: Iowa State University Press, 1991, 350 pages, \$41.95.

Reviewed by Leslie A. Whitener

This anthology evolved from a May 1988 symposium on multiple job-holding among farm families, sponsored jointly by the four Regional Rural Development Centers and the Farm Foundation. The book is designed as a guide to research and policy responses to the phenomenon of part-time farming and multiple job-holding among U.S. and Canadian farm families. Twenty-one papers by agricultural economists, rural sociologists, anthropologists, extension specialists, and rural development experts are organized into six major sections: historical perspective and future prospects, current theoretical issues, results of farm

household surveys, rural labor market factors, public programs for multiple job-holding farm families, and policy issues and research needs.

This collection offers a comprehensive review of multiple job-holding of farm families. And while it is a "must read" for anyone about to embark on research studies in this area because it succinctly reviews the progress to date, it is far more useful for illustrating where we have been than for suggesting where we should go. In fact, the book debates, but never really answers, the question of why we should go anywhere.

The various articles differ in quality, research approach, and analytical technique, but the anthology draws strength from this multidisciplinary perspective. Anthropologist Peggy Barlett bases her findings about the motivations of part-time farmers on participant observation and open-ended, in-depth interviews with a small number of farm families in Dodge County, Georgia. Although geographically limited, her excellent case study

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points to the multitude of economic and non-economic factors affecting farm families' career decisions, including lifestyle aspirations, farm background, attitudes toward farming, parental attitudes and expectations, enjoyment of farmwork, available land and capital resources, and off-farm job opportunities

Economists and sociologists examine the theoretical underpinnings for much of the empirical work on multiple job-holding among farm families. Economist Wallace Huffman presents an agricultural household economic model that combines the agricultural producer, consumer, and labor-supply decisions of farm households into a single conceptual framework. He draws from econometric studies in both Canada and the United States to illustrate the utility of the model for understanding off-farm labor demand and supply. A worthwhile companion to this piece is the article by Daniel Sumner, which suggests refinements and new directions for econometric modeling. Sumner, for example, argues that researchers may miss part of the story by simply modeling off-farm work as a choice made after the decision to farm. He argues that research should address the self-selection of farmwork by nonfarmworkers as well.

Several farm household surveys (in multicounty areas of Illinois, Wisconsin, Louisiana, and Florida) ground the more theoretical chapters. Christina Gladwin explores the relationship between

multiple job-holding and the increase in women's farming in Florida. She concludes that women on part-time farms now do more of the farming because "they are stepping in and substituting for their husbands, more of whom must now work off the farm at a high-paying job to subsidize the farm operation and keep the family's living standard at an acceptable level." In my view, far too little research has focused on farm women and their changing roles on and off the farm, and the Gladwin study is most welcome.

The book draws from academicians, extension specialists, and rural development experts to help place part-time farming within the context of public policy decisions. Kenneth Deavers points out that rural development policy and farm policy are not synonymous and argues that rural development programs are likely to have little effect on farm financial stress or poverty among households operating small farms. The most successful economic development programs, he notes, will promote the development of infrastructure and communications to move ideas and information rather than to move people.

Common themes emerge despite the diversity of perspectives. Multiple job-holding is not just a transitional phenomenon experienced by those entering or leaving farming, but a more permanent and widespread occurrence that enables many farm families to pursue a chosen lifestyle, main-

The papers are (1) "Multiple Job-holding among Farm Operator Households in the United States" by Mary Ahearn and John E. Lee, Jr., (2) "Multiple Job-holding among Farm Families in Canada" by Anthony M. Fuller, (3) "Motivations of Part-time Farmers" by Peggy F. Barlett, (4) "Multiple Job-holding in Perspective: A Discussion" by Paul W. Barkley, (5) "Agricultural Household Models: Survey and Critique" by Wallace E. Huffman, (6) "Efficiency Aspects of Part-time Farming" by Ray D. Bollman, (7) "Modeling On-farm Enterprise Adjustments" by Thomas A. Carlin and Susan Bentley, (8) "Useful Directions for Research on Multiple Job-holding among Farm Families" by Daniel A. Sumner, (9) "Evolving Dimensions of Dual Employment of Illinois Farm Families" by R. G. F. Spitze and R. K. Mahoney, (10) "Multiple Job-holding among Farm Families: Results from the Wisconsin Family Farm Surveys" by William Saupe and Brian W. Gould, (11) "Off-farm Employment Participation in Louisiana: An

Analysis of Survey Results" by Tesfa G. Gebremedhin, (12) "Multiple Job-holding among Farm Families and the Increase in Women's Farming" by Christina Gladwin, (13) "The Future Role of Farm Household Surveys: A Discussion" by Mary Ahearn, (14) "Factors Affecting the Supply of Off-farm Labor: A Review of Empirical Evidence" by Daniel A. Lass, Jill L. Findeis, and Milton C. Hallberg, (15) "Effects of Location on Off-farm Employment Decisions" by Jill L. Findeis, Daniel A. Lass, and Milton C. Hallberg, (16) "The Market for Farm Family Labor" by Thomas G. Johnson, (17) "Traditional Farm Commodity Programs and Multiple Job-holding" by Luther Tweeten, (18) "Rural Development and the Well-being of Farm Families" by Kenneth L. Deavers, (19) "Extension Programs and Policies for Part-time Farmers" by James C. Barron, (20) "Public Programs for Multiple Job-holding Farm Families: Discussion" by Lionel Williamson, (21) "Policy Issues and Research Needs" by R. J. Hildreth.

tain a rural residence, or meet other personal and financial goals. These findings argue against the common perception that multiple job-holding is a phenomenon based solely on economic hardship. The symbiotic relationship between agriculture and the nonfarm economy is another theme. Many farm families depend heavily on the jobs, business and social services, market outlets, and inputs provided by the nonfarm sector. At the same time, the rural nonfarm sector could not exist without the farming community and its surplus labor, service sector needs, and social and economic institutions. Also, Mary Ahearn and John Lee discuss data limitations and the problems associated with classifying part-time farmers using income-based measures, hour-based measures, or a combination approach. Their definitional and data concerns are echoed as a theme throughout the book.

Research studies examining multiple job-holding in Canada are an asset to the book, demonstrating its similarities to U.S. agriculture. In both Canada and the United States, most farms are private family enterprises, agriculture is highly developed and relatively capital-intensive, multiple job-

holding among farm households is the norm rather than an aberration, resources are mobile between farm and nonfarm sectors, and the farm families' decision to go part-time depends on economic, social, and structural reasons.

The objectives of the book are nicely elucidated, but the rationale is elusive. The authors repeatedly ask, "Why study part-time farmers?" (Barlett), "What are the problems and who cares?" (Carlin and Bentley), and "Are we a conference looking for an objective?" (Hildreth). The repetitiveness of their queries underscores the amorphous nature of multiple job-holding research. Also, readers need help to synthesize the results and conclusions for 21 theoretical and empirical chapters. A concluding chapter that summarized findings and elaborated on future research and policy directions would have been most welcome.

This compendium explores little new ground. Yet, it lays important groundwork for future studies of the causes and consequences of multiple job-holding among farm families, and in this regard, makes an important contribution to the agricultural literature.

Mathematical Programming: Tinker Toys with a Purpose

Economic Logistics: The Optimization of Spatial and Sectoral Resource, Production, and Distribution Systems. By Sten Thore. New York: Quorum Books, 1991, 360 pp., \$49.95.

Reviewed by David Letson

Mathematical programming texts are often heavy on technique but light on synthesis and imagination. Given a menu of model types, readers must discover the usefulness of each. Wading through this sort of presentation can be like reading a dictionary—all parts, no assembly instructions. Such texts are less likely to promote research-bearing economic insight than to provide toys for the academic sandbox. Sten Thore's mathematical programming text is refreshingly different, an engaging presentation of the basic methods, with an important advantage. His synthesis of basic model types also describes the chain of optimization behavior in an economic sector. Far from a cookbook of techniques, the text presents an economic theory for market formation that

provides students and professionals with a better appreciation of basic modeling.

The strength of the text is its synthesis. Thore's convincing thesis is the usefulness of linking basic model types. The resulting concatenation is "economic logistics," the analysis of resource production, inventory, and distribution systems. Most importantly, he joins the transportation problem, activities analysis, and the warehouse problem. The transportation problem traces the spatial movement of goods from production to retail outlets. Activities analysis considers the constituent stages or "activities" of production wherein raw materials are converted first to intermediate and then to final goods. The warehouse problem uses inventories to smooth the time paths of inputs and outputs. Combining the first two model types allows analysis of spatial flows of commodities through a production chain. Linking the transportation and warehouse problems leads into the analysis of regional warehouse systems. Joining activities analysis and the warehouse problem enables a look at multistage warehouse systems of intermediate goods coming into the production and distribution of final goods. The result of this synthesis is a compelling portrait of

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