

# Demand Response to Price—Multiple Views from the Water's Edge

*Elasticities in International Agricultural Trade.*  
Edited by Colin A. Carter and Walter H. Gardiner  
Boulder, CO Westview Press, 1988, 316 pages, \$38.50

Reviewed by Leroy L. Blakeslee

Samuelson registered a negative view of "certain dimensionless expressions called elasticity coefficients" by noting that, "On the whole, it appears their importance is not very great except possibly as mental exercises for beginning students"<sup>1</sup> As a generalization, this may be an overstatement I agree with its assessments of price elasticities of demand for agricultural exports or imports Certainly this book conveys the impression that these elasticities are likely to be unstable, and that a clear elaboration of the complex processes that determine price response must be the first order of business

The nine chapters of this volume cite recent experience in modeling agricultural trade flows, particularly in determining how border prices affect demand for imports and exports Several of the authors review related recent works The book provides a reasonable status report on current theoretical and empirical efforts on trade In one sense, the results reported are quite discouraging Wide variation exists in empirical results, and few clear principles emerge concerning the best modeling approaches to be taken to even fairly narrowly defined problems

Following the good introductory chapter by Gardiner and Carter, an appropriate place to start reading this collection is at Goddard's chapter She lays out more clearly than elsewhere an important dichotomy that exists in approaches to trade modeling as currently practiced One approach assumes that similar goods produced in different countries are perfect substitutes The other assumes them to be less than perfect substitutes The latter approach, as explained by Goddard, is in the spirit of Armington, though not identical to it Her development of the elasticities of export demand with respect to border price under the two cases is especially instructive, both to her own results concerning trade in beef as well as to the rest of the book Abbott's discussion of trade flow rigidity suggests that goods from different sources may be

regarded as imperfect substitutes because of long-standing historical, cultural, and political interactions as well as differences in physical attributes He argues that the Armington approach has merit as a representation of all these conditions

Virtually all authors of this volume cite the pervasive tendency of governments to intervene in agricultural trade as a major factor making trade modeling difficult Indigenous agricultural price and income policies that don't directly involve intervention at the border, but do influence trade indirectly, are also mentioned as complicating factors All authors except Adelman and Robinson, Blandford, and Goddard seem to view the introduction of an elasticity of indigenous market price with respect to border price at values of less than 1.0 as the principal means available for capturing the effects of this intervention and the effect it has on isolating individual country markets from world markets The authors who did not take this stand took no position at all

The basic algebra is laid out most simply by Dutton and Grennes (at least for the case where goods from all countries are treated as perfect substitutes) Others, especially Abbott, provide elaboration on this theme and reviews of studies which have used this approach The chapter by Tyers and Anderson describes a model with extensive use of this construct to capture effects of both protectionist and stabilization policies However, their description is cryptic, and many readers will find it difficult to fathom the rationale for the precise forms that are used

While there are many difficulties in developing agricultural trade models that are useful for prediction, I believe government intervention in pursuit of varied and often unclear goals presents the greatest challenges Intervention often results in little price transmission and reduced effects of border prices on trade as claimed by these authors, but simple price linkage equations or transmission elasticities are frail beasts for carrying so heavy a load Bolling's brief review of price policies from 1966 through the mid-1980's in nine Latin American countries provides a sobering reminder of the complexity of these policies and of the frequent, major changes that have occurred Bolling estimates price and exchange rate transmission elasticities based on a simple specification in the spirit of Bredahl, Myers, and Collins<sup>2</sup> and others

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<sup>1</sup>Paul A. Samuelson, *Foundations of Economic Analysis* (Cambridge Harvard University Press, 1947), p. 125

<sup>2</sup>M. E. Bredahl, W. Meyers, and K. J. Collins "The Elasticity of Foreign Demand for U.S. Agricultural Products: The Importance of the Price Transmission Elasticity," *American Journal of Agricultural Economics*, 61 (1979) 58-62

She concludes that "there is no reason to expect these elasticities to be the same in the 80's as they were in the 60's and 70's. They depend too much on the vagaries of politics in each country" (p. 179). The 1986 study by Roe, Shane, and Vo,<sup>3</sup> cited by Carter and Gardiner and by Dutton and Grennes, provides at least a beginning attempt at a more promising approach to introducing the effects of government intervention. A report on their work would have been an interesting addition to the collection of papers in this volume.

Thursby and Thursby recommend that in light of the uncertainties surrounding correct specification in econometric models of agricultural trade, it is appropriate to subject such models to a variety of specification tests. Their ideas are well founded and worth reading. They and others also argue that greater attention should be given to consistency between models used in empirical work and the underlying behavioral models. It is hard to argue with this. However, the fact that an important subset of the behavior being modeled is that of government officials involved in market intervention, and that we know little about the goals they are pursuing, suggests that this will be difficult. The examples presented by Thursby and Thursby imply that behavioral models of government intervention are beyond what they had in mind.

Dutton and Grennes give an interesting and readable treatment of the role of exchange rates in agricultural trade models. Especially instructive is their elaboration on the role of nontradeables in determining export response to prices and exchange rates. Their empirical results are mixed, but their statistical work is pursued in a setting that is perhaps too simplified to produce definitive results.

Books containing a collection of independently developed papers are often faulted for lack of integration, continuity, synthesis, and critical contrast, and this one is no exception. Its final chapter, "Discussion and Concluding Comments" by Myers, Schmitz, Thompson, and McCalla, modestly summarizes the collection.

<sup>3</sup>T. Roe, M. Shane, and D. H. Vo, *Price Responsiveness of World Grain Markets*, TB-1720, U.S. Department of Agriculture, Economic Research Service, June 1986.

What can be said for the book? There are no major breakthroughs. I don't believe the book contains papers of the kind that will be on many required reading lists for graduate courses dealing with agricultural trade 10 years from now. Yet, agricultural trade modeling issues are high on the agenda of the discipline at this time. For the reader with a background in theory-based applied econometrics, this book can serve as a good one-stop report on current thinking concerning alternative approaches. I recommend it for this purpose. Parts of the book can supply useful supplementary readings for a graduate course on agricultural trade issues as long as a background is developed in class or from other readings. Worthwhile reading, yes, but I suggest that readers use the library's copy and conserve their book-buying budgets for more definitive works.

The papers include: (1) "Issues Associated with Elasticities in International Agricultural Trade" by Walter H. Gardiner and Colin A. Carter, (2) "Elasticities in International Trade: Theoretical and Methodological Issues" by Jerry G. Thursby and Marie C. Thursby, (3) "Estimating U.S. Agricultural Export Demand Elasticities: Econometric and Economic Issues" by Philip C. Abbott, (4) "The Role of Exchange Rates in Trade Models" by John Dutton and Thomas Grennes, (5) "Macroeconomic Shocks, Foreign Trade, and Structural Adjustment: A General Equilibrium Analysis of the U.S. Economy, 1982-1986" by Irma Adelman and Sherman Robinson, (6) "Price and Exchange Rate Transmission Revisited: The Latin-America Case" by Christine Bolling, (7) "Market Share Models and the Elasticity of Demand for U.S. Agricultural Exports" by David Blandford, (8) "Export Demand Elasticity in the World Market for Beef" by Ellen W. Goddard, (9) "Imperfect Price Transmission and Implied Trade Elasticities in a Multi-Commodity World" by Rod Tyers and Kym Anderson; and (10) "Discussion and Concluding Comments" by William H. Meyers, Andrew Schmitz, Robert Thompson, and Alex F. McCalla.