

Macroeconomics and Agriculture: A Vast but Unfinished Research Effort

Macroeconomics, Agriculture, and Exchange Rates.
Edited by Philip L Paarlberg and Robert G
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No other book on the effects of international macroeconomy on agriculture can be compared with this one. Because none exists. The book contains 10 independent essays presented at a conference sponsored by the International Agricultural Trade Research Consortium in 1986. The articles, therefore, are aimed at professional agricultural economists and graduate students with background in international finance and interests in the whole new field of macroeconomics and agriculture. Although 3 years have passed since the conference, the content still reflects what professionals know (or don't know).

The title suggests that exchange rates play a crucial role in all the essays. While this is true, it does not mean that other macroeconomic linkages are not explored. The crucial role that exchange rates play relates to the realization that the transmission mechanism between the international macroeconomy and agriculture is significantly different for fixed and flexible exchange rate systems. It is worth mentioning that non-exchange-rate linkage discussions are mostly general. Uses of a wide brush to paint the pictures, however, are in no way a weakness. On the contrary, the mostly general last five chapters by Just, Thompson, Schuh, Shane and Stallings, and Abbott are rich in insight and clearly identify many of the fruitful areas of research.

Having accepted the importance of exchange rates, Paarlberg and Chambers accordingly organize the essays. Part I, devoted to international finance, provides an excellent summary of recent theories of exchange rate determination and how the nature of the macroeconomic forces changed when the United States switched from a period of fixed to flexible exchange rate systems in 1973. Thompson, in chapter 7, points out that one reason for the lack of studies in the area of macroeconomic policy impact is that "far too few agricultural economists trained today have

anything close to an adequate training in macroeconomics." In this sense, Part I becomes a prerequisite for the rest of the book. And, the rest of the essays prove the point.

Part II is committed to issues of macroagricultural linkages in the United States. Here, readers learn how the concepts and the frameworks developed in Part I could be used to examine theoretically and empirically and analyze descriptively a variety of influences that U.S. macroeconomic policy exerts upon agriculture. In Part III, these and other macroeconomic concepts are first used to analyze the macroagricultural issues seen from the point of view of the developing countries and, then, are used to provide an alternative approach to modeling macroeconomic linkages.

In chapter 2, Frankel and Froot analyze the evidence for the four hypotheses (monetarist, overshooting, safe haven, speculative bubble) that have been proposed to explain the large real appreciation of the dollar from 1981-85 and its subsequent depreciation. They argue that only the overshooting model is capable of explaining the rise and fall of the value of the dollar. Yet, even overshooting cannot fully explain the path taken by the dollar. Based on speculative bubbles, Frankel and Froot, therefore, propose an alternative exchange rate determination theory and show how it can work to explain the 1980-85 path of the dollar.

An agricultural economist without a strong background in international finance will find Frankel and Froot's essay difficult. That this article should be so difficult points up the degree of specialization that agricultural economists have to obtain. As Just stresses, deficiencies in current research still prevent information on the macroeconomic effects upon agriculture from reaching policymakers. To put it bluntly, without the knowledge base that is needed to understand Frankel-Froot type articles, we will be where Thompson says we are: having no adequate training and output.

The results of understanding the concepts that Frankel and Froot discuss are reflected in the article by Stamoulis and Raussler. They extend Dornbusch's overshooting exchange rate model to commodity prices. They show that money is nonneutral in the short run and that "the burden of adjustment to a monetary shock is borne by flexible price sectors [such as agriculture]."

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Overshooting has recently received much publicity, and Just stresses the importance of its policy implications for agriculture. Consequently, for policy reasons, demands have also been high for sound empirical estimation of the extent that agricultural prices overshoot. On the other hand, because of the assumptions (particularly the steady-state fixed-output assumption) that Dornbusch imposes, and Stamoulis and Rausser adopt, overshooting of spot prices is defined relative to the rate of change in the money stock. That is because under those assumptions, changes in money stock determine the changes in the equilibrium prices. However, as Mussa emphasizes (*Journal of Political Economy* in 1982) in defining overshooting, the reference point should be the equilibrium prices which must be specified as endogenous variables. Lest agricultural researchers mistakenly adopt Dornbusch's definition of overshooting in their empirical analyses, it should once again be stressed that the proper definition is, as in Mussa, the spread between the spot and the moving equilibrium prices.

Shei and Thompson also use their knowledge in international finance to carefully construct a macroeconomic linkage model for 1950-74. They use the model to compare the relative importance of the devaluation of the dollar, the decrease in world cereal production, the increase in Soviet grain purchases, and the increase in US money supply in accounting for the sudden explosion of agricultural and general prices in 1973. The arguments that Shei and Thompson use to specify their macroeconomic linkages are consistent with McKinnon's description of how the US economy functioned during the 1950's and 1960's when Bretton Woods (a fixed exchange rate system) prevailed. Not surprisingly, Shei and Thompson found that "the factor which accounted for the largest single share of the rapid 1973 agricultural and general price inflation in the US was the 10 percent expansion in the domestic component of the monetary base in that year."

A point worth making, however, is that the money supply effect could have been even larger if Soviet behavior were endogenous—something that Abbott recommends. For example, the Soviet Union's purchase of grain could respond to movements in gold prices. In that case, the increase in the relative gold prices associated with the shortrun income effects of the money supply increase would push up the Soviet's demand for grain. In this sense, the estimated impact of the increase in Soviet grain purchases includes the effects of the 10-percent increase in money supply. Put differently, the simulated impact of the money supply increase on grain price is underestimated.

Discussions in international finance about the role that nontraded goods and real exchange rates play are relatively new. All essays, particularly Schuh's,

use the concepts. For the majority of interested agricultural economists, however, the role of real exchange rates and nontraded goods still remains unclear. The topic deserves closer attention.

The arbitrage conditions that form the bases for the Frankel and Froot, and Stamoulis and Rausser essays were questioned by Abbott in his discussion about the advantages of structural approach to modeling macroeconomic linkages. He proposed formal empirical tests of arbitrage conditions in commodity markets. Work in this area has progressed since the conference in 1986. Results of a formal test on the validity of arbitrage conditions for grain markets, published in this journal in 1987, reinforce Abbott's point by strongly rejecting the strict form of the covered interest parity condition.

Paarlberg and Chamber's book does not exhaust all the effects that the international macroeconomy exerts on agriculture. The field of macroeconomic linkages to agriculture is relatively new. Much remains to be examined. The book eloquently demonstrates what agricultural economists interested in macroeconomic impacts on agriculture ought to do first: develop a solid base of knowledge in macroeconomics and international finance. It gives perfect examples of how theories about exchange rate determination can be used to successfully analyze the exchange rate-related issues in agriculture. In the process, the nature of several other macroeconomic linkages to agriculture are analyzed, identifying numerous important researchable topics. For this reason, I think the book will prove to be a valuable asset to professional agricultural research economists and graduate students.

The papers include (1) "An Overview of Exchange Rates and Macroeconomics Effects on Agriculture" by Robert Chambers, (2) "Explaining the Demand for Dollars: International Rates of Return, and the Expectations of Chartists and Fundamentalists" by Jeffrey Frankel and Kenneth Froot, (3) "The US Price Level and Dollar Exchange Rate" by Ronald McKinnon, (4) "Inflation and Agriculture: A Monetarist-Structuralist Synthesis" by Shun-Yi Shei and Robert Thompson, (5) "Overshooting of Agricultural Prices" by Kostas Stamoulis and Gordon Rausser, (6) "Exchange Rates and Macroeconomic Externalities in Agriculture" by Richard Just, (7) "US Macroeconomic Policy and Agriculture" by Robert Thompson, (8) "Some Issues Associated with Exchange Rate Realignment in Developing Countries" by Edward Schuh, (9) "Financial Constraints to Trade and Growth Crisis and Aftermath" by Mathew Shane and David Stallings, and (10) "Modeling Exchange Rate and Macroeconomic Linkages to Agriculture: Lessons from a Structuralist Approach" by Philip Abbott.