More on Macroeconomics and Agriculture

International Financial Markets and Agricultural Trade. *Edited by Thomas Grennes Boulder, CO Westview Press, 1990, 306 pages, $38 50*

Reviewed by David Stallings

International Financial Markets and Agricultural Trade is the latest compendium of papers from the International Agricultural Trade Research Consortium, held in San Antonio, Texas, in December 1988 Readers hoping to find definitive answers to international macroeconomic questions are unlikely to be satisfied with this book One may even ask where, exactly, definitive answers in the subject area can be found The book, nonetheless, presents interesting and informative pieces in selected areas

Thomas Grennes opens the discussion usefully by describing how the various chapters fit together The problems of defining equilibrium exchange rates, according to Grennes, revolve around the failure of purchasing power parity (PPP) explanations of exchange rate movements PPP, in its various forms, states (roughly) that exchange rates should adjust to offset changes in prices, price levels, or expected prices Despite the failure of PPP models to explain observed movements in exchange rates, no alternative theory of an equilibrium exchange rate has taken its place This is a serious theoretical problem Without some plausible notion of an equilibrium value, efficiency in foreign currency markets will be difficult to observe

Lawrence Officer attempts to integrate two strands of PPP theory, sometimes called the Law of One Price (LOP), that have stood alone, one at the disaggregate (commodity) level and one at the aggregate level The idea is to use explanations for the deviations in PPP at the disaggregate level to explain those at the GDP level There is considerable discussion of the use and calculation of the absolute form of PPP, using data from the United Nations international comparison program (ICP) Officer provides a very long, and useful, list of reasons as to why PPP may not hold First, the costs of risk and transportation may insert a wedge between home and foreign prices Second, trade restrictions exist Third, there may be collusion Fourth, we have product differentiation Fifth, some commodity markets may exhibit inefficiency in the sense that not all arbitrage opportunities are exploited Sixth, there may be measurement problems A seventh reason, not mentioned by Officer, are the costs of *ex ante* and *ex post* contracting (in the spirit of Williamson, 1983)

This discussion by Officer leads into his survey of the wide variety of empirical studies that have been made since 1970 concerning the LOP The preponderance of the evidence is that LOP does not hold However, given the litany of reasons as to why it may not hold, one may wonder why the LOP is ever valid Officer tests the LOP over a variety of aggregate agricultural commodity groups, such as bread and cereals, meat, fish, and tobacco He uses the real price level (RPL), which is the absolute PPP converted to a numeraire currency There is greater support for LOP at this disaggregate level in industrial countries than worldwide, but deviations from PPP are still severe These results were extended to aggregate PPP measures The central finding is much the same PPP holds more closely in countries with similar (high) levels of development The use of ICP data made both disaggregate and aggregate comparisons easier ICP data permitted the use of consistent data set, which was hampered by single-year analysis with a limited number of countries

Catherine Mann provides a discussion of Officer's material She begins by placing Officer's definitions in a standard framework She then demonstrates how Officer's tests of PPP are little different from those he had cited as flawed Mann suggests that Officer's results at the aggregate level imply further testing for the importance of the tradable-nontradable goods breakdown in determining the proper role for differences in OECD and other economies Her comments, while shedding light on the difficulties of explaining deviations from the law of one price, support Officer's explanation of deviation by integrating aggregate and disaggregate approaches

Sebastian Edwards first defines the real exchange rate as the relative price of tradable and nontradable goods He explains that this "captures the degree of competitiveness (or profitability) of the tradable goods sector in the domestic country " A longrun equilibrium rate, using this definition, is one that produces internal balance (expenditure equals income, and unemployment is at the "natural" rate) and external balance (longrun capital flows are consistent with the current account balance, implying there can be longrun capital inflows or outflows) This rate, of course, fluctuates with changes in trade controls, capital flows terms of trade, and expected changes in any of these variables Edwards begins with a very unrealistic model (perfect competition, nondistortionary taxes, a binding government budget constraint) The result is a definable equilibrium path for the real exchange rate Edwards continues, then, by stating the obvious no such real world exists There must be some dynamic characteristics that produce "misalignments " They are, he argues, generally the result of macroeconomic policies

Stallings is an economist in the Agriculture and Trade Analysis Division, ERS

which are inappropriate to the exchange rate regime The most common is an expansive monetary policy under fixed exchange rates Edwards calculates a variety of exchange rates, incorporating a useful discussion of the merits of each These include bilateral and multilateral rates, and a few based on parallel, as opposed to official, rates Edwards concludes by looking at the effects of exchange rate volatility on trade and economic growth His estimates confirm the results obtained by the International Monetary Fund (IMF) and others that variability in the exchange rates of developing countries tends to adversely affect economic growth but not trade He fails to point out, however, that the domestic policies that result in exchange rate variability may be the proximate cause of poor economic performance Exchange rate misalignment is only a symptom, not the disease

Barry Goodwin sets out the important reason that we depend on the law of one price it is a necessary component of all theories of international trade and an important aspect of international monetary theories as well He notes, as did Officer, that the vast weight of empirical evidence is against acceptance of LOP Goodwin argues that LOP depends on contemporaneous prices There is no consideration of expected changes in prices between the time of sale and delivery Goodwin sets out a rational expectations model to narrow deviations from LOP for a selected set of U S agricultural export commodities wheat and oilseeds Here, with all prices in dollars, is the easiest test He finds that an expectations-oriented model, which includes expected prices for a 2-month delivery, supports the LOP in 8 of 15 cases This is a strong improvement over the "standard" model in which the LOP is supported in only two of the cases A last test used by Goodwin adds proxies for transport and transactions costs, including a variable discount factor, to his original expectations model The results confirm the validity of LOP in 13 of his original 15 cases The clear implication is that the lack of the use of expectations is one major reason for the previous failure of LOP models

Paul O'Mara opens with a discussion of the aggregate economic situation in Australia as of late 1988 Some parallels exist between the Australia of the mid-1980's and the United States of the late 1980's Both have had large current account deficits, and both have had extended exchange rate depreciations which have had little effect on those deficits O'Mara follows the traditional "Australian" approach to exchange rate determination in formulating his discussion for Australia This approach, based on the Swan-Salter paradigm, states that the real exchange rate changes not to equilibrate external accounts but to assure that nontradable goods markets are in equilibrium Other Australians, such as Max Corden (1986), continue to emphasize this approach O'Mara effectively summarizes the research in the area done by the Australian Bureau of Agricultural and Resource Economics (ABARE) Medium-term forecasts using a general equilibrium model, judged equivalent to testing Swan-Salter, were compared with estimates based on a more standard approach emphasizing external accounts The results were a strong confirmation of the Swan-Salter model In the short term, however, movement in exchange rates may be dominated by overshooting or "rational speculative bubbles" ABARE research has demonstrated that a rise in the risk premium can also affect shortrun exchange rate movements The debate on what forms a medium- to long-term equilibrium real exchange rate is really central to the future of international macroeconomics O'Mara's discussion is brief but clear

Douglas Pearce concerns himself with the economic performance of the foreign exchange market in terms of efficiency He includes definitions of efficiency that are based on standard asset market models Exchange rates, like other assets, are normally assumed to reflect some set of "fundamentals" Thus, efficient use of information would mean that models incorporating these fundamentals are used in determining foreign currency positions Yet, views differ on both the composition and the effects of "fundamentals," such as money supply growth, on the economy at large, and therefore on exchange rates Pearce surveys very well a number of efficiency tests The most straightforward, whether the forward rate is a good predictor of the future spot rate, given rational expectations, has been rejected so many times as to make its viability nearly zero Instead, numerous tests, under a variety of specifications, indicate that the forward rate is a biased predictor of the future spot rate, demonstrating only one of several ways that the empirical results of exchange rate models differ considerably from asset models based on, for example, stock prices This bias, according to Pearce, does not denote inefficiency if there is a time-varying risk premium Results from survey data indicate that the assumption of rational expectations is not necessarily robust Incorporating "news" improves the information base somewhat, giving greater support to market efficiency models Pearce then moves on to explore "speculative bubbles," a phenomenon that occurs during an appreciation when, for example, the forward rate underpredicts the actual spot rate, but the subjective probability by agents in the market is for the appreciation to continue (perhaps influenced by univariate time-series models) Both the "bubbles" and the uncertainty with which agents view model parameters can, according to Pearce, account for the observed failure of efficiency hypotheses

John Kitchen makes some telling points in his comments on Pearce, concentrating on that author's omissions Pearce, for example, does not discuss the relation of exchange rate volatility to international trade Increasing exchange rate volatility, according to Kitchen's sources, lowers the volume of international trade, perhaps most especially agricultural

trade Second, the results obtained by Pearce cast some doubts on the use of hedging by some agents to minimize risk The observation that expected exchange rates and forward exchange rates are biased estimators implies that hedging operations impose unnecessary losses Kitchen points out correctly that his is true only of those "continuously" in the market Intermittent participants still gain from the use of hedging

The most interesting point made by Kitchen, however, is both subtle and basic There is no model that explains exchange rate behavior, because the fundamental determinants are either unknown or affect exchange rates in different ways at different times Kitchen then takes models for commodity prices that are essentially the same as those specified by Pearce for exchange rates, asking whether or not forward prices are unbiased estimators of future spot prices Several "news" variables for commodity prices (such as weather) are included Forward prices are excellent, unbiased estimators of future spot prices for the commodities tested Perhaps forward exchange rates are unbiased predictors of future spot rates, but we simply do not know what else to include in the function

Douglas Purvis briefly discusses the evolution of the twin deficits in the United States, beginning with the monetary contracting of 1979-80 He argues that the tax cuts of 1981-83 provided the impetus for the continued appreciation of the dollar The fiscal deficit, combined with a restrictive monetary policy, induced the capital inflows that sustained the large current account deficit In his view, the forced responses of other countries to U S action were entirely passive International capital flows allowed the U S fiscal deficit to be "exported " For example, high U S interest rates led to an appreciation of the dollar The inflationary pressure in Europe, combined with fixed real wages, induced an increase in unemployment Purvis describes this as a U S "beggar-thy-neighbor policy "

Purvis notes that while popular simple models (Mundell-Fleming) explain why a fiscal deficit can produce exchange rate appreciations, they do not explain well why they may produce depreciations He goes on to cite portfolio-balance models that do better in confirming this phenomenon One model implies that the United States may be tempted to extract wealth from foreign bondholders by devaluation or a tax on bonds Thus, a fiscal deficit that must be financed by future tax revenues will result in immediate devaluation The essential point, however, is that, as argued by O'Mara, the external deficit will not respond to exchange rate changes, only a reduction in the budget deficit The key to the solution of the twin deficits, according to Purvis, is in raising the aggregate U S savings rate

The papers include (1) "The Link Between Financial Markets and World Agricultural Trade" by Thomas Grennes, (2) "The Law of One Price Two Levels of Aggregation" by Lawrence H Officer, (3) "Comments on 'The Law of One Price Two Levels of Aggregation' " by Catherine L Mann, (4) "Real Exchange Rates in Developing Countries Concepts and Measurement" by Sebastian Edwards, (5) "Empirically Testing the Law of One Price in International Commodity Markets A Rational Expectations Approach" by Barry K Goodwin, (6) "Exchange Rates, Interest Rates, and Agriculture A Macroeconomic View from Down Under" by L Paul O'Mara, (7) "Information, Expectations, and Foreign Exchange Market Efficiency" by Douglas K Pearce, (8) "Comments on 'Information, Expectations, and Foreign Exchange Market Efficiency' " by John Kitchen, (9) "Fiscal Policy, Exchange Rates, and World Debt Problems" by Douglas D Purvis, (10) "Comments on 'Fiscal Policy, Exchange Rates, and World Debt Problems' " by Steven Kyle

A "soft" landing requires that this be the result of voluntary action, such as a pro-savings tax policy or a reduction in the U S budget deficit accompanied by some fiscal stimulus elsewhere A "hard" landing, in familiar form, occurs when overseas investors stop financing the current account deficit Lower investment in the United States (or disinvestment) produces an involuntary rise in savings, along with a plummeting dollar, very high real interest rates, and a deep recession

Steven Kyle adds some interesting addenda in commenting on the paper by Purvis He believes that, so far as some fiscal adjustment is forthcoming, that farm subsidy programs will be among the first targets However, the overall effect of these subsidy reductions depends largely on whether or not there is a soft or hard landing A soft landing provides the opportunity for a devaluation This raises exports, offsetting the decline in subsidies A hard landing, however, could result not only in much higher interest rates, but in a contraction in world trade as well Both would exacerbate the decline in farm income resulting from lowering subsidies

There is not a great deal about agriculture in this book However, so much of macroeconomics, especially areas which purport to explain exchange rate behavior, is such a mystery that cause and effect relationships between macroeconomic "shocks" and microeconomic results remain tenuous Let us consider, for example, what is known about the effects of fiscal policy on exchange rate behavior A fiscal expan-

sion may lead to either a currency appreciation or depreciation A fiscal expansion may have either a positive or negative effect on agricultural exports

Thomas Grennes and the International Agricultural Trade Research Consortium deserve thanks for an excellent reference to a complex and still poorly understood area in international economics research This book contains a wealth of material that is very accessible to those who are not specialists in macroeconomics

References

Coden, W M *Inflation, Exchange Rates and the World Economy Lectures on International Monetary Economics* Third edition Chicago The University of Chicago Press 1986

Williamson Oliver *The Economic Institutions of Capitalism* New York The Free Press 1985