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AGRICULTURE, TRADE, AND MACROECONOMICS

by

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In the paper, "The Macroeconomics of Agriculture and Rural America," by Edward Schuh and David Orden, a "call to arms" is advanced for the agricultural economics profession. Consistent with the previous work of these authors, it is argued that macroeconomics should be studied and that it matters. Given the recent experience of U. S. agriculture, this argument is easy to accept.

Schuh and Orden outline a number of possible channels by which the macroeconomy can impact on the U. S. agricultural sector. Unfortunately, no attempt has been made to distinguish between the various channels of interaction between the macroeconomy and the U. S. agricultural sector. Theoretical and empirical evidence on the relative ranking of importance among the various channels is not provided; nor is any attempt made to structure an analysis to determine the relative importance of the various channels. In essence, much of the paper is devoted to a survey of the reasons why macroeconomic and international factors affect agriculture.

On the whole, the discussion is primarily a review of well-accepted factors. There are, however, some concerns expressed in the paper that have not been articulated in the agricultural economics literature. These include, inter alia, the dual constraints on national policy; the export orientation of debtor countries; and the relative importance of capital mobility.

The major issues addressed in the Schuh and Orden paper can be assessed and evaluated from a large number of perspectives. In what follows, I will collect and summarize my views on their paper in terms of (1) the state of the world facing U. S. agriculture, (2) alternative macroeconomic paradigms, (3) the relative importance of sector-specific versus macroeconomic policies on U. S. agriculture, (4) second-best policies, (5) capital flows, (6) partial versus general equilibrium analysis, and (7) the empirical results and concluding remarks.

STATE OF THE WORLD

Schuh and Orden place less emphasis on the inherent instability in commodity markets and more emphasis on the external linkages with other markets. The deregulation of credit and banking system has resulted in greater exposure of agriculture to conditions in domestic money markets. Also, because of the shift from fixed exchange rates to flexible rates, commodity markets have become more exposed to international money markets and real trade among countries. Since the 1970s, the emergence of a well-integrated international financial market has meant that agriculture, through domestic and foreign money and exchange rate markets, has become increasingly more dependent on capital flows among countries.

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Greater dependence on trade since the early 1970s has exposed U. S. agriculture to more shocks from foreign markets. Consistent with increased dependence on trade for the world economy as a whole, U. S. agriculture is heavily dependent on exports. To be sure, this increased dependence has made the demand structure facing U. S. agriculture less stable due, in part, to the emergence of the Soviet Union, with its unstable agriculture, as a major importer and due to barriers to trade which cause changes in foreign markets to be borne by the United States and other exporting countries who practice relatively free trade.

The linkages of commodity markets with U. S. money markets are indeed pervasive. Since agricultural production is extremely capital-intensive and debt equity ratios have risen dramatically over the last 10 years, movements and real interest rates have significant effects on the cost structure facing agricultural production. Stock-carrying and storable commodity systems are sensitive to changes in real interest rates; and for nonstorable commodities (for example, live cattle and live hogs), breeding stocks are interest rate sensitive. These effects, combined with the influence of interest rates and the value of the dollar, exert pressure on grain products from both the demand side (export demand, domestic livestock, grain demand, and stockholding demand) and the cost side. The especially sensitive nature of agriculture to the interest rates suggest that this sector is vulnerable to monetary and fiscal policy changes. Our empirical work at Berkeley has shown that, since 1972, the instabilities in monetary and fiscal policies have contributed importantly to the instabilities of commodity markets (Rausser et al., 1986).

The effects of U. S. fiscal and monetary policies on interest rates, exchange rates, and inflation must be placed in the context of world economic conditions. The trend in world agricultural trade is toward dependence among nations, more competition among suppliers, and lower export prices. The world recession and associated international credit problems brought about a shifting back of demand for U. S. exports at any price, exacerbating the effects of high domestic support prices and exchange rates. In the minds of many, the continuing world recession will be the most important obstacle to revived growth in world agricultural markets. In addition to these conditions, high interest rates and a strong dollar have the indirect effect of encouraging foreign governments to contract their own money supplies. This, in turn, to the extent that money is nonneutral in the short run, leads to lower aggregate foreign income and a lower demand for U. S. farm goods (Rausser, 1985).

It must be emphasized that the heightened importance of macroeconomic factors on U. S. agriculture does not represent a structural change in long-term patterns. To argue that the linkages with the macroeconomic and international sectors emerged in the early 1970s and were not previously witnessed is to ignore the historical record. Macroeconomic disturbances and their links to the agricultural sector are central to any historical account of policy developments in the agriculture sector. For example, the organized agricultural interest groups that emerged during the populist protest of the late 19th Century were motivated, in part, by monetary restriction associated with the Greenback period and the return to fixed exchange rates under the gold standard in 1879. Continued price deflation into the middle 1890s and real interest rates that are estimated to have averaged 8.5 percent in the period 1870 through 1889 prove particularly burdensome to debt-ridden farmers. The demands of various farmer movements thus consisted of easy money created by government action, government funds for farm mortgages, and the sub-Treasury

scheme for the creation of government paper money with stored crops as collateral.

The discontent voiced by farmers over the macroeconomic policies of the 19th Century explain, in part, the later institutional changes that organized the Federal Reserve in 1913 and led to creation of Federal Land Banks of 1916. The introduction of sector-specific policies in 1933 followed a farm crisis that had its origins in macroeconomic adjustments after World War I.

After the Depression of the 1930s and World War II, the set of macroeconomic policies implemented through the 1950s and 1960s afforded the U. S. economy a period of unprecedented macroeconomic stability. During this period, in essence, the macroeconomic linkages with agriculture were dormant. When the important aspects of the macroeconomic policy structure began to change in the late 1960s, the linkages with the macroeconomic environment returned as a prime factor influencing the U. S. agricultural sector and, thus, complicating agricultural policy.

ALTERNATIVE MACROECONOMIC PARADIGMS

Our perspective on the state of the world quite obviously depends critically upon the paradigms we employ to interpret and explain economic events. In the case of the macroeconomic environment and its linkages with agriculture, a number of paradigms have been advanced in the literature. These include the monetarist, the new classical, Keynesian, neo-Keynesian, and post-Keynesian. Among these paradigms, as implied by Schuh and Orden, there are two major contending paradigms--the new classical and the neo-Keynesian.

A fundamental aspect of the new classical school is the belief that nonadjusting prices and wages implicit in the traditional Keynesian framework are inconsistent with the optimizing behavior of microeconomic theory. The rational expectation hypothesis provides an alternate behavioral assumption that describes how agents form expectations in a manner that is stochastically consistent. The basic assumptions of this paradigm imply that money is neutral, i.e., if information about money stock changes is widely available, there should be no effect of monetary factors on real variables. Likewise, real interest rates are not affected by monetary policy and nominal interest rates will respond to changes in expected inflation rates quickly according to the Fisher equation. A related implication, the "Lucas critique" or the "policy ineffectiveness proposition," is that accurately anticipated changes in monetary or fiscal policy will be rapidly incorporated into expectations about inflation and, therefore, will have no effects on output and employment.

With regard to exchange rate determination, the ideas for the new classical school are consistent with what has been referred to as "global monetarism"; that is, under a flexible exchange rate system, international arbitrage forces exchange rates toward purchasing-power parity levels reflecting the "law of one price." With rational expectations, it is further implied that changes in money stock will also be quickly reflected in exchange rates.

With the new classical paradigm, all the unanticipated changes in monetary policy can be expected to have significant effects on the agricultural sector. The long wave of steadily increasing asset values in agriculture during the 1970s and the long wave of downward movements in asset values over the 1980s cannot be readily explained by the new classical paradigm. These long waves, however, can be generated within the confines of the neo-Keynesian

paradigm. The critical factor that differentiates the neo-Keynesian school is its contention that all markets do not behave like Walrasian auction markets. Rather, the economy can be broadly categorized into sectors where prices adjust sluggishly to demand and supply shocks (fixed price) and a group of markets that exhibit rapid adjustments. Okun has justified this differential pattern by pointing out that, unlike those goods that are actually traded on auction markets, fixed price goods are more heterogeneous in quality and need to be inspected prior to purchase. As a result, search costs can be prohibitively large if prices are allowed to vary frequently. [1]

Under this paradigm, differential effects of monetary policy between agricultural and nonagricultural markets are admitted. If agricultural commodity markets behave as "flex price" while other markets behave as "fixed price," "macro externalities" will be imposed on the agricultural sector. Differential speeds of adjustment in the two types of prices following changes in monetary policy mean that overshooting in agricultural prices will occur even if expectations are formed rationally. [2] As Frankel and Hardouvelis point out, "This overshooting phenomenon can be thought of as a macroeconomic example of the Le Chatelier principle. Because one variable in the system (manufactured good prices) is not free to adjust, the other variables in the system (commodity prices) must jump correspondingly further in order to compensate" (p. 4).

The nonneutrality of money lasts as long as prices fail to adjust to reflect demand and supply forces. Empirical evidence has also been accumulated which strongly suggests that fiscal policy is nonneutral. During the 1980s, these two sets of policies have resulted in high and volatile interest and exchange rates which have worked together with corresponding contractions in world income and agricultural export demand. This combination of forces strongly suggests that resources should come out of agricultural production. Due to agriculture being capital intensive and its dependence on international trade, however, farmers are faced with a painful adjustment tax resulting from these forces. Over the period from 1980 to 1983, this tax took the form of higher interest payments and lower commodity prices in cases where the supply of goods did not shrink sufficiently fast. An additional tax was imposed in the form of a significant drop in farmers' stock of wealth. With government intervention, of course, much of the burden of adjustment appears as increases in the cost of agricultural programs. Precisely the opposite situation occurred during much of the 1970s. Government policies, the accumulation of wealth through large increases in land values, and the increasing production capacity left the agricultural sector ripe for the shocks of the 1980s.

It is interesting to note that the two alternative paradigms (new classical and neo-Keynesian) merge under rational expectations with imperfect and significant cost for information. The new classical model concerns itself largely with the benefits of forming rational expectations and not with the cost of collecting the information base that is needed to form rational expectations. New developments in industrial organization provide much theoretical justification and empirical evidence in support of Okun's fixed price or customer markets. In the case of the differential response of agricultural and nonagricultural markets to monetary shocks, the empirical evidence weighs in favor of the neo-Keynesian paradigm (Rausser et al., 1985). Finally, "overshooting waves" on agricultural commodity markets can last as long as the nonneutral period of changes in monetary and fiscal policies lasts. The length of such waves can be expected empirically to be much longer than unanticipated monetary effects admitted by the new classical paradigm on agriculture.

The implications of the above discussion for teaching, research, extension, and policy analysis are rather dramatic. In each of these major activities of our profession, we can no longer focus on only the internal demand and supply forces for a particular agricultural commodity and the implications of various coordinating mechanisms, especially governmental intervention. The experience in the United States, as well as numerous other countries, makes it clear that the conventional microeconomic analysis of agricultural markets is inadequate. Students, researchers, extension agents, and policymakers must recognize that the dynamic path of agricultural commodity markets cannot be explained on the basis of private market demand and supply functions alone. In fact, the appropriate characterization of such dynamics can only be obtained by specifying (1) the real demand and supply forces for a particular market; (2) the influence of coordinating mechanisms, especially governmental intervention; and (3) the linkage among domestic agricultural markets, exchange rates, and domestic as well as international money markets.

SECTOR-SPECIFIC VERSUS MACROECONOMIC POLICIES

It would have been useful if Schuh and Orden had distinguished more clearly between sector-specific and macroeconomic policies. Throughout the paper, they seem to view sector policies, at least those beyond export subsidies, as ineffective and unimportant. For example, they state that "the problem is that the impacts of policies designed for the domestic economy are literally swamped by forces from the international economy" (p. 5). They also state that "In today's world, it is monetary, fiscal, exchange rate, and trade policy that really matter for agriculture" (p. 27). These views are consistent with the perspective that Professor Schuh has advocated for some time. In an earlier paper, Schuh (1984) states that "the evidence is both abundant and painful that modern agriculture is an inseparable part of the overall economy and that macroeconomic problems are at the core of commercial agriculture's present problems."

In contrast to the above view, Bruce Gardner lays the current problems in U. S. agriculture at the doorstep of sector-specific policies. Gardner (1984) states that ". . . the fundamental reason for current policy problems is that the incentive prices in the grain programs are too high, causing a tendency to overproduce that no perspective weakening of the dollar or worldwide recovery is likely to offset for long." The empirical work that we have conducted at the University of California, Berkeley, strongly suggests that the extreme positions that only sector policies matter or that only macroeconomic exchange rate and trade policies matter are foolish. Our empirical results demonstrate quite clearly that monetary and fiscal policies can have substantial effects on prices and incomes in the agricultural sector. Due to the nature of current sector-specific policies, however, there is an asymmetry in the effects of monetary policy. This asymmetry results from price supports which limit downward trajectory of prices but have little, if any, influence on price increases. For nonneutral monetary and fiscal policies that result in commodity price increases, many if not all of the benefits accrue to the private sector. However, for nonneutral policies that result in price decreases, much of the costs are borne by the public sector.

In the long run, sector-specific policies are likely to have a more significant influence on resource allocation to the U. S. agriculture sector than do macroeconomic policies and external events. This is especially true since neither of the two major paradigms admit nonneutrality of money in the long run. To the extent that money is neutral in the long run and the effects

of fiscal policies are also neutralized, sector-specific policies will dominate in the long run. The sector policies that provide incentives for overallocation of resources to agricultural production, however, leave the sector especially vulnerable to macroeconomic policies that impose adjustment costs. Such policies must, almost by definition, lead to a financial crisis and many of the current problems that have been witnessed by rural banks and governmental agencies.

SECOND-BEST POLICIES

As Schuh and Orden imply, the optimal choice of a distortion of a particular market, given fixed distortions in other markets, is a problem in the theory of second best. For a modern treatment of this problem, Dixit and Norman (1980) should be consulted. For an application of this treatment, another useful reference is Dixit and Newbery (1985). In these works, it is formally demonstrated that the optimal distortion in a particular market is a weighted average of the fixed distortions in other markets; the weights sum to one but need not all be positive. Hence, if some weight is negative, it is possible that all sectors with fixed proportions are subsidized; yet, it is optimal to tax the remaining sector. $\underline{3}/$

The theory of second best, advanced by Schuh and Orden, most certainly does not call for the same degree of intervention in all sectors of the economy. In fact, just the opposite can be true depending upon the policy objectives. More than just the relative rate of protection matters. The "optimal protection" depends, in accordance with a Ramsey optimal tax scheme, on the relative price-marginal cost differences. Such a scheme does not imply equiproportional intervention.

On the one hand, Schuh and Orden argue for an equivalent export subsidy based on a faulty interpretation of second-best theory; but on the other, they argue strongly for trade liberalization. Their equivalent export subsidy policy will also be nonneutral with respect to the exchange rate. As a result, the effects of the subsidy can be spread throughout the economy to the detriment of other sectors. These potential counterproductive second-order effects can and should be recognized in our assessments of second-best policies. Moreover, some consideration must be given to the predictable retaliation of other countries in the export subsidy policies that might be pursued by the United States.

CAPITAL FLOWS

Schuh and Orden emphasize the importance of capital flows. Unfortunately, there appears to be an inconsistency in their capital flows-income argument. On the one hand, they argue (pp. 10 and 11) that a restrictive monetary stance by the Federal Reserve raises the U. S. real interest rate which, in turn, attracts foreign investments (capital inflows to the United States). Consequently, the dollar appreciates which, in turn, causes a deterioration in the balance of trade. This argument follows the traditional Mundell-Fleming model (IS/LM model) in which the interest rate is determined by the IS curve (the goods-market equilibrium), the LM curve (the money-market equilibrium), and the balance-of-payments equilibrium. $\underline{4}/$

On the other hand, Schuh and Orden argued that capital inflows reduce the levels of interest rates that would otherwise exist, thus increasing

investment and consumption and, therefore, the level of income that would otherwise exist. In this instance, their argument is based on the classical theory of interest which asserts that the IS relationships determine the interest rate. For a formal demonstration, consider the IS curve or the ex ante equilibrium condition for the goods market:

$$C + I^P + G + (X - Z) = Y = C + S + T \qquad (1)$$

where C = consumption, I^P = planned investment, G = government spending, X = exports, Z = imports, Y = income, S = savings, and T = taxes. Assume, following Schuh and Orden, that

$$BP = CA + KA = (X - Z) + (KI - KO) \equiv 0$$

where CA = current account, KA = capital account, KI = capital inflows, KO = capital outflows, and BP = balance of payments.

Then, (1) may be rewritten as:

$$I^P + (G - T) = S + (KI - KO). \qquad (2)$$

To complete the specification, assume
$$S = Y - C(Y - T, i) - T = S(Y, T, i) \qquad (3)$$

$$I^P = I^P(i) \qquad (4)$$

$$KI - KO = KA(i - i*) \qquad (5)$$

where i = U. S. interest rate and i* = foreign interest rate (given). Since, in the classical model, Y is determined by the production function, the IS curve determines the interest rate, i.e.,

$$I^P(i) + (G - T) = S(Y, T, i) + KA(i - \overset{-}{i}*). \qquad (2')$$

Suppose the United States experiences $\Delta CA < 0$ or, equivalently, $\Delta KA > 0$; then (2) becomes

$$I^P(i) + (G - T) < S(Y, T, I) + KA(i - i*) + \Delta KA. \qquad (6)$$

To equilibrate the goods market, the interest rate has to decline; that is,

$$I^R(i + \Delta i) + (G - T) \equiv S(Y, T, i + \Delta i) + KA(i + \Delta i - i*) + \Delta KA \qquad (7)$$

where I^R = realized investment and $\Delta i < 0$. Note that equation (7) is nothing more than $I^P < I^R$ and $C(Y - T, i) < C(Y - T, i + \Delta i)$. The increase of investment adds to the stock of capital in the next period which will increase Y. Clearly, the money market, which determines the price level recursively, plays no role in determining the output. That is, "money is a veil" in the classical world. This capital flows-income argument contradicts the determination of interest rate being based on the money market together with the goods market.

A consistent framework of monetary policy/interest rates and capital flows/income has been developed in Nishiyama and Rausser (1985). The theoretical framework incorporates assets into a portfolio balance model. In one version of their framework, it is shown in a two-country model that U. S. interest rates decline and foreign interest rates rise as a direct result of portfolio adjustments which follow a negative change in the U. S. current account balance. As a result of this change, foreigners who receive dollar-denominated assets as payments adjust their portfolios (some are kept in dollars, some switch to interest-bearing assets denominated in their own currencies, etc.) and U. S. citizens also adjust their portfolios after the wealth transfer. All of these adjustments culminate in investment demand increasing in the United States with corresponding increases in future outputs and incomes.

In the context of a traditional partial equilibrium model with exchange rates and income given exogenously, Nishiyama and Rausser demonstrate that exchange rate effects on import demands occur through the own-price, cross-price, and policy distortions. These effects are called direct or first-round effects. Relaxing the assumption that income is given, four additional secondary effects can be identified. The first can be defined as the wealth transfer effect associated with capital flows outlined above. Another secondary effect stems from the systematic official intervention in foreign exchange markets that are pursued by central banks to bound the erratic movements of exchange rates. When these activities are unsterilized, such official responses change money supplies of the intervening countries; and to the extent that money is nonneutral, this results in changes in income levels. Another secondary effect emanates directly from the trade balance which, in turn, stimulates or dampens aggregate demand. Finally, another secondary effect is the result of changes in foreign incomes due to the direct effects and the wealth-transfer effect. These forces affect the aggregate demand for domestic goods through trade and will influence domestic income.

PARTIAL VERSUS GENERAL EQUILIBRIUM ANALYSIS

Throughout the Schuh and Orden paper, emphasis is placed on general equilibrium analysis to the neglect of partial equilibrium frameworks. Although Schuh and Orden outline a number of limitations of partial equilibrium models, their legitimate concerns are never crystallized. In the context of exchange rate effects, are they concerned about better measurement, prediction, or explanation? Their position on these matters should be clarified because it has important implications for the research, teaching, and extension activities of our profession. Largely for purposes of simplicity, most of our efforts have focused on partial equilibrium rather than general equilibrium analysis.

A number of quibbles could be raised with regard to Schuh and Orden's application of general equilibrium analysis to agriculture. For example, they correctly argue that the domestic terms of trade ideally should determine relative social profitability. However, the index they suggest has one of the

same limitations as the parity index. In particular, both ignore relative productivity (cost) effects.

From a research strategy standpoint, the Schuh and Orden analysis should be extended to evaluate when partial equilibrium versus general equilibrium models should be utilized to analyze the effects of trade and macroeconomics on U. S. agriculture. There is clearly a trade-off between complexity and accuracy, and this trade-off should be taken into account in advocating a partial versus a general equilibrium approach to consider issues addressed by the Schuh and Orden paper. 5/

EMPIRICAL RESULTS AND CONCLUDING REMARKS

The empirical analysis conducted by Schuh and Orden is most peculiar. In their section entitled "Prima Facie Evidence of Macroeconomic Evidence on Agriculture," all they offer us is simple graphical comparisons and qualitative remarks regarding correlation analysis. In one figure, the U. S. money supply is compared with the real prices of agricultural commodities. They argue that the variables exhibit a clear correlation and that deviations from a very close association of these two variables are explained by the many other factors that affect agricultural prices. Similar conclusions are drawn from trends of real interest rates, real exchange values of the dollar, and real values of agricultural exports. In the former case, they report data from 1970-1984 while, in the latter case, data from 1967-1984 are recorded.

If general equilibrium analysis is the correct vehicle to evaluate the issues addressed by Schuh and Orden, it is rather surprising that the only empirical analysis they are prepared to advance is simple correlation analysis. For the periods over which they report data in their Figures 1 and 2, many of the causal forces that influence agricultural real prices and agricultural exports all pointed in the same direction. For example, through much of the 1980s, the relatively tight monetary policy, particularly in 1981 and 1982, came in conjunction with (1) record crops, (2) a significant decline in the rate of export growth from less-developed industrialized and Communist countries, and (3) increased competition from a large number of competing suppliers on world markets. In the early 1970s, production shortfalls occurred in conjunction with expansions in money supply and declines in the real exchange value of the dollar. Moreover, during this period, huge governmental stocks had been eliminated as a result of the Soviet grain deal. In contrast, during the early 1980s, public stockholding increased dramatically due to the record crops of 1981 and 1982. Also, in the early 1970s, real export demand growth occurred, in part, because of countries upgrading their diets and some Communist countries deciding to maintain their livestock populations regardless of real prices or the real exchange value of the dollar. These additional influences do not detract but, instead, enhance the apparent degree of simple correlation. Obviously, what is required is a complete model representation involving the system of relationships, both real and monetary, which can separate out the relative importance of different causal influences.

Even with the clarification offered in the above section on capital mobility, it should be noted that empirically no formal link has been established between capital flows and consumption, investment, or income in the United States. This is simply a hypothesis which has yet to be formally tested. Some leading authorities in international trade have argued that it is not possible to model capital mobility on the basis of economic influences. In other words, the systematic variations in capital mobility that can be explained by economic forces is unacceptably small. 6/

Finally, it is indeed unfortunate that Schuh and Orden leave the reader with the responsibility of drawing the implications of fiscal and monetary policies for rural America. Professor Schuh was the first to articulate with much clarity the significance of exchange rates on U. S. agriculture. I am sure if he had chosen to do so, he could have provided the same clarity in assessing the implications of monetary and fiscal policies on rural America. In this sense, the title of the Schuh and Orden paper is grossly misleading. They choose, instead, to focus on an open economy, capital mobility, international factors, and the exchange rate. The common theme throughout the paper is that macroeconomic effects on agriculture are important, but they work mainly through the effects of macroeconomic policies on exchange rates and the demand for agricultural exports. The preoccupation with trade is such that, even in discussing the issues of whether policy subsidizes or taxes agriculture, the discussion is cast in terms of nominal or effective protection. In tracing through the dynamic impacts of monetary, fiscal, and exchange rate policies on rural America, such a focus is far too constraining.

FOOTNOTES

1/ An alternative justification for differential price adjustments across sectors has been advanced by Hicks. His justification emphasizes the management of inventories; producers in fixed-price sectors hold inventory stocks for the purpose of meeting fluctuations and sale orders, and output adjusts to obtain the desired inventory sales ratio. However, in fixed-price sectors, inventory shocks are traded speculatively. Large price fluctuations thus result in a market process that balances demands for stocks with available supplies.

2/ This overshooting is analogous to the exchange rate overshooting studied by Dornbusch and amounts to either a tax or a subsidy for agriculture through relative price changes.

3/ To illustrate this point, as in Dixit and Newbery (1985), suppose there is a small country with three sectors. Let sectors 2 and 3 be subsidized; if a net output of sector 2 increases as a result of an increase in the price of good 1, it may be optimal to tax good 1. The calculation of optimal distortions, holding other distortions fixed, provides the type of empirical evidence necessary to support or refute the argument that agriculture should be subsidized to offset the distortions resulting from heavy subsidization of the nonagricultural sector. Of course, in the world of two goods, such a subsidy will bring the relative price between nonagricultural and agricultural goods closer to a free-market equilibrium relative price. However, in a world of many goods, such an outcome cannot be inferred.

4/ The Mundell-Fleming model presumes that the asset (bond) market is always in equilibrium and, therefore, is not specified. However, as noted in Tobin and de Macedo, changes in real interest rates, differentials, and exchange rates all create disequilibriums in the underlying asset markets. In a carefully specified model of IS/LM and the asset markets, Tobin and de Macedo show that many of the Mundell-Fleming propositions do not hold.

5/ Along these lines, the earlier work of Rausser and Just should prove useful.

6/ Along similar lines, Schuh and Orden focus on the importance of capital mobility from small countries to the United States, especially the oil-producing countries of OPEC. The importance they place on capital flows from these countries to the United States and its implications for income transfers is rather surprising. Given the capital controls imposed by many of these countries, it is difficult to believe that such impacts are significant.

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