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*Floating Exchange Rates, International Interdependence, and  
Agricultural Policy*

The Bretton-Woods Conference of 1944 established rules that governed the economic relations among countries for almost thirty years. An essential element of these rules was a dependence on fixed exchange rates. The competitive devaluations of the 1930s, which many authorities believed responsible (at least in part) for plunging the industrialized countries into depression, strengthened a natural aversion to floating exchange rates. Relations among currencies were to be fixed and changes were to be made only under dire circumstances. Equilibrium in the external accounts of individual countries was to be maintained by the use of appropriate domestic macro economic policies. If a disequilibrium in the external accounts developed, the remedy was to be sought first by changes in domestic policy. Only after domestic policies had failed was there to be a realignment of exchange rates.

The Bretton-Woods regime came to an end for all intents and purposes in March 1973, when generalized floating exchange rates were established among the industrialized countries. We now have a mixed system in which exchange rates float relatively freely among some countries (albeit with a great deal of intervention), but in which many countries still keep their exchange rates tied to the dollar or to other reserve currencies.

Exchange rate arrangements are, of course, more diverse than just fixed or floating. At a minimum, one can identify at least five different exchange rate regimes: (1) countries pegged to a single regime, (2) countries pegged to some "basket" of currencies, (3) countries that float jointly, (4) countries that float independently, and (5) countries that change their currency values on the basis of a predetermined formula. To gain some perspective on the significance of flexible exchange rate regimes, the IMF estimates that for total trade among member countries, less than one-fifth of such trade takes place with pegged rates and more than four-fifths of it takes place under floating rate regimes.

The main thesis of my paper is that the nature of the exchange rate regime has important implications for both agriculture and agricultural policy. It affects the way that monetary and fiscal policy affect the agricultural sector, and at the same time influences the nature of external

shocks to which the sector is submitted. An important conclusion of my paper is that under a regime of floating exchange rates the trade and trade-competing sectors have to bear an important share of the adjustment to changing monetary and fiscal policy. Hence, if a country either imports or exports agricultural products, its agricultural sector may be subject to more instability under a regime of floating exchange rates than under a regime of fixed exchange rates. From these conclusions there are important implications about such things as stocks policy, adjustment policy, and domestic price policy.

I would like to divide my comments into four parts: (1) a discussion of flexible exchange rates and economic independence; (2) an analysis of macro economic policy with flexible exchange rates and an international capital market; (3) an analysis of macro economic policy and agriculture; and (4) a discussion of some of the implications for agricultural policy. My analysis tends to draw more on the export case than on the import case, but it is important to recognize that the issues are pertinent to both groups of countries.

## FLEXIBLE EXCHANGE RATES AND ECONOMIC INDEPENDENCE

The conventional view of alternative exchange rate regimes has been that a system of flexible exchange rates would give individual countries more independence in their domestic macro stabilization policies. Moreover, an important assumption has been that greater stability in the domestic economy would be a logical consequence of such a system, for monetary and fiscal authorities would presumably be able to pursue policy measures more suited to the domestic situation, and would not have to impose adjustments on the domestic economy as a means to bring the foreign sector into equilibrium.

Those conclusions now seem overly sanguine. The problem is that such arguments largely neglect the capital accounts or the international capital markets. As I will attempt to show below, the international capital market can be an important means of linking one economy to another. Once they are linked by this means, a country has no more independence in its economic policy with flexible exchange rates than it has with fixed exchange rates, although it obviously gains an additional means of adjustment. With respect to the expected independence in policy making, it is worth noting that economic summits to co-ordinate economic policies have been much more frequent since exchange rates were freed than they were before.

Perhaps there was a time when international capital markets were not important. But that obviously is no longer the case. The Eurocurrency market, for example, is huge. Moreover, it is relatively easy to gain access to this market, and it is virtually free of regulation or intervention by national or international agencies. The availability of this large capital

market deserves a great deal of credit for the success with which international money markets handled the gorge of petro-currencies associated with the OPEC-induced hikes in oil prices. It also has now become an important means by which the economic policies of one country impact on another.

This "open" capital market of Eurocurrencies is not the only dimension to the international capital market, however, nor the only indication that capital is highly mobile among countries. Private banks and consortiums of private banks in the United States and in European capitals have also contributed in an important way to financing the short term balance of payments problems that low-income countries have suffered in recent years. In addition, these same banks and consortia have played an increasingly larger role in financing longer term development programmes.

The consequence of a high degree of international mobility of capital is that the interest rate is no longer a completely endogenous variable subject to the control of domestic monetary and fiscal authorities. Rather, the interest rate now takes on a high degree of exogeneity for many countries, depending on the relative importance of the country in international capital markets. The real interest rate is determined in international markets, with arbitrage tending to equalize the interest rate throughout the world.<sup>1</sup> This integrated capital market influences the way that monetary and fiscal policy impacts on an economy and at the same time provides a linkage among the policies of various countries. The equalization of interest rates is also why the close integration of international monetary markets is viewed by many as a mixed blessing. Movements of capital in response to small interest rate differentials are frequently alleged to frustrate the domestic stabilization policies of monetary authorities. Other complaints have been quite common lately and are one of the reasons why some countries want to return to a regime of fixed exchange rates.

## MACRO ECONOMIC POLICY WITH FLEXIBLE EXCHANGE RATES AND AN INTERNATIONAL CAPITAL MARKET

If the exchange rates are fixed and the international capital market is weak or non-existent, monetary policy will tend to have a rather broad effect on the domestic economy. To put it in its simplest form, a policy of monetary ease designed to stimulate the economy will lower interest rates, thereby stimulating the construction sector, investment, and consumption. A policy of monetary restraint, on the other hand, will raise interest rates, thereby choking off construction, investment, and consumption.

<sup>1</sup> Although real rates of interest will tend toward equality, nominal rates will differ to reflect inflationary premiums.

With flexible exchange rates and a well developed international capital market, the mechanism by which monetary policy operates is quite different. This difference is quite significant for agriculture if agricultural products are tradeables – either as exports or as imports. To illustrate what this difference is all about, let us suppose the authorities want to stimulate the economy, and assume again that they decide to do it through an expansion in the quantity of money. Monetary expansion will in the first instance put downward pressure on the rate of interest, other things being equal, and if capital is highly mobile there will be a capital outflow – an outflow that will continue until domestic and international interest rates are equalized if capital is sufficiently mobile. The consequence of the capital outflow is to bid up the price of foreign currency, which is to say that the value of the domestic currency would decline in international markets. The decline in the value of the domestic currency would make imports more expensive, while providing a stimulus to exports. The demand for domestic output would consequently increase, and adjustments in the trade sectors (and trade-competing sectors) would be the means whereby the authorities attain their stabilization objective.

The important point to note is that the channels through which the economy is stimulated are rather different than they would be if exchange rates were fixed and if capital were immobile, or if there were barriers to international flows of capital. An important effect of the monetary policy is through the trade sectors, whereas it would tend to be principally through the non-traded goods and services sectors if capital were not mobile. Although not directly pertinent to my paper, it is worth noting that this form of adjustment now constitutes one of the main threats to the maintenance of free international capital markets. The point is that governments are not likely to remain indifferent between whether their countries increase investment by lending abroad or by engaging in real capital formation at home. Under the present institutional arrangements, however, the attempt to stimulate capital formation at home is likely to lead to exports of capital.

Now, suppose as an alternative that the authorities want to restrain demand by pursuing a tight monetary policy or restraining the growth in the money supply. Upward pressure would be created on domestic interest rates, capital would flow in from abroad to bring about equalization, and the value of the domestic currency would rise in international markets. A rise in the value of the domestic currency would stimulate imports and reduce exports, other things being equal. The consequence would be to dampen down the economy – as policy-makers desire. But once again the effect of the policy would be realized through the trade sectors – through adjustments in the import and export sectors – and not through that part of the economy that is producing non-traded goods and services.

One should not conclude from this analysis that a system of relatively flexible exchange rates and a well developed international capital market is either better or worse than the previous system of fixed exchange rates and a poorly developed capital market. I frankly do not think we know

enough about how such a system works in practice to draw any firm conclusions. Moreover, I believe our current experience can be viewed largely as an exercise in trying to learn how such a system would in fact work. It would seem that the system of flexible exchange rates and relatively free international capital markets has served us quite well in our recent period of stress. However, the new system creates a quite different environment for agricultural policy, especially if trade in agricultural products is important. And that is what I want to turn to next.

## MACRO ECONOMIC POLICY AND AGRICULTURE

An important implication of this analysis is that macro economic policy has a quite different effect on agriculture under the two exchange rate regimes. With fixed exchange rates the main effect of changes in monetary policy was transmitted to agriculture through the inter-sectoral labour market. Demand for agricultural output over the cycle was relatively stable and agricultural capital markets were relatively isolated from conditions in national monetary markets. Moreover, a major share of the capital for agricultural investment came from internal financing.

Tight money policies, however, almost inevitably lead to higher levels of unemployment. Out-migration from agriculture is quite sensitive to the level of unemployment. And the rate of out-migration has a great deal to do with the income of farm people. Hence shifts in monetary policy impacted on agriculture in large part through the labour market.

Under the new situation, the effect of macro economic policy is quite different, especially if agriculture is either an export sector or if agricultural products are imported in significant quantities. In the first place, demand for domestic agricultural resources will no longer be relatively stable. On the contrary, it will shift in response to changes in monetary policy, with the source of the shifts being either shifts in foreign demand or foreign supply (depending on whether an importer or exporter).

But there are other effects as well, especially if the international capital markets are well developed. Capital will flow back and forth from one country to another in response to shifts in monetary policy. Such shifts may make for a more efficient use of the world's resources. On the other hand, they may create serious stabilization problems for individual countries, as well as political difficulties.

Finally, asset values in agriculture – especially the value of land – will be sensitive to the exchange rate. This will be both a product-market and capital-market effect. But it also has important implications for further capital formation in agriculture.

## IMPLICATIONS FOR AGRICULTURAL POLICY

One of the first implications is that world agriculture will tend to be more

unstable in the new regime than it was in the past. Given that agricultural trade is important to a large number of countries, agriculture in individual countries can expect to experience larger shocks in the future due to shifts in monetary policy and exogenous shifts of capital. Moreover, for exporting countries, the effects of those shifts will be transmitted in such a way that they affect the demand for agricultural output. Hence, in the future we should expect to have a rather unstable demand for the agricultural output of individual countries, in marked contrast to the past, with the source of that instability coming from the foreign sector, even though those fluctuations of foreign demand are an indirect consequence of domestic monetary and fiscal policy.

It is also important to note that there can be important international flows of capital that have little to do with domestic monetary and fiscal policy, and that these can impose further exogenous shocks on agriculture. For example, a shift out of other currencies into dollars can cause the value of the dollar to rise, thereby reducing the foreign demand for US exports, other things being equal. Similarly, a shift out of dollars into other currencies, for whatever reason, can cause the value of the dollar to decline, thereby stimulating exports. These monetary shifts, whether motivated by speculative motives or more basic investment decisions, can be an important source of shocks to US agriculture as well as to the agriculture in other countries.

Central banks can sterilize both the external shocks and the induced changes in the exchange rate by an appropriate open market operation in the foreign exchange markets. There are limits to the amount of such interventions, however, since foreign exchange reserves are not typically unlimited. But when there are such interventions, of course, the system has moved away from flexibility and back towards a fixed exchange rate regime.

There are a number of implications that follow from this analysis. The first is that agriculture in the aggregate is not noted for its flexibility in adjusting to changing economic conditions, although as modernization takes place it may have more flexibility than it has under more traditional conditions. But the biological process inherent in agriculture clearly affects its responsiveness, and with sectors such as beef that have large inventory components accelerator effects can cause policy to be rather destabilizing. This raises doubts about monetary and fiscal policies that depend for their effectiveness on adjustments in sectors such as agriculture. Although agriculture is relatively unimportant in the total economy of many countries, it is sufficiently large that it could attenuate the effectiveness of monetary and fiscal policy.

Another implication for agriculture follows from the accelerator effects and the livestock sector. Recent experience of the US is again an interesting example. Shifts in grain prices, induced at least in part by shifts in exchange rates, are imposing shocks on both the beef and pork sectors – and at rather critical times in their production cycles. Managing these effects is quite a challenge to policy makers.

Another implication, of course, is that agricultural economists have another important reason for taking a greater interest in monetary and fiscal policy. Moreover, their perspective has to be somewhat different from what it has been in the past. Direct effects of such policies will probably be even less important than they have been in the past, with the indirect effect through fluctuations in exchange rates taking on added importance.

A corollary of this, of course, is that in a world of flexible exchange rates macro economic policy makers are *not* likely to leave as much autonomy to agricultural policy as they do in a world of fixed exchange rates. Rather, food and agricultural policy is likely to be woven much closer into the overall fabric of general economic policy.

The policy with respect to grain reserves also takes on a somewhat different perspective than it has had in the past. The presence of reserves or a reserve system could serve to blunt the effectiveness of monetary and fiscal policy. In a period of economic slack, when the government was increasing the money supply, the desired consequence would be that the increase in foreign demand that resulted from the decline in the exchange rate would lead to an increase in agricultural output and the demand for factors of production. But if stocks were released to meet this foreign demand, say because a relatively inelastic short-run supply caused food prices to rise in the face of this shift of demand, the effect could be to reduce the stimulus to factor demand. If the authorities had a target level for reserves, the reduction in stocks would eventually lead to an increased demand in order to rebuild them. But this would be only after a lag.

Grain reserve policy traditionally has been viewed in large part as a means of offsetting fluctuations in supply, especially domestic supply. In an economy with floating exchange rates, especially if the country should be an agricultural exporter, reserves may have multiple objectives. This new perspective needs to be introduced into our analyses of grain reserves.

Another issue has to do with domestic agricultural policies that attempt to fix agricultural prices. Clearly that will be much more difficult to do with a regime of floating exchange rates. A system of price bands, or price corridors, similar to what the US now uses, is likely to be the more common approach. It is interesting to note that our own domestic price policy took this approach starting with the 1973 farm legislation – the very year we shifted to a system of floating rates.

Finally, we seriously need to develop more effective positive adjustment policies to deal with the shifts in demand against domestic agricultural resources that are likely to occur in the future. The growing availability of off-farm employment for farm people in many countries provides an important adjustment mechanism. But that alone is not likely to be sufficient to handle the resource shifts expected under a system of flexible exchange rates.



## CONCLUDING REMARKS

The days when agriculture in most countries could be analysed through the prism of a closed-economy model are long since over. It is not just that the volume of agricultural trade has grown so rapidly, or that individual countries have become more dependent on trade. The shift to floating exchange rates has changed the way that domestic monetary and fiscal policy impact on the sector, and also exposes the sector to a wider range of external shocks. And the growing integration of international capital markets had important implications for agriculture.

We have a great deal of sorting out to do before we fully understand the new circumstances in which we now find ourselves. At the same time, the need for new institutional arrangements is ever before us. Institutional innovation is needed for both our domestic economies, and for the relationships we have with other countries. Our challenges in the next decade are quite great.

## REFERENCE

Schuh, G.E. "The New Macroeconomics of Agriculture," *American Journal of Agricultural Economics*, December 1976.

## DISCUSSION OPENING – PETER RIEDER

Dr Schuh has written a very interesting paper on Floating Exchange Rates, International Interdependence, and Agricultural Policy. He has discussed the very complex interrelationships between capital markets and agriculture. The issues are specially important for countries, where the agricultural import or export is an essential part of the whole economy. This may be the case for the USA, Canada and some others. Looking at previous papers I found a controversy about the influence of changes in exchange rates in the USA. I refer to the articles of Mr. Schuh from 1974 and 1976 in the *AJAE* and to Kost's and Vellianitis' articles in *Agr. Econ. Research* in 1976, as well as a reply on that article.

Mr Schuh argues that macro economic policy or money policy has an important influence on agriculture. I understand his argument concerning the interrelationships between money policy, levels of unemployment, out-migration from agriculture and income of farm people. However, reasons other than exchange rate policy may be much more important as well in US agriculture as in other developed market economies.

The *main* conclusion of Dr Schuh's paper is that floating exchanges rates influence the international agricultural trade and that agriculture will tend to be more unstable in the future. He assumes an unstable foreign demand for agricultural products as a consequence of the changing value of the dollar (US). Looking at earlier papers, I could not find any empirical evidence for this hypothesis.

The main question remains, how big are the price elasticities of demand for exporting products? At the same time we have to take into consideration the import restrictions of the main importers. For instance, the European Community applies trade restrictions for some products. Furthermore, I do not know whether USSR imports are related to prices. Maybe our Russian colleagues can tell us something about their behaviour to world market prices.

I also wonder whether developing countries are in a position to buy agricultural goods in hard money. The oil exporting countries may be the exception.

In conclusion, the price elasticities for agricultural products may be low, due to the mentioned behaviour of the big importers. The agricultural trade has grown rapidly in the past. The main reason for this expansion seems to be the additional demand of several countries outside the western capital market. Short run changes in demand are more caused by weather or political conditions.

Finally, I would like to ask Dr Schuh if he were a decision-maker whether he would advocate fixed or floating exchange rates for stabilising the international agricultural trade.

#### GENERAL DISCUSSION – RAPPORTEUR: WILFRED MWANGI

The paper was recognized as raising very important and relevant economic considerations often overlooked by agricultural economists. It was felt, however, that it concentrated too much on the US and its relevance to other countries was questioned. Thus, it was suggested that more research should be done to get a better perspective of the relationship between the changes of the exchange rate and the impact on agricultural policy not only for one country but for the most important countries and commodities.

Attention was called to the impact of currency market uncertainties which result in fluctuating exchange rate, especially with respect to the Common Agricultural Policy of the EEC. For instance, the monetary compensatory amounts, which were created in response to changes in relative currency values within Europe, strengthen the pressures to bring about a revision of the CAP. This will have an important impact on the international trade of major agricultural products.

It was further felt that the author arrived at certain conclusions in the paper due to the assumptions he made depending on whether he was analysing the effects of fixed or floating exchange rates. For example, in analysing the effects of fixed exchange rates he assumed that capital was immobile or that there were barriers to international flows of capital. On the other hand, in analysing the effects of floating exchange rates he allowed for mobile capital. Thus the

different effects which emerged from the analysis were not only due to the different exchange rate regimes but also, and perhaps mainly, due to the different assumptions about mobility of capital. The author further neglected the fact that national agricultural policy very often tends to compensate for changes in exchange rates by applying national instruments and other policy devices; also that imported inflation in a less inflationary country can be an alternative to floating exchange rate and this will affect agriculture.

Further questions were raised with regard to introduction of non-tariff barriers to trade, shift from currencies to real commodities, whether world agriculture was more stable, depreciation of agricultural commodities in terms of gold and the implication of exchange rate regimes to less developed countries in regard to resource use, their agricultural products and their debts to developed countries in general.

In response, Dr Schuh stressed the fact that he would want to depersonalize his paper, as the contents were no invention of his as the comments from the floor tended to imply. Nor did he want to advocate one or the other type of exchange regime. He contended that empirical evidence was not conclusive as to how the system operates. He regarded this as a continuing learning process especially in a floating exchange rate regime. In general he was in agreement with most of the observations. The study, he argued, was relevant to all countries. To illustrate this, as well as in responding on the impact of exchange rate to LDCs, he gave the example of the formation of OPEC due to depreciation of the dollar. On the whole he felt that the issues raised could only be answered as more empirical evidence was generated through further investigation.

Participants in the discussion included Ulrich Koester, Adolf A. Weber, Margaret Loseby, Michel Petit, Clark Edward, Howard Osborn and Caleb W.W. Wangia.