Staff Papers Series

Staff Paper P84-18 June 1984

Third-Country Monetary Disturbances in a Changed International Economy: The Case of Brazil and Mexico

by

G. Edward Schuh

Department of Agricultural and Applied Economics

University of Minnesota
Institute of Agriculture, Forestry and Home Economics
St. Paul, Minnesota 55108

Third-Country Monetary Disturbances in a Changed International Economy: The Case of Brazil and Mexico

by

G. Edward Schuh*

*Professor and Head, Department of Agricultural and Applied Economics, University of Minnesota, St. Paul, Minnesota

Draft
April 4, 1984

THIRD-COUNTRY MONETARY DISTURBANCES IN A CHANGED INTERNATIONAL ECONOMY: THE CASE OF BRAZIL AND MEXICO*

G. Edward Schuh**

Two considerations motivated the research which underlies this paper. The first was the desire to understand what has happened to Brazil and Mexico - two countries that after rather successful growth experiences over substantial periods of time have become the foci of international attention as they experienced foreign debt and liquidity crises of unusual magnitude and threatened to bring the international financial system down around all our collective heads. The second was the desire to better understand the emerging international economic system and how it affects the economic performance of individual countries.

Brazil and Mexico are two rather different economies, yet the sources of their respective difficulties have some important commonalities. Brazil represents the epitome of autarchic development, having pursued import-substituting industrialization policies with a particular vengeance for approximately 30 years. As a consequence of those policies it has one of the most closed, if not the most closed economy of the world. Exports are

---

* Prepared for 75th Anniversary Colloquium of Harvard Business School, "Colloquium on World Food Policy", Harvard University, Cambridge, Massachusetts, April 8-11, 1984. A preliminary version of this paper was presented at the semi-annual meeting of the Agricultural Trade Research Consortium, Tucson, Arizona, December 15-16, 1983.

** Professor and Head, Department of Agricultural and Applied Economics, University of Minnesota, St. Paul.

equivalent to approximately 8 percent of GDP.

Mexico has also pursued import substituting industrialization, but not quite with the same intensity as Brazil. Moreover, in contrast to Brazil, Mexico discovered large oil reserves at a time when it could extract significant economic rents from the international community by exploiting that scarce resource. Despite that good fortune, Mexico still has suffered a severe crisis due to its difficulties in servicing its international debt.

In both cases, external observers have blamed the difficulties of each country on a failure to live within their means, excess optimism, and bad policy. Observers within the countries, on the other hand, have blamed their difficulties on external conditions - and in particular on tight U.S. monetary policies.

The theme of this paper is that both countires have a very real sense been victimized by changes in the international system that are as of yet poorly understood. Clearly, misjudgments about policy and institutional arrangements contributed importantly to the problems each country has experienced, and especially to the severity of their respective crises. It is an open question, however, whether more rational policies would have enabled either country to escape entirely the difficulties they have experienced.

In the case of both countries, we will provide some evidence that domestic policies discriminated against agriculture prior to the crisis of the early 1980's. Had different trade and exchange rate policies been in effect, the external shocks to the agriculture of each country and to its respective economy as a whole might have been significantly less.

A secondary theme of my paper is that international institutions and political arrangements have not kept up with the degree of internationalization of the world's economy. In light of these deficiencies, it is an open question whether any country can escape significant adjustments when the magnitude of the external shocks are so great. The challenge to economists, political scientists, and political leaders is to design institutional arrangements that provide for better management of the international economy. This will not be easy given the strength with which nationalistic values still dominate the international economy. In any case, domestic monetary policy and international monetary conditions have become important components of the world food policy scene. Moreover, monetary policy is now an important part of the public decisions which private decision makers have to take into account.

My paper is divided into four parts. The first part contains a brief review of recent changes in the structure of the international economy. The second part briefly reviews the recent experience of Brazil in its relations to the international economy, while the third part discusses Mexico's experience. The fourth section discusses some of the institutional and policy implications that follow from the previous three sections. At the end I will have some concluding comments.

Changes in the Structure of the International Economy

The last 15 to 20 years have witnessed unprecedented changes in the structure and institutional arrangements of the international economy. These changes affect in important ways how individual economies relate to each other. They alter in fundamental ways the impact of macroeconomic policies on individual countries. And they alter the extent of andqualitative dimensions of economic integration on the international scene.

Some of these changes are of substantial significance to international commodity markets. Some are also of great significance to countries like Brazil and Mexico which in the past have integrated themselves into the international economy in particular ways.

Increased Dependence on Trade

The world has become increasingly well-integrated through trade during the post-World War II period. With the exception of three years, international trade has grown at a faster rate than has world GNP. Two of those three years were 1981 and 1982, a period which witnessed the most severe economic recession of the post-World War II period.

That international trade has grown at a faster rate than world GNP means that many if not most countries have become increasingly dependent on international trade. Put somewhat differently, this means that the countries of the world have become increasingly open to trade. In the case of the United States, this change has become very significant. During the 1970's, the openness of the U.S. economy approximately doubled. Considering only agriculture, for example, the share of demand that derived from trade increased from 12.7 percent in 1970 to 26.7 percent in 1979.[1] Measured in terms of the share of cash marketings attributed to foreign markets, the

---

[1]See Tweeten, Luther, "Excess Farm Supply: Permanent or Transitory?", paper presented at National Agricultural Policy Symposium, March 28, 1983, Kansas City, Missouri.

percent increased from about 12.5 percent in 1970 to 25 percent in 1979. By 1981 this share was up to over 30 percent.

Other parts of the U.S. economy are not as dependent on trade as is agriculture, but the rest of the economy also became more open during this same period. Hence, the general dependence on trade of the U.S. economy as a whole also doubled during the 1970's, from about 6.5 percent to about 12.5 percent. If one extends the period backward only five years (to 1965), the openness of the U.S. economy as a whole tripled.

Brazil continues to be one of the most closed economies of the world, with exports being equivalent to only approximately 8 percent of GDP. To pay its much enlarged foreign debt, however, it will undoubtedly be forced to open its economy, and now appears to be doing so.

The growth in Mexican petroleum exports during the latter half of the 1970's and early 1980's undoubtedly increased the openness of its economy. Moreover, an important aspect of the openness of the Mexican economy is the large migratory flow of labor with the United States - a flow that may well be giving Mexico a structure of factor prices more consistent with an advanced, industrialized country than with a less-developed country.

Finally, it should be noted than an important consequence of a more open economy is that a larger and larger share of its economic activities are beyond the reach of domestic economic policies. This is an important source of frustration to policy makers in many countries. It is a point to which we will return below.

Emergence of a Well-Integrated International Capital Market

International capital markets at the end of World War II were debilitated and virtually nonexistent. Such transfers of capital as there were among countries were on a government-to-government basis, and they were called foreign aid. At one time such transfers were fairly significant. At the peak of the Marshall Plan, for example, the U.S. transferred capital equivalent to more than 3 percent of its GNP per year to Western Europe for the reconstruction of its economy.

In the 1960's there emerged a Eurodollar market which grew at a very rapid rate. Later, the base of this market broadened to be a Eurocurrency market. The volume of credit in this market is now huge - recent estimates put the total amount of credit outstanding at U.S. $1.7 trillion. Moreover, this market is almost completely outside direct government control in the sense that it is completely unregulated.

Almost all countries use this international capital market. The U.S. and other industrialized countries use it. The less-developed countries use it. And even the centrally-planned countries use it. The market enables all these individual countries to gain access to funds, which may be mobilized by individual banks or consortia of banks.

The important thing about this market is that it links the national economies of the world in ways that are every bit as important as the linkages through trade. Equally as important, it links the economic policies of the various countries of the world together.

Some aspects of this international capital market are now well recognized, especially as a source of capital. Brazilians, for example, well recognize that the price they have to pay for capital is determined in this market, and that disturbances in this market can well disturb their own economy. What is less well-recognized is that in light of the shift from a system of fixed exchange rates to a system of flexible exchange rates, this international capital market also provides an important link between monetary policy in a country such as the United States and international commodity markets. This point will be further elaborated below.

The Shift From a Fixed Exchange Rate Regime to a System of Flexible Exchange Rates

At the Bretton Woods Convention in 1944 it was agreed that the international monetary system would operate at the end of the war with, among other things, a system of fixed exchange rates. Once these exchange rates were agreed to, they were to be changed only under dire circumstances. Imbalances in external accounts were to be corrected by changes in domestic policies. Deficits in the external accounts, for example, were to be corrected by pursuing tighter monetary and fiscal policies. Surpluses, on the other hand, were to be reduced by stimulating the economy. The same applied to domestic imbalances such as inflation or unemployment.

This fixed exchange rate system was established in part to avoid beggar-thy-neighbor competitive devaluations, which many observers believed contributed to the severity and world-wide scope of the Great Depression. This system served at least the industrialized countries of the world reasonably well for a period of almost 30 years. However, the United States learned during the 1960's that it could finance the Vietnamese War and expand domestic social programs by imposing an inflation tax on the rest of the international economy. The U.S. dollar consequently became increasingly overvalued while other currencies, especially the German Deutschmark and the Japanese Yen, became increasingly undervalued.

Other countries of the world thought the U.S. should devalue, while the U.S. thought Germany and Japan should revalue their currencies. After a political impasse, the U.S. finally devalued the dollar in 1971. When this did not eliminate its balance of payments deficits as expected, the U.S. devalued again in 1973, closed its gold window, and forced the world to a system of floating exchange rates, which is the system that prevails still today.

As the system now operates it might best be described as a system of bloc floating. A fairly large number of countries, including Brazil and Mexico, keep the value of their currencies pegged in one form or another to the value of the dollar. Others keep their currencies pegged to the value of the French franc, and still others to the pound sterling. However, although a currency such as the Brazilian cruzerio may be pegged to the value of the U.S. dollar, it will float vis-a-vis other currencies as the value of the dollar floats vis-a-vis those other currencies. Hence, although there is a degree of "fixity" in the system, there is also a great deal of flexibility. Recent estimates indicate that approximately 85 percent of world trade has been taking place across flexible exchange rates.

This shift to a system of flexible exchange rates was a very significant change in the structure of the international economy and how it operates, especially in light of the emergence of a well-integrated international capital market. It was also of major significance to individual countries, since it changed in a very significant way the way in which changes in monetary policy affect the economy. The significance of these changes is not sufficiently well recognized.

We can illustrate these changes by considering the case of the U.S., a country that is of considerable trade importance to both Brazil and Mexico. Suppose the U.S. decides to slow down its economy. It can do that by pursuing a tight monetary policy. Prior to the changes in the structure of the international economy we have been considering, the effect of this tight monetary policy would have been felt rather broadly in the economy in the form of higher interest rates. Under the new structure, that no longer is the case. As interest rates start to rise, capital flows into the country (or flows out at a lower rate) and this in turn causes a rise in the value of the dollar. A rise in the value of the dollar causes U.S. exports to be less competitive in foreign markets and therefore chokes off the export sectors. A rise in the value of the dollar also causes imports to come in at lower prices in terms of the domestic currency, with the result that the domestic import competing sectors are also choked off.

The monetary authorities have accomplished what they wanted to do. However, under the new international structure, the burden of the adjustment is forced onto a fairly narrow part of the economy, with agriculture as an export sector having to bear an important part of the adjustment. If the monetary authorities decide, on the other hand, to stimulate the domestic economy, they will pursue an easy monetary policy, interest rates will tend to decline, capital will flow out of the country, the value of the dollar will decline, exports will be stimulated and so will import-competing sectors since imports will become more expensive in terms of the domestic economy. Again, the monetary authorities accomplish what they want to do, but a fairly narrow sector of the economy is bearing the costs.

This change in the system has been of very great significance to U.S. agriculture. As we will show below, it is also a very great significance to the agriculture of other countires such as Brazil and Mexico. In the case of the U.S., agriculture went from being a sector of the economy that was virtually completely isolated from shifts in monetary policy, to a situation in which it has to bear an important share of the burden of adjustment to shifts in monetary policy. This is of very great significance when it comes to devising proper domestic commodity policies and programs, both in the U.S. and elsewhere.

Increase in Monetary Instability

My own inclination in discussing this topic is to put the emphasis on the significant increase in U.S. monetary instability. After all, U.S.

monetary policy did become significantly more unstable starting in about 1968, and the world is essentially on a dollar standard.[2] During the 1950's and the 1960's, U.S. monetary policy was quite stable, as was the U.S. economy.

My colleagues and friends in the banking community don't like for me to put all the blame on U.S. monetary authorities, however. They point out, and perhaps properly so, that there have been significant exogenous shocks from the international community as short-term capital funds have sloshed around the international system seeking the highest rate of return and haven from political instability. And perhaps the real source of our difficulty is the emergence of the well-integrated international capital markets, which make it possible for funds to move around with relative ease.

For our purposes here it matters only in limited ways where the source of the monetary shocks was located. The important points seem to be as follows. Starting in about 1968, U.S. monetary policy did become very unstable. Periods of extreme monetary tightness have alternated with periods of extreme monetary ease. Real interest rates in U.S. money markets have vacillated from periods in which they were significantly negative in real terms to periods in which they were at record-high levels both in nominal and real terms. This policy has been characterized by its critics as stop-and-go, zig-zag, and a few other euphemistic expressions.

---

[2] McKinnon, R. I., "Currency Substitution and Instability in the World Dollar Market", American Economic Review 72(3): 320-333 (June 1982).

This instability in U.S. monetary policy has been exacerbated by other developments. First, there was a significant infusion of international reserves into the system in the early 1970's by the creation of SDR's. Second, although the world essentially went off the last remnants of the gold standard in 1968, the wild gyrations in the price of gold since 1973 have undoubtedly imposed significant shocks on the international monetary system. Third, the huge generation of petrodollars when OPEC raised the price of oil in 1973 and again in 1979 undoubtedly added to international monetary instability.

Whatever the source of the monetary disturbances, it is clear that they occurred in a significantly changed international system. At the very time the structure of the international economy had changed so that monetary policy and monetary conditions affected domestic economies by inducing changes in the export- and import-competing sectors, these factors became quite unstable. This increase in monetary instability has imposed large monetary disturbances on international commodity markets. What has widely been interpreted as weather shocks - as if we hadn't had weather before - was in large part, although not entirely, due to a significant increase in monetary instability in the context of a changed structure of the international economy that caused that instability to be translated to international commodity markets.

These commodity markets include more than agricultural products, as U.S. automobile and textile workers can well attest. Our focus for present purposes will tend to focus on agricultural commodity markets, however.

Implications of this Changed System for Brazil[3]

These changes in the international system are of great importance for a country such as Brazil, especially when combined with other institutional arrangements that are an important part of the international agricultural economy. The implications to Brazil in terms of credit itself have been widely recognized, especially in light of Brazil's very large foreign debt, much of it held with variable interest rates. The more general and perhaps equally as important implications in terms of commodity markets is less seldom recognized. It is to these issues that I now turn.

Perhaps the best way to analyze the implications of this changed economic environment for Brazil is to first assume that it had a floating exchange rate, and then to consider the consequences of keeping the value of the cruzeiro more or less pegged to the value of the dollar. It is important to recognize that the changes impact Brazil's agricultural sector both as a competitor of the U.S. in some foreign markets and as an exporter of tropical products both to the United States and to other countries.

---

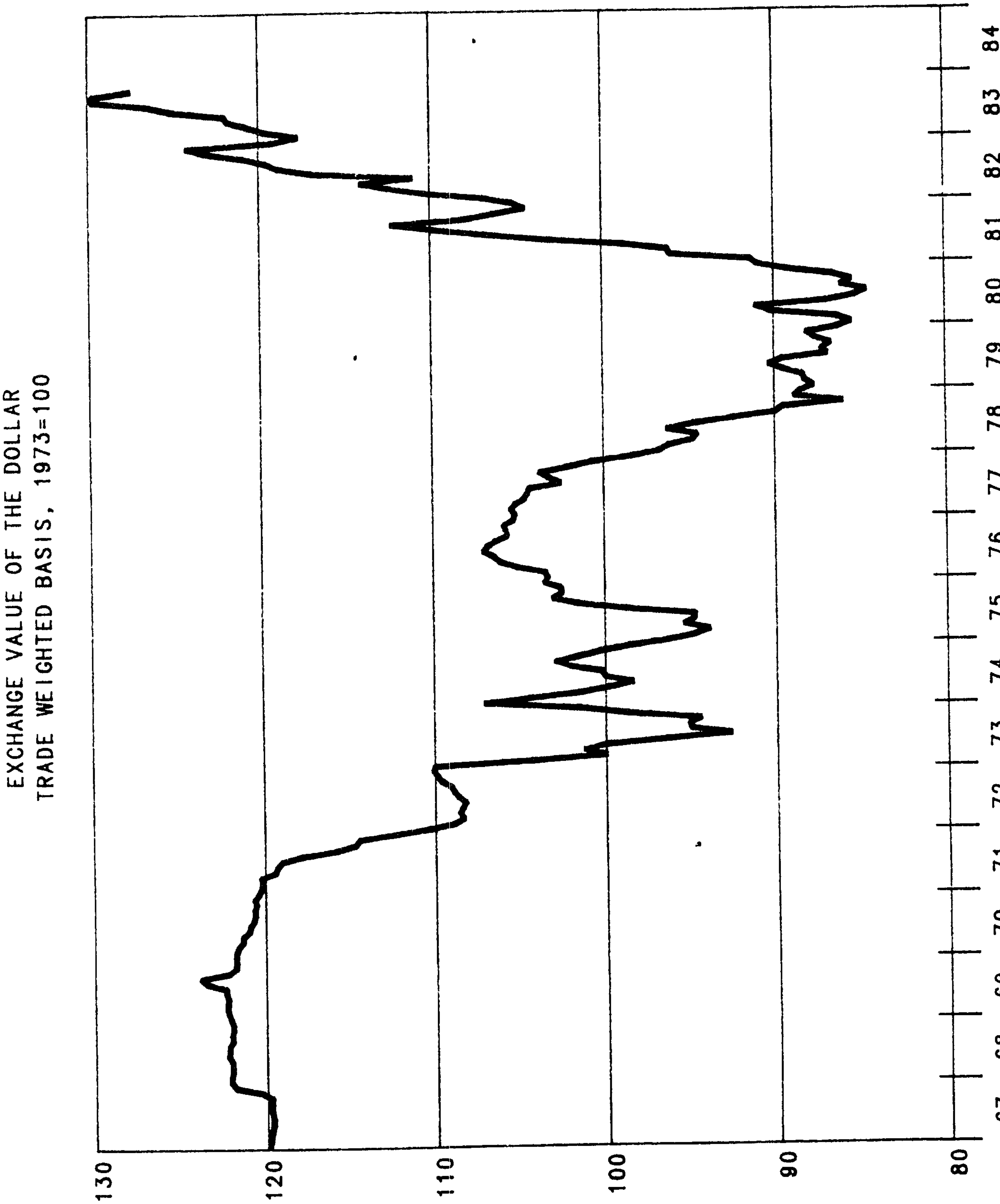
[3]This section is taken from a paper I prepared for the World Bank, "Food and Agriculture Price Policy in Brazil: Some Selected Topics," December 7, 1983.

Consider first the case assuming that the cruzeiro/U.S. dollar exchange rate were flexible. Further, recognize that in the period since 1973 there have been two large swings in the value of the dollar in foreign exchange markets (see Figure 1). The first was the very large decline - roughly 28-30 percent in real terms from its first devaluation in 1971 to its low point in 1980. This was followed by an equally large rise in the period 1980-83, which was approximately of the same amount in real terms as the previous decline. In fact, this large rise was the second largest rise in the value of an industrialized country's currency in history - second only to rise in the value of the pound sterling after the opening of the North Sea oil fields and Margaret Thatcher's tight monetary policies.

It is important to understand what caused these large swings in the value of the dollar since it illustrates how factors traditionally viewed as "foreign" to agriculture can have a significant impact on it in the new economic environment. Two factors explain a large part of the decline in the value of the dollar in the 1970's. The first was the petroleum crisis and the U.S. response to it. The second was U.S. monetary policy.

In terms of the petroleum or energy crisis, the U.S. failed until 1980 to pass the significant increases in these prices into the domestic economy. The domestic petroleum industry was highly regulated, with domestic prices fixed in an economy that was experiencing inflation. Consequently, domestic producers of petroleum had very little incentive to increase production and domestic consumers had very little incentive to economize on its use, except for the disin-

Figure 1


EXCHANGE VALUE OF THE DOLLAR
TRADE WEIGHTED BASIS, 1973=100
130
120
110
100
90
80
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84

centive imposed by queuing and the value of their time. In effect, the U.S. was implicitly subsidizing the importation of petroleum at the very time its price in international markets rose dramatically. This caused the U.S. import bill for petroleum to burgeon.

On the side of monetary policy, the situation was equally infelicitous. Inflation was out of control and U.S. monetary policy was quite erratic. There was a general fleeing from the dollar as U.S. monetary authorities monetized the debt created by budget deficits.

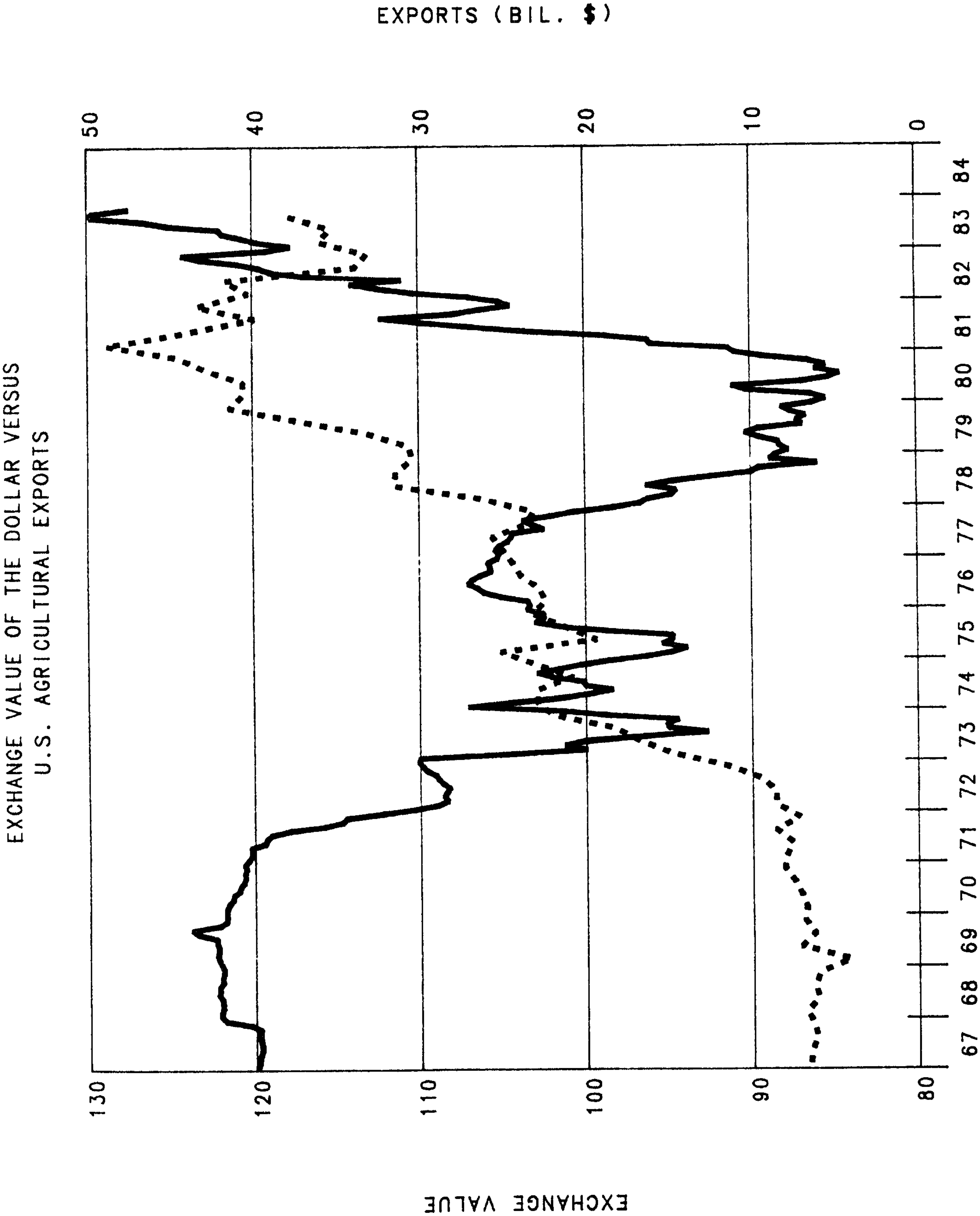
Starting in about 1980, however, both of these conditions changed. First, one of the first things President Reagan did after assuming the presidency was to deregulate (almost, but not completely) the petroleum industry. Domestic prices rose to border price levels, with the result that consumers had strong incentives to economize on their use of energy and producers had strong incentives to explore for new sources and to increase production. In a short period of time this change in policy led to a world petroleum glut. Most importantly, it caused the U.S. petroleum import bill to decline dramatically, which contributed in an important way to the strength of the U.S. dollar in the early 1980's.

On the monetary side, starting in October 1979 the Federal Reserve stopped monetizing the debt created by the deficits in the federal budget, and began pursuing a tight monetary policy. The result was interest rates that peaked at record levels in the first half of 1980, declined in mid-year as the monetary brakes were released, but peaked again at a new high in 1981. They have since declined in nominal terms, but in real terms they are still at very high levels. The most severe economic recession of the post-World War II period has been the result. This recession has affected international commodity markets in its own right. But the realignments in exchange rates associated with it have been as important, if not more important, then the period of economic slack, especially for countries such as Brazil.

Let's consider now the consequences of the realignments in the exchange rate. The fall in the value of the dollar in the 1970's led to an unprecedented export boom for the United States, dramatically illustrated by agriculture but equally as important for exports from other sectors (see Figure 2). The United States capitalized on its comparative advantage in agriculture and other products. In dollar terms, the price of U.S. commodities rose significantly. In terms of the currencies of other countries, however, they declined. Had the value of the cruzeiro been floating at that time, Brazil would undoubtedly have had a difficult time competing with U.S. soybeans and more than likely would have had a difficult time penetrating the international market for orange juice.

The fall in the value of the dollar also made imports to the U.S. more expensive in terms of the domestic economy. This is important because, although the U.S. is the world's largest exporter of agricultural commodities, it is also one of the largest importers - generally second only to Germany. Had the cruzeiro been floating relative to the dollar, its exports of tropical products to the U.S. would undoubtedly have declined and prices of these

Figure 2


EXCHANGE VALUE OF THE DOLLAR VERSUS
U.S. AGRICULTURAL EXPORTS
EXPORTS (BIL. $)
50
40
30
20
10
0
130
120
110
100
90
80
EXCHANGE VALUE
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84

products in Brazil also would have declined.

The rise in the value of the dollar in the early 1980's has had just the opposite effect. The U.S. lost a great deal of its competitive edge in international commodity markets (see Figure 2). Moreover, prices in those international markets have been translated into the domestic economy at relatively low levels. This has created a serious farm problem, exacerbated by rigid domestic commodity programs which have priced U.S. products even further out of international markets, provided strong incentives to producers in other countries to produce, provided a price umbrella for producers in other countries, and precluded proper adjustment at home. The result has been a significant loss in market share for the U.S., and a large accumulation of stocks at home.

If the cruzeiro had been floating vis-a-vis the dollar at this time, Brazil would have benefited in a relative sense on products it exports in competition with the U.S. such as soybeans, orange juice, poultry and to a lesser extent corn. Similarly, it would have benefited on the side of tropical products which it exports directly to the U.S., since the rise in the value of the dollar causes imports to be cheaper in terms of the domestic economy. The increase in the quantity demanded of these products would have led to larger exports on the part of Brazil and higher prices for Brazilian producers.

Now, consider the fact that for all practical purposes the value of the cruzeiro has been pegged to the value of the U.S. dollar. This pegging has not been rigid, since Brazil has for some time been using a crawling peg exchange rate system. But in a general sense the value of the cruzeiro has been tied to the value of the U.S. dollar.

Interestingly enough, Brazil benefited from this system during the 1970's when the value of the dollar was weak. In terms of products which it exports in competition with the U.S., such as soybeans, it did not gain relative to the U.S. But it did gain relative to other countries whose currencies were rising in relation to the dollar, and in relation to countries whose currencies were tied to currencies that were rising in relation to the dollar. Similarly, the lack of a significant realignment of the *cruzeiro* vis-a-vis the dollar in this period meant that the decline in the value of the dollar in foreign exchange markets did *not* choke off imports from Brazil of tropical products. Hence, Brazil benefited in terms of both categories of its exports.

Data on the nominal and real *cruzeiro*/dollar exchange rate are presented in Table 1. One can observe that in real terms this rate was maintained relatively stable during the 1970's, with the result that relative to other currencies, the value of the *cruzeiro* declined as the value of the dollar fell (see Figure 1).

In the period in which the value of the dollar has been rising, however, the consequences have been just the opposite, and of considerable importance to Brazil. In fact, it probably helps to explain a great deal of the current crisis, and the inability of Brazil to meet its foreign debt obligations. When the value of the dollar rose, the value of the *cruzeiro*

TABLE 1

BRAZIL: NOMINAL AND REAL EXCHANGE RATES

YEARS	NOMINAL EXCHANGE RATE	REAL EXCHANGE RATE[1/]
1950	0.018	4.68
1951	0.018	4.26
1952	0.018	3.80
1953	0.018	3.33
1954	0.076	10.87
1955	0.067	8.40
1956	0.066	7.13
1957	0.090	8.88
1958	0.138	12.23
1959	0.204	13.00
1960	0.205	10.11
1961	0.318	11.39
1962	0.475	11.04
1963	0.620	8.27
1964	1.850	12.91
1965	2.22	11.01
1966	2.22	7.90
1967	2.71	7.73
1968	3.83	9.00
1969	4.35	8.83
1970	4.95	8.51
1971	5.63	8.33
1972	6.21	8.08
1973	6.22	7.83
1974	7.43	8.62
1975	9.07	9.07
1976	12.34	8.76
1977	16.05	8.66
1978	20.92	8.96
1979	42.53	13.18
1980	65.50	10.48
1981	127.80	11.80

SOURCE: IMF, International Financial Statistics.

[1/] See footnote 1/, Table 1.

was carried with it. Moreover, the cruzeiro in this period became increasingly overvalued relative to the dollar, even though its value declined relative to the dollar, (see Table 1). Hence, rather than to experience a stronger competitive position in those products which Brazil exports in competition with the United States, it lost that potential gain. Moreover, it became less competitive in relation to third countries.

Similarly, rather than to experience an increase in demand for tropical products from the U.S. economy as the value of the dollar rose, the tying of the cruzeiro to the dollar also precluded that. This problem was exacerbated by the serious recession in the U.S., which caused domestic demand to be weak.

Understanding these consequences of changes in the structure of the international economy and in the exchange rate realignments helps to understand a great deal of recent Brazilian economic history. In looking back, Brazil really had little choice but to undertake a significant devaluation of the cruzeiro back in 1973 when the price of petroleum first rose. It was able to get by without doing that because its currency was tied to the dollar and the dollar itself declined significantly in value. Brazil benefited from that decline and therefore was able to get along with stop-gap measures and a revitalization of the drive for import-substitution, which it once again pursued with a vengeance.

When the second rise in petroleum prices came in 1979, Brazil was not so fortunate. The U.S. undertook economic measures which moved its economy back towards an efficiency expansion path, with the result that there was a dramatic rise in the value of the dollar. In contrast, in Brazil, economic policy was deteriorating. But since the value of its currency was tied to the value of the dollar, it rose relative to currencies in the rest of the world. Consequently, Brazil tied its own economic hands. At the very time that it could have capitalized on the international economy due to the great rise in the value of the dollar, it kept itself from taking advantage of this opportunity. The first maxidevaluation (in 1979) was tacit recognition of this situation and an attempt to take advantage of the new situation. However, follow-up economic policies were inadequate, so the benefits of the devaluation were quickly eroded.

In a very real sense it can be said that Brazil has suffered very large shocks from the international economy. By the same token, however, with a different set of economic policies and institutional arrangements, Brazil could have isolated itself from these shocks. To put it in even stronger terms, Brazil could have capitalized on the great rise in the value of the dollar - not without some sizeable costs in terms of adjustments in the domestic economy, of course - but it forewent those potential benefits.

Aside from these large swings in the value of the dollar, the instability in U.S. monetary policy and the instability in commodity markets which it imposes is still a problem. This is important when considering domestic commodity stabilization programs, since to carry buffer stocks to offset fluctuations in the weather is one thing. To carry them, and to manage them, so as to offset large monetary disturbances is quite another matter. We will have more to say on this below.

Finally, it is important to note that not all Brazil's "wounds" have been imposed from abroad. Estimates of the effective protection of Brazil's soybean sector in recent years are present in Table 2. The soybean sector is interesting in that it is a commodity in which Brazil has done reasonably well in foreign markets in recent years. Moreover, the United States has been critical of Brazilian trade policy, alleging that it has subsidized its soybean exports, both implicitly and explicitly.

What the data, shows, however, is that Brazilian economic policy has discriminated severely against the soybean sector. Moreover, when the overvaluation of the cruzerio is taken into account, the discrimination has been quite serious.

A number of comments will help put these results in perspective. First, despite the large subsidies provided to the soybean sector by means of large negative real rates of interest, the soybean sector was still experienced a net tax. The components of this tax include explicit export taxes, domestic sales taxes on export commodities, export quotas and embargoes, and protection of the domestic fertilizer and modern import sectors.

Second, Brazil has concentrated on exporting soybean meal. The observed discrimination against the soybean grain sector in past amounts to a subsidy for the meal export sector in that it acts to keep the domestic price of the bean, raw material lower. Moreover, Brazil has provided

Table 2. Effective Protection of Brazilian Soybean Sector, With and Without Effect of Distortion In Exchange Rate Taken Into Account, 1977-83 (Percent)

Crop Year	Excluding Distortion in Exchange Rate	Including Distortion in Exchange Rate
	(Percent)	
1977-78	-26	-46
1978-79	-22	-38
1979-80	-29	-37
1980-81	-13	-34
1981-82	3	-21
1982-83	-18	-12

Source: Ph.D. dissertation, Carlos Santana (in draft) efficient subsidies for the export of the meal. Whether these were large enough to effect the other taxes, especially is an open question. My judgement is that they were not, but that is still a judgement.

Third, Brazil has a very great potential to increase its production of exports. In the ofsense of the observed discrimination, Brazil's output would have been significantly larger, as would its exports.

Finally, Brazil has undertaken dramatic realignments in its exchange rate this past year and under pressure from the IMF and World Banks, is reducing and in some case eliminating other distortions in its economy. In fact, the cruzerio may now be undervalued, rather than over-valued, and thus acting as an export subsidy. If these changed policies persist, Brazil will become a serious threat to the U.S. soybean market.

In conclusion, despite the size of the shocks imposed on Brazil's agriculture from external forces, its own domestic, trade, and exchange rate policies have inflicted rather serious economic wounds on itself.

Implications of the Changed System for Mexico

Mexico has experienced some of the same difficulties as Brazil. In fact, the magnitude of the shocks imposed on Mexico has been even greater than in the case of Brazil since Mexico has tried to operate with a pegged exchange rate while Brazil's use of a crawling peg exchange rate enabled it to take some adjustment as it went along and to avoid becoming completely out of adjustment.

The pertinent data on the exchange rate are summarized in Figure 3. Perhaps the most important thing to note is that fixing the nominal exchange rate when international monetary conditions are changing can impose rather large changes in the real exchange rate. The shocks imposed in the 1973-76 period are important examples, as is the long decline from 1977 through 1981.

Some of the pertinent data on trade are presented in Tables 3 and 4. More discussion on these data will be developed at a later point.

A number of observations about the Mexican case seem to be pertinent. First, it appears that Mexico benefitted in third-country trade from the decline in the value of the dollar in the 1971-73 period, and again later in the 1978-80 period. Second, by 1980 and 1981, the real value of the Mexican peso appears to be significantly over-valued. This was a subsidy to its imports, and a tax on its export sector. Third, when the dollar started to rise in late 1980 and in 1981, the peso was at a quite high level in real terms and actually declining in late 1981. The relative movements were quite significant - and the impact on third-country trade must have been quite significant.

The fourth point is to note the large monetary disturbances of the recent years. The fluctuations in the real exchange rate are really quite large. Not all of these shocks have been transmitted to the trade sectors of the Mexican economy. Price controls on some sectors have been quite stringent. That has especially been the case in the food and agricultural sector.

Figure 3

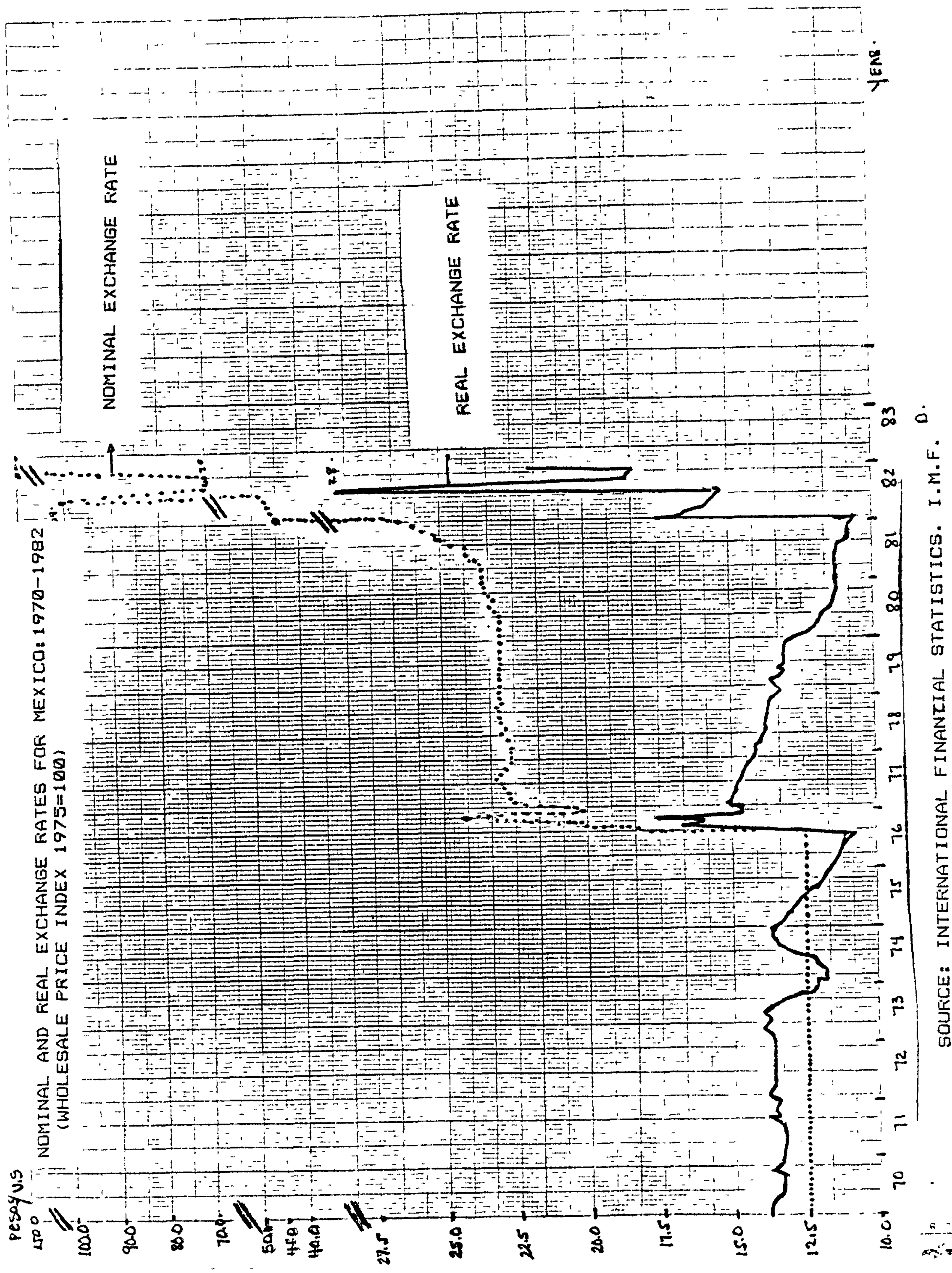

NOMINAL AND REAL EXCHANGE RATES FOR MEXICO:1970-1982
(WHOLESALE PRICE INDEX 1975=100)
NOMINAL EXCHANGE RATE
REAL EXCHANGE RATE
PESOS/U.S
150.0
100.0
90.0
80.0
70.0
50.0
45.0
40.0
27.5
25.0
22.5
20.0
17.5
15.0
12.5
10.0
70
71
72
73
74
75
76
77
78
79
80
81
82
83
YEAR
SOURCE: INTERNATIONAL FINANCIAL STATISTICS. I.M.F.

Table 3

Imports of the Main Agricultural Products in Mexico, 1970-1980

	Wheat		Corn		Soybeans	
Year	Volume (tons)	Value (1,000 lbs)	Volume (tons)	Value (1,000 lbs)	Volume (tons)	Value (1,000 lbs)
1970	47	3	760,901	58,094	101,595	11,915
1971	176,723	11,732	17,228	1,947	68,261	9,895
1972	640,034	46,532	197,479	16,373	10,707	2,258
1973	718,464	78,132	1,143,531	124,303	42,443	12,731
1974	975,882	188,865	1,270,442	196,800	434,772	98,764
1975	87,325	17,419	2,636,597	404,632	22,039	7,402
1976*	1,505	240	912,428	103,988	347,902	114,335
1977	476,196	47,062	1,754,772	197,636	520,262	154,450
1978	505,788	70,487	1,417,936	181,384	681,309	174,240
1979	1,147,948	201,728	743,991	111,066	577,809	171,260
1980	822,669	163,194	3,777,277	588,965	896,000	255,000

Source: FAO Year Tradebook, several issues

Table 4

Exports of the Main Agricutural Products in Mexico, 1970-1980

Year	Cotton Volume (tons)	Cotton Value (1,000 lbs)	Tomatoes Volume (tons)	Tomatoes Value (1,000 lbs)	Coffee Volume (tons)	Coffee Value (1,000 lbs)
1970	213,776	123,731	365,296	107,718	85,208	89,800
1971	166,136	117,610	311,911	91,025	96,955	86,146
1972	203,989	147,921	330,363	99,056	100,352	93,870
1973	178,635	165,594	419,714	127,107	137,136	145,473
1974	166,465	180,000	300,800	108,812	120,038	157,708
1975	156,851	173,182	329,264	122,951	143,059	193,591
1976	142,629	301,320	353,594	124,400	166,795	364,861
1977	130,752	182,827	428,015	212,330	106,745	479,275
1978	200,448	308,549	461,136	198,039	114,943	404,214
1979	211,611	351,554	401,396	206,975	174,763	593,326
1980	171,601	320,886	373,097	185,437	130,019	437,109

Source FAO Year Trade Book, several issues

Table 5

Effective Rate of Protection for the Wheat Sector, Mexico, 1970-82 (Percent)

	Ignoring Distortion in Exchange Rate	Taking Account of Distortion in Exchange Rate
1970	-17	-32
1971	18	-4
1972	10	-9
1973	-21	-36
1974	-26	-42
1975	-16	-36
1976	-16	-32
1977	16	4
1978	0	-16
1979	-9	-28
1980	-5	-29
1981	10	-23
1982	-19	-19

Source: Ph.D. Dissertation, Jeronimo Ramos

The failure to pass these external shocks through to the real economy is a mixed blessing, of course. On the one hand, it protects some sectors - at least for a time - from the external disturbances. As a consequence, however, the required adjustment is forced on to a narrower segment of the economy. Moreover, the period required for adjustment will undoubtedly be longer as a consequence of the failure to reflect the changed economic conditions to the domestic economy.

Another point that should be recognized - and yet which may be controversial - is that the great rise in the value of the dollar creates conditions for an inflow of American capital to flow into Mexico. Put differently, the incentives for resources to flow out of dollar assets to acquire lower priced Mexican assets is quite great. The great rise in the real value of the Mexican peso attenuates these incentives, of course. The recent fall in the value of the peso exacerbates this problem. Restrictions on the international capital market will probably continue to be used to hold this capital inflow at bay.

It is important to note, however, that exchange rate disturbances to Mexican agriculture did not start just with the late 1970's and early 1980's, nor were they coming exclusively from abroad. Data in Tables 5 and 6 shed some light on this issue. Estimates of the effective rate of protection for corn and wheat are presented in those tables. They show that economic policy has discriminated severely against these sectors over the years, and an important part of the discrimination has been due to the chronic overvaluation of the peso vis-a-vis the dollar. Table 5 provides a comparison of the estimate of the effective protection with and without the distortion in the exchange rate. Obviously, that distortion is important, but there are other important factors as well.

Table 6

Effective Rate of Protection for Corn Sector,
Corn, Mexico, 1970-82 (Percent)

	Rainfed Area, No Machinery, Use of Modern Inputs	Rainfed Area, Use Machinery and Modern Inputs	Irrigated Area
1970	-41	-38	-33
1971	-62	-60	-56
1972	-41	-39	-35
1973	-41	-40	-37
1974	-26	-29	-32
1975	-18	-16	-18
1976	-1	9	7
1977	1	15	11
1978	-19	-10	-12
1979	-15	-4	-8
1980	-7	6	1
1981	10	32	25
1982	30	56	36

Source: Ph.D. Dissertation, Jeronimo Ramos

Given that Mexico imports some of the modern inputs it uses in agriculture, there was obviously some benefit from an overvalued exchange rate. However, the problem was that, at least in the early part of the period, the use of such modern inputs was fairly modest, and consequently the negative effect on the price of the product far outweighed the positive effects on the price of modern inputs. Data in Tables 7 and 8 indicate the net effects of the overvaluation of the peso on the prices of inputs and on the price of the output for wheat and corn, respectively.

To conclude this section, a number of points can be noted. First, had Mexico not discriminated so severely against its own agriculture by overvaluing its currency and other means, its recent economic history might have been very different. Its imports of wheat and corn very likely would have been significantly less, and it's entirely possible that it could have been a net exporter of corn or wheat or both. Similarly, its exports of the commodities it has been exporting very likely would have been significantly more.

In a very real sense, distortions in the exchange rate and other policies kept Mexico from realizing whatever comparative advantage it might have had in agriculture. Such policies have a very high cost in terms of income taxed away implicitly from the producer. Moreover, our previous work on Brazil suggests that the incidence of this export tax (or import subsidy) is largely on the small producer. The large producer has the flexibility to escape at least part of the tax by reorganizing to produce more extensively. The small producer does not have that opportunity and consequently bears a disproportionate share of the tax.

Table 7

Impact of the Overvaluation of the Peso
in the Wheat Market
(Pesos per ton of wheat)

	Implicit Subsidy in Tradeable Inputs	Implicit Tax
1970	37.00	276.60
1971	37.50	213.90
1972	41.00	215.70
1973	60.30	360.50
1974	166.00	738.50
1975	129.40	789.90
1976	85.50	610.70
1977	74.40	319.53
1978	129.02	669.10
1979	204.02	1,089.80
1980	372.40	1,729.80
1981	500.70	2,438.20
1982	--	--

Source: Ph.D. Dissertation, Jeronimo Ramos

Table 8

Impact of Overvaluation of the Peso
in the Corn Market
(Values in pesos per ton of product)

	Input Subsidy in Rainfed Area w/Mach.	Input Subsidy in Rainfed w/o Mach.	Input Subsidy Irrigation	Implicit product tax
1970	36.52	22.84	35.33	238.18
1971	44.09	23.30	38.44	360.50
1972	43.26	28.65	38.53	243.75
1973	66.56	47.25	60.61	360.88
1974	203.77	162.54	172.53	589.72
1975	151.94	118.46	135.94	608.00
1976	97.63	60.19	92.07	436.50
1977	94.37	35.22	68.45	343.52
1978	145.87	77.88	138.85	606.34
1979	227.21	145.92	214.44	912.21
1980	379.65	277.41	402.54	1,529.96
1981	493.02	368.49	572.47	1,804.57
1982	--	--	--	--

Source: Ph.D. Dissertation, Jeronimo Ramos

It should also be noted that had the peso been floating in the late 1970's and early 1980's, and had more stable domestic macroeconomic policies been in effect, the real value of the peso might well have risen as petroleum exports grew. But a flexible exchange rate and a more open trading regime might well have spread the adjustment widely in the economy and minimized the shock to Mexican agriculture.

As it was, Mexico had the worst of a difficult situation. The peso was becoming increasingly overvalued vis-a-vis the dollar at the very time the dollar was experiencing an unprecedented rise. It is little wonder that the shock to the Mexican economy has been as great as it has. Most of this disturbance came from abroad, and was due to factors over which Mexico had little control. But an important part of it was also self-imposed.

Finally, many current discus ions of the Mexican situation have placed culpability on high U.S. intere t rates and focused on the cost of credit alone. However, had the peso been floating in that period, the rise in the value of the dollar as a consequence of the high interest rates in the United States would have helped Mexico earn the foreign exchange to prevent or at least attenuate the crisis which eventually arrived.

Institutional and Policy Implications

The experience from these two countries has some important institutional and policy implications, not only for these two countries but more generally as well. The first is that in the kind of world we now live in, rather sizeable external shocks can be imposed on individual economies - shocks that have little to do with domestic policies or developments in the domestic economy. That is an important implication of the increased economic integration which now characterizes the international economy.

These shocks are transmitted through the trade sector, the international capital markets, and realignments of real exchange rates. I would stress the importance of the international capital markets and the exchange rate. Countries like Brazil and Mexico, which have pursued autarchic, import-substituting industrialization policies, and in the case of Mexico, controls on foreign capital, have still found themselves victimized by external shocks that were beyond their control.

It is important to recognize how much our economic world has changed in trying to understand some of these developments. For example, many observers of the U.S. scene expect the dollar to decline because we are running a large deficit on the trade account. What they don't seem to recognize is that it is the international capital market that is now driving the system. The dollar is strong because of what is taking place in the capital market. And our trade deficit is a consequence of our strong dollar, not something that is likely to make it weak.

The real issue many countries face today is whether they can really isolate themselves from the international economy even if they should want to. The costs of so doing are obviously quite great. Few countries would really want to sacrifice the opportunities offered by trade and the international capital market the current international economy now offers them. Their sacrifice in terms of foregone income would be quite great.

To take advantage of the new system will obviously require some important changes in country policies. The by-word for the future is most likely "flexibility." The experience with U.S. commodity programs is a perfect example. Large rises in the value of the dollar in the context of fixed commodity prices has caused U.S. commodities to be priced out of international markets and large surpluses to accumulate at home.

In general, it is probably counterproductive in today's kind of world to fix nominal exchange rates. Distortions creep in very quickly when the value of other currencies is changing significantly. The adjustment costs are then all imposed at one time, and they can be very significant.

It should also be noted that adjustment policies take on much greater importance in more open, well-integrated economies. Economies will need to be adjusted to rapidly changing international realities. The political and economic payoff from facilitating that adjustment is quite high.

Finally, we all need to give a great deal more attention to reforming, changing, and creating our international institutions.[1] The simple fact of the matter is that our economic integration has far outpaced our political integration and our institutional arrangements to manage and cope with that integration. We are on a road to disaster if we don't bring our political and institutional arrangements along with out economic integration. The less-developed South has been telling us that for some years now. We in the industrialized North need to open our mind and ears, and muster the creativity and political will to bring about the changes we need.

---

[1]For some suggestions, see Schuh, G. Edward, "Towards Reform of our International Monetary and Trade Institutions," in Issues in Third World Development, edited by Kenneth C. Nobe and Rajan K. Sampath, Westview Press, Boulder, Colorado, 1983.

Concluding Comments

We live in a very different world than we lived in 15 to 20 years ago. Policies and institutional arrangements proper for that period are no longer proper today. We need to learn that lesson. We also need to do something about it.

The world as a whole has gained significantly from the increased economic integration that has evolved during the post-World War II period. We could slide back into a world of autarchy, economic warfare, and chaos, especially if we don't address the problem of our international institutions and political arrangements. As analysts and researchers, we need to give these problems our highest priority.