

THE EFFECT OF DEVELOPING COUNTRY DEBT-SERVICING PROBLEMS ON U.S. TRADE

**Report to the Subcommittee on
Trade of the House Committee
on Ways and Means on
Investigation No. 332-234
Under Section 332 of the
Tariff Act of 1930**

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PREFACE

On June 5, 1986, the International Trade Commission received a letter from the Honorable Sam Gibbons, chairman of the Subcommittee on Trade of the House Committee on Ways and Means, requesting that the Commission conduct an investigation under section 332 of the Tariff Act of 1930 to examine how the external debt and debt-related austerity of developing countries affects the U.S. trade balance, exports, export-related employment, and imports. The letter also requested that these effects be estimated for individual industry sectors. In response, the International Trade Commission instituted investigation 332-234, The Effect of Developing Country Debt-Servicing Problems on U.S. Trade. This report contains (i) a general historical overview of the developing country debt problem and its effects on U.S. trade and financial flows; (ii) case studies of Mexico, Brazil, Argentina, Venezuela, and the Philippines, including for each a history of the debt problem and estimates of the effects of debt-related austerity on U.S. industry sectors; and (iii) an analysis of the effects of debt-related austerity in all five countries combined on U.S. imports, exports, and export-related employment.

Public notice of this investigation was given by posting copies of the notice at the Office of the Secretary, U.S. International Trade Commission, Washington, DC, and by publishing the notice in the Federal Register of July 30, 1986 (51 F.R. 27261).

The information contained in this report was obtained from fieldwork, the Commission's files, other Federal Government agencies, international organizations, foreign governments, and other sources.

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EXECUTIVE SUMMARY

This is a study of how the external debts and debt-related austerity of developing countries affect the U.S. economy. 1/ The report focuses on five countries: Mexico, Brazil, Argentina, Venezuela, and the Philippines. These countries were selected on the basis of the magnitude of their debt burdens and the importance of their trade with the United States. The study provides a general historical overview of the developing country debt problem, an analysis of the meaning of debt repayment, a list of adjustment strategies for both creditors and debtors, and case studies of the five selected countries. It also provides estimates of how the debt-related austerity of these countries has affected U.S. exports, imports, and output in 61 nonservice-industry sectors. 2/

Estimated Effects

Industry effects

It is estimated that in 1985 debt-related austerity in the five selected countries had negative effects on the U.S. trade balance in 40 of the 61 nonservice industries studied and positive effects in 20 industries. (There were not sufficient data to make an estimate for the remaining industry.) The greatest estimated adverse 3/ effects on the trade balance are in motor vehicles and equipment (\$2.2 billion), chemicals and selected chemical products (\$0.9 billion), and aircraft and parts (\$0.8 billion). The greatest estimated positive effects on the trade balance are in food and kindred products (\$0.9 billion), radio, TV, and communication equipment (\$0.6 billion), and agricultural products other than livestock (\$0.3 billion). Taking into consideration secondary effects in the U.S. economy, it is estimated that the debt-related austerity in these countries had negative effects on U.S. output in 46 industries and positive effects in 15. The greatest estimated negative effects are in motor vehicles and equipment (\$3.0 billion), primary iron and steel manufacturing (\$1.8 billion), and chemicals and selected chemical products (\$1.6 billion). The greatest negative effects relative to industry output are in iron and ferroalloy ores mining (4.4 percent), engines and turbines (3.4 percent), and stone and clay mining and quarrying (3.3 percent). The greatest estimated positive effects are in food and kindred products (\$1.1 billion), radio, TV, and communication equipment (\$0.6 billion), and agricultural products other than livestock (\$0.5 billion). The greatest estimated positive effects relative to industry output are in leather tanning and finishing (2.2 percent), footwear and leather products (1.0 percent), and radio, TV, and communication equipment (0.8 percent).

1/Vice Chairman Brunsdale voted to disapprove issuance of this study. To obtain a copy of the memorandum explaining her views, contact the Secretary's Office and request C065-K-09 (February 25, 1987).

2/Estimates were made by Commission staff based on the methodology described on pages 14-17.

3/ The word "adverse" in this report means a reduction in exports, net trade, or production, or an increase in imports, and does not necessarily mean a loss of welfare.

Aggregate effects

It is estimated that in 1985 debt-related austerity in the five countries combined resulted in reductions in U.S. exports to the five countries of \$5.0 billion, increases in U.S. imports of \$8.7 billion, and a decline in U.S. employment of 219,800 full-time equivalent jobs in the 61 nonservice industries studied.

An important caveat must be attached to these numbers. The employment figure is not an estimate of the effect of debt-related austerity on aggregate U.S. employment. Much of the estimated employment decline in these 61 industries probably represents a shift toward employment in service industries, which are not covered in this study. ^{1/} Also, the estimates do not represent layoffs or unemployment increases in these 61 industries. Instead, the estimates refer to declines from the employment levels that would have prevailed in these industries absent any debt-related austerity. Thus, in many instances the declines represent fewer new jobs created in these industries, rather than a loss of existing jobs. ^{2/}

History of the Debt Problem

How the problem developed

In the 1970's and early 1980's many developing countries borrowed heavily in international financial markets. These loans were used to finance investments, to maintain standards of living, to purchase foreign assets, and to meet obligations on previously incurred debt. During much of this period, new loans were readily available because of the infusion of tens of billions of dollars into the financial markets by oil exporters. Over time, many developing countries accumulated sizable foreign debts.

In the early 1980's several events occurred that made developing country debtors appear to be less creditworthy. These events include a substantial increase in world interest rates, a decline in the terms of trade of many developing countries as the prices of their exports fell, and the appreciation of the U.S. dollar (in which most of the debts are denominated). Following Mexico's declaration in August of 1982 that it was unable to make scheduled interest payments, there was a near cessation of commercial lending to most developing countries. As of December, 1986, the five debtors had foreign debts totaling \$330 billion, with interest payments exceeding \$37 billion annually.

^{1/} See methodology section, pages 14-17, and pages 139-140.

^{2/} The estimated effects on trade and employment are attributable to the full extent of debt-related austerity. It should be noted that partial debt relief could be expected only partially to offset the effects of this austerity.

Adjustment strategies for debtors and creditors

Because of the tighter world capital market and credit rationing that has occurred in recent years, debtor countries have met much of their debt service obligations out of trade surpluses. Debtor countries have adopted a number of policies to generate these trade surpluses including sharp cuts in public expenditures, export promotion programs, "voluntary" reductions in imports induced by lower real incomes, exchange controls, and import licenses. Since 1982, most heavily indebted developing countries have sought some form of debt rescheduling and assistance from the IMF. Debt rescheduling agreements generally comprise delayed and extended repayment periods for existing debt, some reductions in interest rates, and often additional loans and credits to meet current needs. All five debtors have rescheduled at least part of their foreign debt. In exchange for IMF assistance, the debtors agree to adopt domestic policies that will increase their likelihood of being able to make future debt payments. These policies often include currency devaluations, reductions in government spending, and limitations on monetary expansion.

Creditor nations are considering several policies to deal with the debt problem:

- (1) Resume lending contingent on implementation of the appropriate growth programs. This policy is sometimes called the "Baker plan," (after Treasury Secretary James Baker);
- (2) Forgive part of the debts or agree to general rescheduling. This policy is endorsed by Senator Bradley of New Jersey and Professor Rudiger Dornbusch of the Massachusetts Institute of Technology;
- (3) Do nothing. Let creditors and debtors work out the problem among themselves.

U.S.-debtor country trade

In 1978, U.S. trade with these five debtor countries was roughly balanced. In general, this trade consisted of U.S. surpluses in most industrial categories, especially in collected machinery and equipment, chemical products, motor vehicles, and aircraft. These surpluses were matched by large deficits in crude petroleum, agricultural goods, and light industrial products. U.S. exports to these countries totaled \$15 billion. By 1980, U.S. exports to these countries had grown to \$28 billion, with much of the increase coming from debt-financed expenditures. U.S. imports were \$25 billion; therefore, the United States had a surplus of \$3 billion with these countries.

By 1984 the U.S. balance of trade with these countries had fallen into a deficit of more than \$17 billion, with significant declines in traditional U.S. exports, increases in traditional U.S. imports, and reversals in the direction of trade for some goods, including refined petroleum products, motor vehicles, and primary metal products. During 1985 the U.S. trade deficit with these countries narrowed to \$15 billion.

Country Case Studies

Mexico

With an average annual growth rate of 6.4 percent, Mexico has had one of the fastest growing economies in the developing world since World War II. Partly as a result of policies to protect and promote selected industries with tariffs, import restrictions and domestic subsidies, the manufacturing sector's share of Gross Domestic Product (GDP) expanded substantially during this period, largely at the expense of agriculture. In contrast to the considerable attention paid to manufacturing during the 1950's and 1960's, little attention was given to international competitiveness. Exports fell from 10 percent of GDP in 1950 to only 5 percent in 1970.

The origin of Mexico's debt crisis dates back to the early 1970's, a period marked by increased Government expenditures in support of economic activities. It imposed higher levels of import protection, increased subsidies to domestic industries, and increased the size and number of state-owned enterprises. Government spending increases resulted in significant budget deficits, which were financed by domestic borrowing and monetary expansion. The rate of inflation averaged 12.9 percent during 1971-76. Mexico also suffered a large deficit in its current account, which it financed by drawing down its reserves and borrowing from foreign banks. By 1976 Mexico's foreign debt had grown to \$18.3 billion.

In 1976 Mexico devalued the peso and, as a condition for IMF assistance, the Government reduced its public expenditures and instituted a program of trade liberalization. However, Mexico soon abandoned these reforms as projections of oil revenues rose and public pressure in favor of greater public spending and job security grew. Increased public spending led to a rate of inflation reaching 20 percent in 1980, an overvalued peso, and balance-of-payments difficulties. Mexico then borrowed to finance its current account deficit and saw its external debt increase from \$42.8 billion in 1979 to \$85.8 billion in 1982. In the early 1980's public spending continued to increase as the price of oil declined. Mexico borrowed to finance its balance-of-payments deficit, which was aggravated by severe capital flight. In 1982 Mexico substantially devalued the peso and again turned to the IMF to avoid defaulting on its debt. In exchange for financial help, Mexico agreed to adopt a number of reforms, including a large reduction in its Government budget, tax increases, subsidy cuts, and limits on wage increases. These policies resulted in recession and disinflation in 1983, but generated a surplus in the current account. In 1984 Mexico negotiated a rescheduling agreement with its major commercial creditors, covering about half of its \$97 billion debt, that stretched out payments and linked the interest rate to the London interbank loan rate (LIBOR) rather than the U.S. prime rate. Later, in that same year Mexico violated this agreement by increasing Government spending and generating a fiscal deficit of 10 percent of GDP, prompting the IMF to revoke the agreement in 1985.

In 1986 the Mexican Government once again sought IMF assistance. Mexico received some \$2.7 billion in loans and stand-by credits from the IMF and World Bank and a \$7.7 billion financing package from its commercial bank

creditors. In exchange for this, Mexico agreed to a number of conditions intended to reduce its fiscal deficit and increase the efficiency of the economy. At the beginning of 1987 Mexico's external debt was estimated at \$106 billion, of which approximately one-quarter was owed to U.S. banks.

Until 1981, Mexico had a trade deficit with the United States. Mexico adopted adjustment policies beginning in 1982 and now runs a significant surplus with the United States. These policies include the depreciation of the peso, contractionary policies that lowered the general level of economic activity and the demand for imports, and specific import restrictions.

It is estimated that Mexico's austerity program has had negative effects on U.S. output in 34 of the 61 nonservice industries examined in this study and positive effects in the remaining 27. These effects, which take into consideration secondary adjustments to industries providing intermediate inputs, exceed \$500 million or 0.5 percent of industry output in only a few industries. The greatest estimated negative output effects are in motor vehicles and equipment (\$1.9 billion), primary iron and steel manufacturing (\$0.7 billion), and aircraft and parts (\$0.3 billion). The greatest estimated negative output effects relative to industry output are in stone and clay mining and quarrying (2.7 percent), engines and turbines (1.6 percent), and iron and ferroalloy ores mining (1.4 percent). The largest estimated positive output effects are in radio, TV, and communication equipment (\$0.7 billion), electric components and accessories (\$0.4 billion), and apparel (\$0.3 billion). The greatest relative positive output effects are in footwear and other leather products (2.6 percent), leather tanning and finishing (2.1 percent), and radio, TV, and communication equipment (1.1 percent).

Brazil

During much of the 20th century and most of the post-World War II period Brazil has experienced rapid economic growth. Since 1946, its economy has expanded at an average annual rate of 7 percent, led by broadly based growth in manufacturing. This expansion was led by growth in import-competing industries and in the public sector. Following steep increases in world petroleum prices in 1973-74, Brazil borrowed heavily to finance its massive trade deficits rather than interrupt its economic expansion. U.S.-Brazilian trade benefited from this growth, expanding from \$1.5 billion to \$7.5 billion during 1970-80.

However, Brazil's economic performance since 1980 has been constrained by mounting foreign indebtedness. A domestic recession followed initiatives taken by Brazil in 1981-82 to adjust to its deteriorating external position. By the end of 1982, rising debt-service payments, falling export revenues, and domestic recession rendered Brazil illiquid. Under IMF supervision, Brazil adopted a number of austerity measures. As an immediate result, Brazilians suffered cumulative declines in their per capita incomes that averaged 11 percent between 1980-83. Real wages fell by an estimated 23 percent. During this period, U.S. exports to Brazil declined by over 40 percent.

The Brazilian economy began to recover in 1984 and grew by 8 percent during 1985, spurred by export demand. As a result, improvement in its trade accounts exceeded expectations, much of the debt was rescheduled, and the risk of renewed illiquidity seemed to diminish. However, problems with inflation and the public-sector deficit grew worse. In February of 1986 Brazil instituted the "Cruzado Plan," which featured a de-indexation of the economy and the imposition of wage and price controls. This resulted in a dramatic decline in measured inflation. Concurrent with the institution of the Cruzado Plan was a one-time real-wage increase that boosted demand further. Real growth of GDP may have exceeded 10 percent in 1986.

However, rapid growth in demand strained Brazil's industrial capacity, leading to widespread shortages of key producer and consumer goods. As a result, inflationary pressures mounted throughout 1986. Little investment has been made in additional production capacity. Public-sector investment remains depressed because of budgetary cutbacks, while private investment has been light because of price controls, shortages of raw materials, and longer run uncertainties regarding the economy. Foreign investors are also concerned about market reservation policies and the drafting of a new constitution. Following an increase in inflation, the Government began, once again, to index interest rates on government bonds late in 1986.

Brazil continues to rely heavily on strong external demand to service its \$108 billion debt. Yet the newly created cruzado has become greatly overvalued, as suggested by the 50 percent discount on cruzados in the free market. As a result, imports have risen and exportables have been diverted for domestic consumption, virtually eliminating the trade surplus and contributing to rapid depletion of foreign reserves. On February 20, 1987, Brazil declared its intention to suspend interest payments for 90 days on its \$81 billion in foreign commercial debts. Brazil is seeking easier terms on its outstanding debts, rescheduling of \$50 billion in amortization payments, and additional commercial loans. Because Brazil has refused to negotiate an adjustment program with the IMF, the World Bank will lead the ensuing negotiations.

It is estimated that Brazil's austerity program has had negative effects on U.S. output in 49 of the 61 nonservice industries examined, and positive effects in 12 industries. The greatest estimated negative effects are in chemicals and chemical products (\$1.1 billion), crude petroleum and natural gas (\$0.8 billion), and refined petroleum products (\$0.8 billion). The largest proportional negative output effects are in footwear and other leather products (3.2 percent), leather tanning and finishing (2.2 percent), and iron and ferroalloy ores mining (1.9 percent). The greatest estimated positive effects on output are in food and kindred products (\$617 million, or 0.2 percent of industry output), and livestock and livestock products (\$139 million, or 0.2 percent of industry output)

Argentina

Prior to the Great Depression, Argentina was among the 10 wealthiest nations in the world. This prosperity was, in part, the result of six decades

of foreign investment that developed its vast agricultural resources and transformed Argentina into a major world exporter of beef and grains. However, with the contraction of world trade during the 1930's and the strain this placed on its debt-servicing capabilities, Argentina began to promote industrialization in import-competing industries. At that time, the role of the public sector also grew substantially, and the Government shifted resources away from agriculture towards Argentina's emerging manufacturing industries. Argentina has often suffered from balance-of-payments difficulties, and frequent policy shifts have led to "stop-go" economic growth.

Following the collapse of the Peron government in 1976, sweeping reforms resulted in a greatly liberalized economy. Considerable loosening of trade and financial market restrictions were among the most significant of these reforms. However, an exchange rate management policy designed to curb triple-digit inflation resulted in massive overvaluation of the peso that persisted for over 3 years. This policy was supported by unprecedented levels of foreign borrowing encouraged by the economic liberalization. From 1978 to 1982 Argentina's foreign indebtedness grew from \$12 billion to \$39 billion, largely financing increased imports of consumer goods, a military buildup, and private capital flight. The war between Argentina and the United Kingdom over the Falklands/Malvinas during the spring of 1982 highlighted Argentina's economic and political turmoil. Following Mexico's revelation that it could not keep up with its debt-servicing obligations in August 1982, commercial lending to Argentina stopped. Severe balance-of-payments difficulties followed, prompting Argentina to turn to the IMF. Among other prescriptions, the resulting agreement called for Argentina to sharply curtail imports in order to generate trade surpluses. Three years of austerity followed during which economic activity declined and inflation accelerated. In June 1985, the newly-elected constitutional government abandoned the gradualist approach to combating inflation in favor of a "shock" treatment. The Austral Plan brought inflation abruptly to a halt, slowed the rampant pace of speculative economic activity, and reversed the decline in political and economic confidence. At present, public and private investment remains weak, largely because depressed real wages have restrained demand. Argentina continues to suffer severe balance-of-payments problems because of the burden of servicing a \$53 billion external debt during a period of a declining world market for its agricultural products.

It is estimated that Argentina's austerity program has had negative effects on U.S. output in 54 of the 61 nonservice industries studied. The greatest estimated negative output effects are in crude petroleum and natural gas (\$362 million), aircraft and parts (\$360 million), and primary iron and steel manufacturing (\$190 million). However, these estimated negative effects are typically small in proportion to total industry output, and never exceed 0.5 percent of domestic production. The largest relative negative effects are in aircraft and parts (0.5 percent) and engines and turbines (0.5 percent). Positive effects on U.S. output are estimated for 7 industries. The largest positive effects are estimated in food and kindred products (\$85 million) and leather tanning and finishing (\$35 million). The greatest estimated positive effects relative to industry output are in leather tanning and finishing (1.9 percent) and footwear and other leather products (0.3 percent).

Venezuela

During much of Venezuela's history, most of its economy was devoted to agriculture. In the 18th and 19th centuries Venezuela's principal exports were cacao and coffee. The exploration for oil began in the 1910's. By the late 1920's Venezuela was the world's largest exporter of oil, a position it held until 1970. Following World War II, the Venezuelan Government tried to expand and diversify its economy. It made sizable investments in infrastructure and encouraged industrialization in import-competing industries. In spite of these efforts, oil still accounted for over 90 percent of Venezuela's export revenues and 17 percent of its GNP in 1970. The prodigious increases in the price of oil in the 1970's and early 1980's greatly increased Venezuela's international purchasing power. Venezuela used this windfall to finance an ambitious program of internal growth and improved living standards. When oil revenues declined in the late 1970's and again in the 1980's, the Venezuelan Government found itself overextended. It first borrowed to finance its fiscal deficits and support its exchange rate and was later forced to adopt austerity policies, including substantial reductions in Government spending, devaluations of the bolivar, and controls on imports and foreign exchange. Venezuela has generally been successful at bringing its fiscal and external accounts into balance since 1983 and at meeting its debt obligations, but it has suffered several years of low or negative growth of real GDP. Venezuela now faces the difficult task of adapting to the recent substantial decline in the price of oil.

In 1986 Venezuela rescheduled over 80 percent of its outstanding external debt. The agreement stretches out repayments over a 12-year period and sets the interest rate at the LIBOR plus 1-1/8 percent. In 1986 Venezuela's external debt was estimated to be \$33.9 billion, of which 81 percent is owed or guaranteed by the central Government. Venezuela owes \$10.4 billion to U.S. commercial banks.

It is estimated that Venezuela's austerity program has had negative effects on U.S. output in 59 of 61 nonservice industries studied and positive effects in the remaining 2. These effects, which take into consideration secondary adjustments, rarely exceed \$100 million in value or 0.5 percent of industry output. The greatest negative effects are in motor vehicles and equipment (\$565 million), primary iron and steel manufacturing (\$399 million), and primary nonferrous metals manufacturing (\$314 million). The greatest relative negative effects are in iron and ferroalloy ores mining (0.9 percent), engines and turbines (0.7 percent), and primary nonferrous metals manufacturing (0.6 percent). The largest positive effect on U.S. production is estimated for agricultural products other than livestock (\$112 million, or 0.1 percent of industry output).

The Philippines

A nation of islands, the Republic of the Philippines relies heavily on foreign trade. The economy is predominantly agricultural, although it has become less so in recent years. The Philippine economy has grown rapidly

since World War II, aided in part by assistance from the United States. The United States helped rebuild productive facilities and infrastructure destroyed during the war and has provided other economic aid.

During the 1950's and 1960's the Government encouraged industrialization in import-competing industries with such policies as tariffs, import controls, and foreign exchange controls. Although initially successful, the Philippines' growth rate began to decline in the late 1950's. In the 1960's the Government began modifying its economic policies, and by the 1970's, Philippine economic policy could be characterized as one of export promotion. By then the Government had relaxed foreign exchange controls, liberalized regulations on foreign investment, reduced tariffs, adopted a flexible exchange rate, provided incentives for nontraditional exports, and created an Export Processing Zone. In the 1970's the Philippines began to accumulate sizable foreign debts. These were used primarily to finance its chronic and growing balance-of-payments deficits and partly to finance export-related investment. The Philippines' external debt increased from \$2.1 billion in 1970 to \$12.2 billion in 1980.

The Government began a trade liberalization program in the 1980's, including further tariff reductions, tax reforms, reduced restrictions on imports, increased export incentives, and a relaxation of foreign exchange controls. Trade deficits continued, however, and when external borrowing became difficult in 1982 the Government adopted a number of austerity measures aimed at reducing imports. Since then the trade deficit has diminished almost to zero. At the end of 1985 the Philippines' external debt totaled \$26.3 billion, for which annual interest payments claim roughly half of the country's export revenues.

Since March of 1986 the Aquino government has made a considerable effort to ease and stabilize the external debt problem. On October 24, 1986, the IMF board approved a new 18-month standby credit of 422 million Special Drawing Rights (SDR's) to the Government. On October 27, 1986, the Philippine delegation started negotiations in New York with foreign creditor banks on the rescheduling of about \$3.6 billion in loans maturing between 1987 and 1991.

It is estimated that the Philippines' austerity program has had negative effects on U.S. output in 32 of 61 nonservice industries studied and has had positive effects in the other 29 industries. The three industries with the largest estimated negative effects are aircraft and parts (\$198 million), motor vehicles and equipment (\$90 million), and chemicals and selected chemical products (\$71 million). The greatest estimated relative negative output effects are in engines and turbines (0.3 percent), aircraft and parts (0.3 percent), and construction and mining machinery (0.2 percent). The three industries with the largest estimated positive output effects are food and kindred products (\$323 million), lumber and wood products (\$155 million), and footwear and other leather products (\$100 million). The greatest estimated relative positive effects are in footwear and other leather products (1.3 percent), leather tanning and finishing (0.6 percent), and nonferrous metal ores mining (0.5 percent).

OVERVIEW

Historical Summary of the LDC Debt Problem

As of December 1986 Mexico, Brazil, Argentina, Venezuela, and the Philippines had incurred foreign debts totaling \$330 billion. Interest payments on these loans totaled \$37 billion, or nearly one-half of the combined export earnings of these countries. ^{1/} Although amortizations on the outstanding foreign debts of these countries have fallen sharply since 1982 as rescheduling agreements have rolled over maturing commercial debt, the remaining debt-service payments have represented net outflows of capital equivalent to approximately 4 percent of their Gross Domestic Product (GDP). Without access to significant new commercial lending, these debtors have financed their net capital outflows by generating large trade surpluses. These efforts have been accompanied by domestic policy changes that attempt to promote economic efficiency and the eventual recovery of economic growth. By following this agenda, debtor countries are expected eventually to grow out of their burden of indebtedness. However, these countries have not been able to achieve sustained economic growth, and they have all obtained, or are expected to seek, additional foreign loans to avoid further economic contraction.

As these debtor countries generated trade surpluses to repay their loans, their trading partners, largely the United States and other industrial economies, ran corresponding trade deficits. Industrial economies were net merchandise exporters vis-a-vis debtor countries prior to the surge in foreign lending. These surpluses grew as debt accumulation accelerated. However, since 1982 debtor countries have needed to earn large trade surpluses to service their debts ^{2/}, and their partners, including the United States, have had to run corresponding deficits. In 1985, the selected debtor countries had a trade surplus of \$32.1 billion. The United States alone had a trade deficit of \$15.1 billion with these countries.

Origins: supplies of petrodollars

Most analysts trace the origins of the LDC debt problem to the oil price increases in 1973-74 and again in 1979-80. These price hikes generated abrupt and very large trade surpluses for oil-exporting countries. Because of their limited domestic opportunities for profitable investment in the short run, they deposited a substantial portion of these oil revenues with major commercial banks. As shown in table 1, these banks gained deposits estimated at roughly \$30 billion in 1974, another \$40 billion over the period 1975-77, and over \$80 billion in 1979-80. A highly competitive lending environment arose, as banks sought out potential borrowers to generate earnings from these funds. Many of these so-called "petrodollars" were "recycled" to middle-income developing countries as loans to finance public-sector expenditures that banks considered to be fairly safe from default.

^{1/} IMF, International Financial Statistics.

^{2/} Part of the payments on debts have been financed by drawing down foreign reserves.

Table 1.--OPEC bank deposits, 1974-83

(In billions of dollars)

Deposit	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Bank deposits	28.6	9.9	12.0	17.9	7.3	40.6	44.3	2.5	-12.3	-11.3

Source: New England Economic Review, July/August 1986 (from Bank of England Quarterly Bulletin, March 1985.)

Origins: demand for consumption or investment finance

Middle-income developing countries, including the five countries analyzed in this study, welcomed these loans. Countries that contracted loans early in the recycling process benefited from low, even negative, real rates of interest, because of rising commodity export prices. 1/ Even at positive real rates, many countries were encouraged by the availability of external financing to undertake expensive industrial development projects that might otherwise have been deferred. Some of these countries, notably those in the Far East, oriented their investment towards export industries. Others, especially in Latin America, invested in import-substituting industrial expansion. 2/ Some investment projects were inefficient, particularly in Latin America, and resulted in growing public-sector deficits. In some countries, loans were not used to finance investment, productive or otherwise. Rather, they supported overvalued currencies that encouraged import consumption or the purchase of foreign assets by private citizens. 3/ In some cases foreign borrowing by the public sector financed subsidies for food, fuel, or other consumer items. The contrasting uses to which borrowed funds were applied explains most of the differences among heavily indebted countries in their ability to cope with the series of external shocks that precipitated the debt crisis of 1982.

World interest rate shocks

In contrast to the accommodating monetary policies adopted by industrial countries following the first oil shocks of 1973-74, central banks slowed the growth of credit following the second round of OPEC price hikes. The Federal Reserve Bank's announcement in October 1979 that it would set targets for growth of the money supply was pivotal. 4/ Nominal growth of M1 among major

1/ The real rate of interest for a foreign borrower is the nominal interest rate less the rate of increase in its export prices.

2/ Jeffrey D. Sachs, "External Debt and Macroeconomic Performance in Latin America and East Asia," Brookings Papers on Economic Activity, 1985.

3/ John T. Cuddington, "Capital flight: Issues, Estimates and Explanations," mimeo for World Bank, 1985.

4/ William N. Eskridge, Dance Along the Precipice: the political and economic dimensions of the international debt problem, 1985.

industrial countries declined from an average rate of 10 percent during 1976-79, to about 6.5 percent during 1980-82. Because inflation rates continued to rise through 1980, real monetary growth fell sharply, from 3 percent per annum during 1977-78, to negative rates during 1979-81. For example, during 1980 real M1 declined by almost 4 percent. The chief result of these policies was a dramatic increase in both real and nominal world interest rates. Nominal rates on eurodollar deposits rose from 8.1 percent (1974-78 average) to 14 percent (1979-82 average), peaking in March 1980 at 19.5 percent. Corresponding real rates increased from 0.7 percent to 5.3 percent. In addition, net bank deposits from OPEC revenues were declining, and had fallen from over \$40 billion in 1980 to just \$2.5 billion by 1981. During 1982-83 OPEC investors withdrew in excess of \$10 billion per year. The decline in oil prices caused a redistribution in world incomes. Because oil consumers generally have a lower marginal rate of savings than oil producers, this put upward pressure on world interest rates.

These changes had a profound effect on debt servicing costs to heavily indebted developing countries. As much as three-quarters of the foreign commercial debt owed by middle-income developing countries had been contracted at variable interest rates. As a result, the dramatic increases in nominal world interest rates after 1979 resulted in sharp increases in the debt-servicing burdens of many developing country debtors. As a result, some of the foreign debt contracted during 1979-82 was incurred to avoid premature repayment of outstanding real debt and, thereby, to avoid net capital outflows. This self-reinforcing process of debt accumulation continued until 1982, when voluntary lending ceased.

Terms-of-trade shocks

The sharp rise in real interest rates triggered the severe global recession of 1981-82. One result was the first real decline in the volume of world trade since the end of World War II. As a result of the slackened world demand, commodity prices fell sharply. Table 2 presents historical data on prices for a selection of principal developing country exports. The combination of petroleum price increases and broad price declines for nonpetroleum commodity exports led to sharp declines in the terms-of-trade for many developing countries. Table 3 summarizes these changes for the five countries under investigation. Efforts made by many developing countries to boost export volume to maintain foreign-exchange earnings subsequently resulted in global overproduction and further price declines.

Dollar appreciation

Although U.S. commercial banks contracted less than 40 percent of the total foreign lending to developing countries, most of the total debt was denominated in dollars. As a result, the strong appreciation of the dollar vis-a-vis other industrial country currencies from late 1980 to early 1985 exacerbated the repayment problems facing the indebted countries. As the dollar appreciated, developing countries needed to export ever-increasing quantities to their non-U.S. markets to generate the same dollar's amount of foreign exchange.

Table 2.--World commodity price indices, 1978-85

(1980=100)

Year	Coffee	Copper	Oil	Sugar	Wheat
1978.....	71.8	65.1	43.9	27.4	82.4
1979.....	85.3	90.8	59.2	33.7	97.9
1980.....	100.0	100.0	100.0	100.0	100.0
1981.....	77.2	83.8	113.6	58.9	86.4
1982.....	68.7	73.0	116.4	29.3	76.7
1983.....	67.8	76.7	101.4	29.5	82.2
1984.....	69.2	67.3	99.0	18.2	81.1
1985.....	70.2	67.4	96.9	14.2	74.4

Source: Commodity Research Bureau, Commodity Year Book, 1986.

Table 3.--Terms of trade, 1978-85

(1978=100)

Year	Argentina	Brazil	Mexico	Philippines	Venezuela
1978.....	100	100	100	100	100
1979.....	102	88	102	103	124
1980.....	94	72	119	89	182
1981.....	90	65	127	82	202
1982.....	82	70	124	79	189
1983.....	91	73	105	88	175
1984.....	91	75	118	93	173
1985.....	83	73	117	86	171

Source: UN: Handbook of International Trade and Development Statistics Supplement 1985.

The debt crisis

Falling export revenues and rising debt-servicing costs virtually depleted Mexico's foreign exchange reserves. On August 8, 1982, Mexican authorities declared that their country would be unable to make scheduled interest payments to foreign creditors. The immediate result was a nearly complete cessation of new commercial bank lending to most developing countries, as perceptions of risks on such lending were broadly reassessed. Within weeks, curtailed access to foreign lending forced dozens of other developing countries into similar difficulties, prompting them to follow Mexico's example. Negotiations began on a case-by-case basis, first with the IMF, then with creditor governments, and finally with commercial banks, to reschedule these foreign-debt repayments. The agreements that emerged typically provided indebted countries with reschedulings of current

amortizations and modest additional credits to settle interest arrears and permit importation of necessities. In turn, the indebted countries promised to reduce their foreign borrowing requirements and to make policy changes that would improve economic performance.

To improve their external accounts these countries devalued their currencies, cut imports sharply, aggressively promoted exports, and cut public-sector deficits by slashing public investment. For the five countries under investigation, reduced access to foreign loans shifted their collective trade balances from a trade deficit of \$1.6 billion in 1980, to a trade surplus of \$39 billion by 1984.

Policies adopted by these countries as a result of the debt crisis usually entailed higher real interest rates and reduced subsidies for food, fuel, and other basic items. For many of these countries these developments have been followed by 5 years of depressed economic activity featuring sharp declines in real wages, high unemployment, and negligible net public and private investment.

The IMF-sponsored austerity program for stabilizing the economies of heavily indebted countries has come under growing criticism. The expected improvements in growth of debtor countries have either been unsustainable, as in Mexico and most recently Brazil, or failed to materialize, as in Argentina, Venezuela, and the Philippines. One critical element missing from the optimistic scenarios envisaged in 1982-83 has been the return of voluntary commercial bank lending to these indebted countries. Believing that growth policies might be preferable to austerity programs, Treasury Secretary Baker proposed an initiative in October 1985 that would make additional loans available. These, however, would be conditional upon structural reforms to be taken in the recipient countries. In a reply to this proposal, Senator Bradley suggested that debtor countries needed to avoid incurring additional foreign debts. He called for portions of the debt to be written down by the commercial banks and for reducing interest costs on the remaining debt. Critics of this proposal argue that banks would cut off trade financing to those countries whose debts were written down. Early in 1987, Treasury Department officials indicated that means needed to be found that would encourage new lending even as some existing loans are written down. 1/

Historical Summary of U.S. Trade and Financial Relationships with LDC Debtors

In 1970, the United States exported \$42 billion worth of merchandise to the rest of the world, of which \$13 billion (30 percent) went to developing countries. U.S. exports to Mexico, Brazil, Argentina, Venezuela, and the Philippines totaled \$4.1 billion in 1970. U.S. imports totaled \$40 billion in 1970, of which one-fourth originated in developing countries. The five selected countries accounted for \$3.6 billion of this total. Consequently, the United States earned a trade surplus with the five countries of \$500 million in 1970.

1/ Washington Post, "Treasury Eyes Debt Strategy," Jan. 7, 1987.

By 1978, total U.S. exports had grown to \$142 billion, of which \$50 billion (35 percent) were destined for developing countries. Of this total, the five countries accounted for \$15 billion worth of export sales. Total U.S. imports, meanwhile, reached \$176 billion, of which \$74 billion originated in developing countries. Imports from the five countries totaled \$15 billion. Consequently, trade between the United States and these countries was roughly balanced. In general, this overall trade balance consisted of U.S. trade surpluses across most industrial categories, matching large deficits in crude petroleum and food products. Table 4 presents data on net trade balances with these five countries during 1978-85, including figures for selected industries.

Specifically in 1978, the United States registered net surpluses on its trade in collected machinery and equipment (\$2.7 billion), chemical products (\$1.2 billion), motor vehicles (\$0.9 billion), and aircraft (\$0.6 billion). The United States incurred deficits in its trade with these five countries in crude petroleum (\$4.8 billion), food products (\$1.5 billion), other agricultural products (\$0.5 billion), apparel (\$0.4 billion), and footwear (\$0.4 million).

In 1980, total U.S. exports reached \$224 billion, including \$83 billion to developing countries, or 37 percent of the total. Argentina, Brazil, Mexico, the Philippines, and Venezuela collectively purchased \$28 billion of U.S. merchandise exports. U.S. imports totaled \$250 billion in 1980, of which \$119 billion came from nonindustrialized countries. Non-OPEC developing countries accounted for \$63.5 billion of this figure. U.S. imports from the five study countries were \$25 billion. Therefore, the United States maintained a \$3 billion trade surplus with these countries in 1980. Although the U.S. trade deficit on crude petroleum with these five countries grew by nearly \$7 billion relative to 1978, growing surpluses among traditional exports and a reversal in the balance on agricultural trade contributed to produce a net surplus. Net exports of other agricultural products were \$1 billion in 1980, compared with a deficit of \$0.5 billion in 1978. Increases in net exports were registered among producers of aircraft (\$1 billion), chemical products (\$0.9 billion), primary iron and steel manufactures (\$0.7 billion), construction machinery (\$0.5 billion), other machinery and equipment (\$1.4 billion), and motor vehicles (\$0.5 billion).

U.S. exports to the five countries rose to over \$30 billion during 1981. However, as a result of rising imports from these countries the U.S. balance of trade surplus fell by \$1 billion over the year. The effects of the debt problems on U.S. trade with these five countries first became evident in 1982. Sharp declines in net exports of all categories of machinery and equipment (down \$1.3 billion), motor vehicles (down \$1.2 billion), aircraft (down \$1.1 billion), other agricultural goods (down \$1.1 billion) and growing net imports of crude petroleum (up \$0.9 billion) contributed to an adverse shift in the U.S. trade balance with these five countries totaling over \$8 billion between 1981 and 1982.

By 1984 further declines in net exports of traditional exports, increases among traditional imports, and reversals of the trade balance in refined petroleum products, motor vehicles, and primary metal manufactures (ferrous and nonferrous) widened the U.S. trade deficit with these countries to over

Table 4. --Net U.S. trade with 5 countries 1/, 1978-1985, by industry sector

Input- output sector	Sector description	1978	1979	1980	1981	1982	1983	1984	1985
	(In millions of dollars)								
1	Livestock and livestock products.....	-117	-66	-68	-36	-75	-120	-54	5
2	Other agricultural products.....	-470	-328	965	1,121	-8	713	278	-414
3	Forestry and fishery products.....	-15	-16	-2	2/	-1	-4	1	-4
5	Iron and ferroalloy ores mining.....	-275	-219	-193	-266	-124	-112	-137	-149
6	Nonferrous metal ores mining.....	-19	-67	-78	-131	-138	-86	-61	-32
7	Coal mining.....	130	251	292	226	285	227	297	374
8	Crude petroleum and natural gas.....	-4,819	-7,900	-11,456	-12,419	-13,319	-12,478	-12,725	-13,065
9	Stone and clay mining and quarrying.....	-2	9	24	20	18	-2	8	-169
10	Chemical and fertilizer mineral mining.....	-22	-30	11	-80	-32	-37	-43	-47
13	Ordnance and accessories.....	-12	-11	-5	-5	-6	-9	-12	-19
14	Food and kindred products.....	-1,475	-1,765	-1,525	-1,694	-1,551	-1,770	-2,159	-1,491
15	Tobacco manufactures.....	12	5	-13	-61	-87	-214	-7	-4
16	Broad and narrow fabrics, yarn and thread mills.....	-23	58	87	62	39	-40	-63	-8
17	Miscellaneous textile goods and floor coverings.....	-26	-54	-21	-20	-5	-24	-13	-16
18	Apparel.....	-427	-384	-345	-394	-387	-528	-782	-594
19	Miscellaneous fabricated textile products.....	35	46	54	45	4	-17	-8	-26
20	Lumber and wood products, except containers.....	-207	-244	-149	-268	-174	-305	-296	-273
21	Wood containers.....	2	1	3	2	3	3	4	4
22	Household furniture.....	-52	-59	-65	-73	-63	-90	-119	-156
23	Other furniture and fixtures.....	6	3/	2	9	-14	-45	-9	-34
24	Paper and allied products, except containers.....	265	365	597	579	496	387	312	322
25	Paperboard containers and boxes.....	3/	3/	3/	3/	3/	-1	-1	-1
26	Printing and publishing.....	42	49	62	76	65	41	32	32
27	Chemicals and selected chemical products.....	1,170	1,695	2,050	1,681	1,232	753	987	778
28	Plastics and synthetic materials.....	1,349	1,584	723	1,687	1,571	454	388	407
29	Drugs, cleaning and toilet preparations.....	175	198	235	251	226	173	201	165
30	Paints and allied products.....	13	11	15	19	24	20	24	25
31	Petroleum refining and related industries.....	37	26	48	61	245	-1,314	-1,835	-1,496
32	Rubber and miscellaneous plastic products.....	163	223	433	534	302	156	142	124
33	Leather tanning and finishing.....	-80	-110	-64	-139	-120	-113	-125	-123
34	Footwear and other leather products.....	-392	-465	-430	-610	-589	-802	-1,239	-1,265
35	Glass and glass products.....	34	65	91	101	40	-27	-60	-102
36	Stone and clay products.....	-47	13	47	76	28	-65	-159	-215
37	Primary iron and steel manufacturing.....	19	257	691	308	-60	-620	-940	-631
38	Primary nonferrous metals manufacturing.....	53	133	338	76	-177	-439	-728	-456

Table 4.--Net U.S. trade with 5 countries 1/, 1978-1985, by industry sector--Continued

(In millions of dollars)

Input-output sector	Sector description	1978	1979	1980	1981	1982	1983	1984	1985
39	Metal containers.....	10	26	29	27	6	3	-12	-18
40	Heating, plumbing, and structural metal products.....	109	193	336	520	266	83	72	64
41	Screw machine products and stampings.....	5	15	29	34	19	4	19	22
42	Other fabricated metal products.....	64	94	175	150	44	-31	-64	-45
43	Engines and turbines.....	284	530	605	652	532	262	375	410
44	Farm and garden machinery.....	237	299	415	357	163	11	63	169
45	Construction and mining machinery.....	993	1,169	1,501	1,772	1,438	546	555	625
46	Materials handling machinery and equipment.....	162	160	227	264	202	53	74	43
47	Metalworking machinery and equipment.....	353	482	599	827	567	274	354	426
48	Special industry machinery and equipment.....	214	333	445	448	415	170	167	166
49	General machinery and equipment.....	398	478	630	698	534	247	228	268
50	Miscellaneous machinery, except electrical.....	115	178	210	268	215	143	177	196
51	Office, computing, and accounting machines.....	248	405	557	619	534	354	518	646
52	Service industries machines.....	236	290	372	435	300	153	167	244
53	Electric industrial equipment and apparatus.....	248	305	375	437	297	44	8	38
54	Household appliances.....	110	166	223	261	158	25	15	6
55	Electric lighting and wiring equipment.....	4	13	-52	-90	-95	-168	-247	-195
56	Radio, TV, and communication equipment.....	-95	-120	-10	-60	-235	-624	-608	409
57	Electronic components and accessories.....	-28	-51	1	-84	-163	-110	-214	-99
58	Misc. electrical machinery and supplies.....	112	177	248	293	169	10	41	79
59	Motor vehicles and equipment.....	870	962	1,467	1,989	800	-328	-441	-830
60	Aircraft and parts.....	611	1,046	1,650	1,823	705	747	603	953
61	Other transportation equipment.....	86	150	411	394	401	137	92	109
62	Scientific and controlling instruments.....	252	302	358	439	360	167	198	184
63	Optical, ophthalmic, and photographic equipment..	108	143	187	186	115	46	11	-20
64	Miscellaneous manufacturing.....	-80	-133	-122	-156	-431	-601	-598	-403
	Total:.....	-348	-119	3,220	2,242	-6,039	-14,718	-17,349	-15,103

1/ Mexico, Brazil, Argentina, Venezuela, and the Philippines.

2/ Trade surplus less than \$500,000.

3/ Trade deficit less than \$500,000.

Source: Compiled from official statistics of the U.S. Bureau of the Census.

\$17 billion. This represented a net decline of over \$20 billion from 1980 through 1984. Over this period, the overall U.S. trade deficit grew from \$25.5 billion to \$130.3 billion.

During 1985, the U.S. trade deficit with these countries narrowed by about \$2 billion, to \$15 billion. Table 5 compares trade balances in 1985 with those in 1978 for each industry.

The meaning of LDC debt repayment

When a country borrows internationally, savers in the lending country forego current consumption and investors invest less in their own countries so the funds may be transferred to the borrowing country. This immediately changes global spending patterns if borrowers and lenders purchase a different mix of goods. Demand rises for those goods more preferred by debtors than creditors and demand falls for those goods more preferred by creditors than debtors. This helps some producers and has adverse effects on others.

When an indebted country repays its foreign loans (i.e. real debt outstanding declines), 1/ the process of debt accumulation is reversed. This repayment process reduces spending by debtors and increases spending by creditors, exactly what was bargained for when the loan was made. In this phase, demand rises for those goods more preferred by creditors than by debtors and demand falls for those goods more preferred by debtors than creditors. Thus, debt amortization will be to the advantage of some producers and to the disadvantage of others.

In order for a country to repay its debt, it must generate a sufficient trade-account surplus. To accomplish this, export value must increase relative to import value until exports exceed imports by enough to repay the debt. As private and government debtors raise funds to make interest and principal payments, this causes the local currency to depreciate. 2/ The depreciation makes exports more competitive internationally and makes imports more expensive, thus tending to produce a trade surplus. If the government wishes to redistribute the burden of raising foreign exchange (usually at the expense of some economic efficiency) it may adopt such policies as selective tariffs, import quotas, or export subsidies. Policies like these will reduce the amount of currency depreciation that would otherwise result from the need to service the debt.

In some cases, it is difficult to achieve a trade surplus through export growth, because the export expansion drives down the price of exportables too much. Germany encountered this problem as it endeavored to meet reparation

1/ Interest payments alone leave the nominal loan principal intact. During inflationary periods, however, the rising price level automatically reduces the real value of the principal. Thus, constant real indebtedness in inflationary times implies rising nominal indebtedness.

2/ Depreciation of the local currency results from the increased demand for foreign currencies.

Table 5.--U.S. net exports to 5 countries 1/ in 1978 and 1985, and changes in net exports from 1978 to 1985, by industry sector

		(In millions of dollars)		
Input-output sector Number Description	Net exports		Change in net exports 1978-85	
	1978	1985		
1 Livestock and livestock products.....	-117	5	122	
2 Other agricultural products.....	-470	-414	55	
3 Forestry and fishery products.....	-15	-4	11	
5 Iron and ferrous alloy ores mining.....	-275	-149	126	
6 Nonferrous metal ores mining.....	-19	-32	-13	
7 Coal mining.....	130	374	244	
8 Crude petroleum and natural gas.....	-4,819	-13,065	-8,246	
9 Stone and clay mining and quarrying.....	-2	-169	-167	
10 Chemical and fertilizer mineral mining.....	-22	-47	-25	
13 Ordnance and accessories.....	-12	-19	-7	
14 Food and kindred products.....	-1,475	-1,491	-17	
15 Tobacco manufactures.....	12	-4	-16	
16 Broad and narrow fabrics, yarn and thread mills..	-23	-8	15	
17 Miscellaneous textile goods and floor coverings..	-26	-16	10	
18 Apparel.....	-427	-594	-167	
19 Miscellaneous fabricated textile products.....	35	-26	-61	
20 Lumber and wood products, except containers.....	-207	-273	-66	
21 Wood containers.....	2	4	2	
22 Household furniture.....	-52	-156	-104	
23 Other furniture and fixtures.....	6	-34	-41	
24 Paper and allied products, except containers.....	265	322	56	
25 Paperboard containers and boxes.....	2/	-1	2/	
26 Printing and publishing.....	42	32	-10	
27 Chemicals and selected chemical products.....	1,170	778	-392	
28 Plastics and synthetic materials.....	349	407	58	
29 Drugs, cleaning and toilet preparations.....	175	165	-10	
30 Paints and allied products.....	13	25	12	
31 Petroleum refining and related industries.....	37	-1,496	-1,532	
32 Rubber and miscellaneous plastic products.....	163	124	-39	
33 Leather tanning and finishing.....	-80	-123	-43	
34 Footwear and other leather products.....	-392	-1,265	-873	
35 Glass and glass products.....	34	-102	-135	
36 Stone and clay products.....	-47	-215	-168	
37 Primary iron and steel manufacturing.....	19	-631	-650	
38 Primary nonferrous metals manufacturing.....	53	-456	-509	
39 Metal containers.....	10	-18	-28	
40 Heating, plumbing, and structural metal products..	109	64	-45	
41 Screw machine products and stampings.....	5	22	17	
42 Other fabricated metal products.....	64	-45	-109	
43 Engines and turbines.....	284	410	126	
44 Farm and garden machinery.....	237	169	-69	
45 Construction and mining machinery.....	993	625	-368	
46 Materials handling machinery and equipment.....	162	43	-119	
47 Metalworking machinery and equipment.....	353	426	73	
48 Special industry machinery and equipment.....	214	166	-48	
49 General machinery and equipment.....	398	268	-130	
50 Miscellaneous machinery, except electrical.....	115	196	81	
51 Office, computing, and accounting machines.....	248	646	397	
52 Service industries machines.....	236	244	7	
53 Electric industrial equipment and apparatus.....	248	38	-209	
54 Household appliances.....	110	6	-104	
55 Electric lighting and wiring equipment.....	4	-195	-199	
56 Radio, TV, and communication equipment.....	-95	409	504	
57 Electronic components and accessories.....	-28	-99	-71	
58 Misc. electrical machinery and supplies.....	112	79	-33	
59 Motor vehicles and equipment.....	870	-830	-1,699	
60 Aircraft and parts.....	611	953	342	
61 Other transportation equipment.....	86	109	23	
62 Scientific and controlling instruments.....	252	184	-68	
63 Optical, ophthalmic, and photographic equipment..	108	-20	-128	
64 Miscellaneous manufacturing.....	-80	-403	-323	
Total.....	-348	-15,103	-14,756	

1/ Mexico, Brazil, Argentina, Venezuela, and the Philippines.

2/ Value between \$0 and -\$500,000.

Source: Compiled from official statistics of the U.S. Bureau of the Census.

payments following World War I. In such cases, trade surpluses can only be obtained through greater reliance on import contraction.

This basic economic explanation applies fully to the effects of indebtedness in Latin America and the Philippines on U.S. industries.

Debt-related austerity: crisis and non-crisis debt

Debt need not result in eventual austerity. The debt accumulation and amortization cycle can be part of sound economic development. It makes sense to borrow if the funds are expected to finance economic growth in excess of the interest payments. For example, international capital markets played an important role in the U.S. industrial revolution during the mid to late 19th century. This role is being repeated today in rapidly industrializing nations like Korea. When debt amortization begins in such countries, disruptive and unexpected austerity can be avoided. The debt is used to finance investments that produce more than enough profit to the economy as a whole to repay the principal plus interest. The capital acquired with international funds raises the productivity in the economy and leaves the society wealthier following debt repayment than if the debt had never been incurred.

For troubled LDC debtors, the story is very different. Heavy borrowing throughout the 1970s and early 1980s did not induce sufficient economic growth in recent years to meet debt repayments. This shortfall was exacerbated by the sharp increase in real interest rates in the 1980s, often attributed to fewer recycled petrodollars, large fiscal deficits among developed countries, and tight monetary policies, especially in the United States. Furthermore, borrowed funds often financed capital flight, current consumption, or investments in industries that were chosen by the government and not by markets. In retrospect, these were not prescriptions for growth. As the debt accumulated, worried creditors refused to refinance maturing debt on favorable terms, if at all. (These ingredients of the debt crisis are discussed in more detail in the country case studies.) More expensive and less accessible new credit led the troubled debtors to cut back on current borrowing, even though the repayment coincided with stagnant or declining real per capita incomes. As a result, austerity policies were required to meet debt-service schedules.

Current interest and principal repayments have been mostly financed through expenditure reductions -- austerity -- and are at most only partially offset by new lending. The consequent surplus in the combined interest and capital account enjoyed by creditor nations as a whole largely reflects the growing trade account surplus generated by troubled debtors. These two surpluses differ only to the extent debtor nations have run down foreign reserves, a process that has by now mostly abated. Thus, financial inflows have increased among creditor nations and fallen among troubled debtor nations.

Adjusting to crisis: consequences and options for debtors and creditors

The following are some of the ways austerity has manifested itself among troubled LDC debtors:

- o Sharp cuts in public budgets as governments, which have inherited responsibility for debt from insolvent private borrowers, attempt to conserve foreign exchange;
- o Export promotion efforts that have focused on traditional products, often raw materials. Export diversification, which is proceeding gradually, has been hampered by limited access to essential imported capital equipment;
- o Voluntary reductions in imports as businesses and households respond to smaller real incomes, and the dramatic declines in the real exchange rate and terms of trade, (the terms of trade deterioration has been exacerbated by the simultaneous increase in similar export supplies of several debtor countries); and
- o Exchange controls and import licensing that have come into more prevalent use.

Although reliance on freely floating exchange rate adjustments could generate the required foreign exchange, LDC debtor governments have typically preferred a mixed approach involving both the free market and interventionist policies.

Policy options for creditor countries. --One possible strategy for creditor countries is some form of debt forgiveness. Professor Rudiger Dornbusch of Massachusetts Institute of Technology, for instance, proposes modest forgiveness together with longer term loans to cover some interest that is currently due. He believes this approach, if carefully designed, would allow debtor nations to undertake long-neglected investments needed for economic growth. By facilitating investment, Dornbusch believes, creditors stand to see more debt eventually repaid than under other available options. 1/

A second strategy is to encourage continued lending on condition that appropriate growth recovery programs are implemented. This is the essence of the "Baker plan." Analysts who favor this plan foresee substantial debt repayment following renewed economic growth. Active policies such as these are intended to alleviate the austere conditions facing troubled debtors.

A third view held by economists such as William Cline of the Institute for International Economics, is that the crisis, while involving real strains in the debtor economies, will prove self-correcting. Cline argues that adequate economic recovery is already well under way in the major debtor countries. Even without pressure from creditor country governments, private lenders have offered enough additional credit to see these countries through their struggle against illiquidity, revealing underlying solvency and excellent prospects for full repayment. 2/

1/ Interview with Commission staff, Oct. 6, 1986.

2/ See, for example, William R. Cline, "Analysis, Experience, and Prospects," Journal of Development Planning, No. 16, 1985, pp. 25-55; Interview with Commission staff, Oct. 30, 1986.

Effects on U.S. Industries. -- If debt-related austerity is to be relieved, the current flow of funds from debtors to creditors must be reduced. Creditors will then have less to spend whereas debtors will have more. The net effect on U.S. producers is the sum of the effect on demand by creditors and demand by debtors. But analysts disagree on how creditors and debtors would respond to such a change in financial flows. Professor Dornbusch believes that debtors would spend, and not save, virtually all of their increment in funds. He argues that governments in debtor nations are responsible for most debt obligations since private banks have long since become insolvent. Dornbusch reasons that LDC governments, with budgets already stretched to the breaking point, would not defer spending. Moreover, he contends that investment has suffered most over the course of the debt crisis and that therefore the foreseeable boost in investment expenditure would fall disproportionately on U.S. exports, which are intensive in capital goods. On the other hand, he notes that U.S. creditors account for approximately a third of total credit. If the reduction in financial inflows were shared proportionally by all creditors, most would be borne by non-U.S. residents who have a relatively low tendency to spend on U.S. products. Thus, Dornbusch concludes that U.S. industry stands to gain substantially through increased demand brought about by a solution to the debt crisis. 1/

In contrast, Dr. Cline predicts that debt relief would have little effect on the expenditures of recipient debtor countries. Instead, he believes the debtor LDCs would save the decrease in financial payments they are obligated to make. This would take the form of international reserve accumulation. Cline contends that debtors would either perceive relief as forgiveness received over a few years, or as deferral. To the degree the relief is viewed as forgiveness, he bases his prediction on Professor Milton Friedman's permanent income hypothesis. This hypothesis holds that a temporary increase in income, such as limited debt forgiveness, will be saved so that it may be spent slowly, over a protracted period of time. If relief is perceived as deferral, debtors would save the deferred payments so as to fund eventual repayment. Further, Cline argues that it is unlikely that debt relief would result in large new capital expenditures. He attributes the virtual disappearance of investment in troubled debtor countries to a desired adjustment in the labor to capital ratio. Tighter world capital markets and higher real interest rates naturally lead to increased labor intensity in production processes. Accordingly, Cline expects healthy investment to resume, regardless of debt relief, once this adjustment period has run its course. In short, Cline predicts that U.S. industry would gain little if the debt crisis were addressed through active policy. 2/

It is apparent from divergent positions such as those held by Cline and Dornbusch that there is much uncertainty about the significance of the debt crisis to U.S. industry. We are unable to discount either of these views, since both have merit. We merely note them before proceeding with the exercises in applied analysis that follow in this report.

1/ Interview with Commission staff, Oct. 6, 1986.

2/ Interview with Commission staff, Oct. 30, 1986.

Selecting a counterfactual case for comparison.--To assess the effect of debt-related austerity on U.S. industries, it is necessary to select a counterfactual situation in which such austerity did not exist and compare this situation with the one that prevails today. There are several candidates. One might ask what the demands for U.S. products, both exportables and importables, would be if the crisis responsible for that austerity were alleviated. Alternatively, one might ask what the demands for U.S. products would be if the debt had not been incurred in the first place. The answers to these two questions need not be the same.

The second formulation takes account of structural differences brought about by the loans in the economies of both debtor and creditor nations. For example, some of the loans might have financed export development. Today, with the physical capital in place, U.S. import-competing industries are adversely affected. This formulation also takes into consideration the effect on U.S. industries attributable to the original spending of the borrowed funds. Most of the debt was initially incurred during the 1970s and early 1980s, and some of it was used to purchase U.S. products. Thus some U.S. industries might have been worse off in earlier years if the debt had not been incurred. However, these effects are probably small, since a large portion of the debt was returned to creditor countries in the form of capital flight. The first formulation ignores the structural changes in debtor and creditor countries brought about by the loans. Instead, it concentrates on comparing the actual demands faced by U.S. industries with those that would be faced if the debt crisis, and its associated austerity, were relieved.

This report uses the first formulation. The main advantage of viewing the matter this way is that it is forward looking. The past is unchangeable, but the future is not. A second advantage is that it allows us to proceed without measuring the effect the loans had on the structure of the economies of debtors and creditors, which would be a formidable task. The next section provides a detailed explanation of the methodology actually used to determine the effects of relieving debt-related austerity.

Methodology

The Commission used a market-share analysis to estimate the extent to which individual U.S. industry sectors have expanded or contracted as a result of the LDC debt crisis. The analysis is applied to the five debtor countries combined and to each of these countries individually. The method assumes that without the debt problem, each LDC debtor nation's share of total U.S. imports and exports would have been the same as before the debt crisis arose. This assumption provides the counterfactual state against which the "lost" or "gained" imports or exports can be measured.

The predebt crisis period was defined as 1978-81. Average import and export market shares for each industry and for each country were calculated for this period and compared with the same market shares for 1985. The ratios of like shares were calculated to obtain market-share changes.

Formally, $R = SA/SB$

where R is the ratio of the export share (or import) after the onset of the crisis (SA) to the corresponding share before the crisis (SB). If R is less than unity for exports, or greater than unity for imports, this is taken as evidence that U.S. exports declined or imports increased by the country's debt trouble. For example, the value of R for U.S. exports of apparel to Venezuela is 0.185, which is interpreted to mean that Venezuela's debt-related austerity has caused a reduction in U.S. exports of this product to Venezuela.

After calculating the ratio R, it is then used to calculate the amount that the country would have imported from or exported to the United States in the absence of the debt crisis. For example, the counterfactual export value was calculated by dividing the actual level of exports in 1985 by R. The difference between the counterfactual and actual 1985 exports is called the "adjustment amount" (AA).

$$\text{That is, } AA = AE/R - AE$$

where AE is the actual amount of exports to each country in 1985. The same procedure was used to estimate the adjustment amount for imports.

The adjustment amount is the primary change in production in U.S. industries -- that is, the change resulting directly from the change in exports or imports with each trading partner. In addition, there are secondary effects on U.S. industries that result from the use of some products as inputs to production of other products. For instance, an increase in imports of autos will tend to cause a decline in demand for U.S.-made autos which in turn will result in a decline in demand for domestic steel. We estimated the secondary effects by using the Commerce Department's 1977 input-output table. This provides estimates of the total changes in production resulting from the trade changes in each industry. The estimated total effect in each industry was then divided by total U.S. output in the industry to determine the relative importance of the output gain or loss to the industry.

It should be noted that not all of the effects of debt-related austerity on U.S. trade would necessarily be adverse. For example, a reduction in domestic investment in a debtor country could cause that country to increase its imports of some goods whose production is severely limited by the decline in investment. Similarly, such a reduction in investment could induce the debtor country to reduce its exports of some goods for which the decline in investment constrains capacity.

The methodology shows how each LDC debtor's share of total U.S. trade has changed in the period of the debt crisis, and how these changes have affected U.S. industries. The main contribution of this approach is that it allows us to separate the effects of the debt crisis from the general effect of the overvalued dollar. The appreciation of the dollar tended to worsen the U.S. trade balance against most countries, including LDC debtor nations. Clearly, this component of the deterioration of trade with LDC countries should not be attributed to the debt crisis.

On the other hand, given available data, no methodology can take account of all the factors besides the debt crisis that have affected trade. Therefore, it is important to understand the weaknesses of the methodology. The following are the main weaknesses:

(1) The methodology cannot distinguish between the effects of debt-induced austerity and other country-specific changes that took place over the same period. It merely treats the debt crisis as the major cause of these changes.

(2) The comparison period, just before the onset of the debt crisis, includes several years when the LDC debtors were actively borrowing. This borrowing financed artificially high import levels, and thus tends to overstate U.S. exports to these countries and understate U.S. imports from them compared with a "normal" state of affairs. Thus, subsequent declines in U.S. exports and increases in U.S. imports identified by the methodology might be overstated.

(3) As discussed in the section on the meaning of debt repayment, an end to the debt crisis through forgiveness of the debt or softening of its terms implies less disposable funds for creditors as well as more for debtors. The methodology does not account for the effect of reduced expenditure by creditors on U.S. products. This tends to cause the estimated negative effects on U.S. production to be overstated.

(4) The methodology tends to overstate the effects on U.S. production caused by the decline in U.S. exports or the increase in U.S. imports, because it ignores price adjustments. For example, if an LDC debtor buys less of a U.S. product, this will put downward pressure on that product's price, inducing other consumers in the United States or abroad to buy more. These effects on other consumers are ignored. Moreover, adjustments in input prices might induce some industries to expand, even if our methodology shows a decline in production.

(5) The constant market share approach does not account for the greater growth that ordinarily might be expected in LDCs. These countries have had higher trend growth rates than other U.S. trading partners in recent decades. Had the troubled LDCs examined in this study grown at a normal rate, they would have been increasing their share of U.S. trade, both imports and exports. This causes the methodology to tend to understate the apparent decline in U.S. exports and to overstate the apparent increase in U.S. imports, because it assumes all countries would have grown at the same rate in the absence of the debt crisis. It is not clear whether the net effect of this methodological weakness is a tendency to understate or overstate the effect of the LDC debt problem on the U.S. trade balance.

(6) Input coefficients from input-output tables give average, not marginal, factor requirements. In order to analyze properly the effect of a change in production on demand for factors, one should use marginal input coefficients, i.e. the amount of each factor needed to produce an additional unit of the product. Tables of marginal input requirements, however, do not exist, so the present methodology assumes that marginal and average requirements are equal. It is unknown whether reliance on average rather than marginal coefficients causes the methodology to overstate or understate any particular result.

In addition, the estimates constructed using this methodology do not account for general equilibrium price adjustments that would reasonably be expected to occur. The effects of these price adjustments are probably substantial. Thus, the methodology used in this study is more reliable in identifying the most adversely affected industries than in estimating overall effects on U.S. trade, production, or employment.

Despite these imperfections, the methodology is a significant advance over attributing all the recent changes between U.S. trade and the debtor countries to the debt crisis, as is often done. Furthermore, most of the known biases tend to cause the estimates in this study to overestimate the effects of LDC debt on the U.S. trade balance with LDC debtors. Thus the reported estimates might reasonably be interpreted as upper bounds on the probable impact on U.S. industries.

MEXICO: A CASE STUDY

Historical Background

Mexico has been one of the most successful of the developing countries, achieving a 6.4 percent average annual rate of gross domestic product (GDP) increase since World War II. Nonetheless, since 1982 this impressive growth rate has dwindled, and Mexico has needed to adjust to its new situation of low oil prices and an external debt of about \$106 billion in early 1987. The following will describe both the pre-1982 period of economic growth and the post-1982 adjustment of the Mexican economy.

Import substituting industrialization, 1947-70

Using high tariffs, import licensing, exchange rates and domestic subsidies, the Mexican Government provided considerable support for selected manufacturing industries after World War II. The effect of these policies is reflected in table 6, which shows the contribution of various industry sectors to GDP from 1940 to 1980. One of the most significant changes was the growth of manufacturing and the decline of agriculture in terms of their proportional contributions to GDP.

In contrast to the considerable attention paid to manufacturing during the 1950's and 1960's, little attention was given to Mexico's international competitiveness. Exports, for example, fell from 10 percent of GDP in 1950 to 5 percent in 1970. Part of the decline in exports can be attributed to the policy of the Mexican Government to provide subsidies to certain factor inputs such as capital, energy, and other public utilities. In general these policies were biased against labor-intensive sectors. A World Bank study found, for example, a tendency for capital intensive, natural-resource based industries to perform better than labor intensive industries despite Mexico's comparative advantage as a labor surplus country. ^{1/} In addition to a lackluster export performance, these policies were blamed for high unemployment, low wages for nongovernment and nonunion labor, and large-scale outmigration.

For most of this period, foreign credit granted to Mexico was predominantly official, i.e. from multilateral lending agencies and from bilateral, government to government, agreements. Even as late as 1970, 42 percent of outstanding debt was from official sources. Overall indebtedness, however, was kept relatively low during this period. For example, in 1970 publicly guaranteed external debt from both official and private sources was only 9.1 percent of GDP.

Public expenditure led growth, 1971-76

The problems that led to the crisis of 1982 had their origins in the early 1970's. High levels of import protection, and Government subsidies to domestic industries increased during the early 1970's, and many sectors of the

^{1/} World Bank, Mexico, Manufacturing Sector: Situation, Prospects and Policies, IBRD, Washington, DC, 1979.

Table 6.--Mexico: Gross domestic products, by sectors and by specified years, 1940 to 1980

	<u>1940</u>	<u>1950</u>	<u>1960</u>	<u>1970</u>	<u>1980</u>
	Percent	Percent	Percent	Percent	Percent
	total of	of total	of total	of total	of total
Agriculture.....	22.4	20.0	16.6	11.6	9.0
Manufacturing.....	16.7	19.2	21.4	22.8	24.9
Mining.....	4.4	2.3	1.7	1.0	3.2
Petroleum.....	2.4	2.2	2.5	4.2	<u>1/</u>
Electricity.....	.6	.6	.8	1.7	1.5
Construction.....	5.1	4.4	4.9	4.7	5.5
Transport.....	3.7	4.0	4.0	3.2	7.5
Commerce.....	22.0	24.2	23.7	31.8	25.7
Government.....	4.6	4.7	4.0	5.8	<u>1/</u>
All other.....	18.0	18.1	20.3	13.2	22.7
Total.....	100.0	100.0	100.0	100.0	100.0

1/ For 1980, the petroleum sector is included with mining and government is included in all others.

Source: Manual de Estadísticas Básicas from Timothy King, Mexico: Industrialization and Trade Policies Since 1940, Oxford University Press, 1970, p. 17; Weintraub, Sidney, Free Trade Between Mexico and the United States, 1984, p. 98.

economy became dependent on fiscal incentives, subsidized imports, preferential credit, and "buy Mexico" procurement policies. Reflecting this, the level of subsidies and Government expenditure in support of economic activities increased significantly in the 1970's, reaching up to 61 percent of all Government expenditure by 1975 from an average level of 45 percent in 1965-70. 1/ One of the main features of this growth was the increase in the size and number of state-owned companies, such as the state oil company, PEMEX, and the state food distribution enterprise, CONASUPO. These enterprises expanded faster than the economy at large and their number doubled from 1970 to 1976.

Along with the expanding Federal Government, state-owned companies required increasing amounts of resources, and this was reflected in the growing Federal budget. Whereas from 1965-1970 Federal Government spending averaged 25.0 percent of GDP, from 1971 to 1976 this increased to 28.3 percent of GDP. However there was an absence of a compensatory increase in Government revenues, and the public sector deficit (including both the Federal Government and its enterprises) which averaged 3.5 percent of GDP in the 1965-70 period, increased to 8.5 percent of GDP in 1975. The increased deficit was largely financed by increased domestic borrowing by the Federal Government and by

1/ Newell, Roberto and Rubio F., Luis, Mexico's Dilemma, Westview Press, 1984, p. 171.

money creation. As a consequence, the annual rate of growth of the money base went from 18.9 percent in the 1965-70 period to 25.1 percent in the 1971-76 period. 1/ This combination of policies has been blamed for inflation in Mexico. Until 1970, the change in Mexico's consumer price index had followed trends in world inflation, increasing at an average annual rate of 2.8 percent between 1958 and 1970. During the period 1971 to 1976, however, the average inflation rate increased to 12.9 percent. 2/

These internal domestic events have also been credited with having adverse effects on the external trade and financial sectors of the Mexican economy. In the late 1960's Mexico usually had a small deficit on its current account and this was compensated for by foreign direct investment, moderate amounts of public long-term debt, and the errors and omissions account. 3/ By 1974-75, however, not only had the usual negative items on the current account (such as the merchandise trade balance and interest payments) tripled but also the traditional counterbalancing items such as direct foreign investment and the errors and omissions account had also turned negative as private Mexican citizens purchased assets abroad, perhaps in anticipation of a devaluation of the peso. Mexico compensated for these outflows by borrowing more from foreign banks and drawing down its reserves.

During this period the level of Mexico's foreign debt grew considerably, from \$4.1 billion in 1971 to \$18.3 billion in 1976. Also private lenders became the main source of credit, contributing 77 percent of the 1976 total. In part because the level of the debt grew considerably, but also because of the 1976 recession, the level of debt increased to 28 percent of GDP in 1976.

Expansionary fiscal policies were largely blamed for the deterioration of the current account, the mounting level of debt, and the problems of maintaining a fixed exchange rate in the face of rapid inflation. Imports increased dramatically, exports declined, and both foreign investment and short term private capital flowed outward, apparently in anticipation of the impending devaluation.

1/ Ibid., pp. 174-176.

2/ Ibid., p. 185.

3/ The errors and omissions account was usually positive, and consisted largely of funds foreigners placed in Mexican bank accounts. From 1965 to 1970 interest rates averaged 3.3 percent higher in Mexico than in the United States and with a stable peso/dollar exchange rate, Mexican savings accounts were quite popular with foreigners. Ibid, p. 149.

Growth Through Oil and Foreign Borrowing

Because of problems with international finances--the current account deficit and the mounting debt burden--Mexico was forced to devalue the peso 24 percent in 1976 and to turn to the IMF for assistance. In exchange for IMF help Mexico agreed to an adjustment plan and also started a process of trade liberalization.

Under the IMF plan Mexico agreed to reduce the public deficit from 9 percent of GDP in 1976 to 4.5 percent in 1977. Hence the newly elected Government of President Jose Lopez Portillo started its term by reducing the Government's deficit from 8.7 percent in 1975 to 5.1 percent of GDP in 1977. These initial adjustments led to a decrease in the rate of inflation (down to 16 percent in 1977 from 22 percent in 1976), an increase in domestic savings, and a decrease in the size of the current account deficit. Furthermore, capital flight declined dramatically.

Under the trade liberalization plan, Mexico was to begin dismantling its import controls in 1980, and this was to be followed by tariff reductions. Mexico also negotiated an agreement to enter the General Agreement on Trade and Tariffs (GATT). However by 1978, under pressure from domestic business and labor interests fearing the loss of protection from imports, the Government decided against joining and also withdrew most of its plans to liberalize its trade policies.

Primarily because of the optimistic announcements of oil discoveries off Mexico's southeast and gulf coasts in 1977 and the rising world price of oil, pressure to expand public expenditures began anew, and the deficit increased again as a proportion of GNP in 1979. In 1978, Mexico's external debt totaled \$35.7 billion, or 35.5 percent of GNP (table 7). Also, the rate of inflation rose to 20 percent by 1980, and the peso again became overvalued. The overvalued peso, together with increased Government expenditures and widespread economic expansion, led to a large current account deficit in 1979 (table 8) that was larger than expected (over \$5 billion), especially considering that the revenue from oil exports was by then substantial (almost \$4 billion).

Behind the enormous growth in the current account deficit was an optimism that seemed to encourage Mexico to place considerable trust in an economic scenario of falling interest rates and rising oil prices. Consequently Mexico borrowed to finance its current account deficit and found the large overseas banks willing to lend and share in the optimistic picture of the future. Mexico's external debt soared during this period from \$42.8 billion in 1979 to \$85.8 billion in 1982. All but about \$12 billion of the debt was owed to private creditors in the form of direct and syndicated loans from financial institutions, bonds and suppliers credits. Approximately 75 percent of the debt was at variable interest rates.

The future on which this lending was predicated, however, turned out to be quite different than anticipated. In 1980 and 1981, Government expenditures grew at rates faster than previous years (the rates of growth were 26.8 percent and 22.0 percent respectively). The fiscal deficit also grew commensurately, reaching 14.7 percent of GDP by 1982, almost three times the 1976 level. The price of oil decreased for the first time in 1981.

Table 7.--Mexico: Debt indicators, 1978-84

Year	Debt/ GNP	Debt/ Exports 1/ -----Percent-----	Debt Service/ Exports	Gross Debt \$ billion
	1978.....	35.5	312.8	54.9
1979.....	32.6	267.8	62.2	42.8
1980.....	31.7	231.9	31.9	57.1
1981.....	33.9	256.2	27.9	77.9
1982.....	55.4	309.6	33.9	85.8
1983.....	70.4	327.3	38.3	93.7
1984.....	58.8	301.1	34.3	97.3

1/ Exports refer to total goods and services.

Source: World Bank, World Debt Tables, 1986.

Table 8.--Mexico: Summary balance of payments, 1979-85

(In millions of dollars)

Year	Merchandise (FOB)		Trade balance	Services (net)	Current account balance 1/	Capital account 2/		Use of reserves 3/ 4/
	Exports	Imports						
1979.....	9,301	-12,131	-2,830	-2,854	-5,684	5,345	-315	
1980.....	16,066	-18,896	-2,830	-5,607	-8,437	13,165	-958	
1981.....	19,938	-24,037	-4,099	-10,089	-14,188	23,497	-1,075	
1982.....	21,230	-14,435	6,795	-13,309	-6,514	8,259	3,573	
1983.....	22,312	-8,550	13,762	-8,645	5,117	-2,009	-2,033	
1984.....	24,196	-11,255	12,941	-9,112	3,829	-665	-2,151	
1985.....	21,867	-13,460	8,407	-8,317	90	-1,404	2,731	

1/ Current account excludes net transfers.

2/ Capital account includes net transfers and liabilities constituting foreign authorities' reserves.

3/ Settlements basis (not reflecting counterpart items).

4/ (-) denotes increase in reserves.

Source: IMF, International Financial Statistics.

Nonetheless, merchandise imports continued to grow, and capital flight (estimated to be a cumulative \$29 billion over the 1976-82 period) grew substantially.

Financing public expenditures became a great problem since neither taxes nor oil revenues were sufficient to pay for higher spending levels, and with the decreasing price of oil, the availability of long term foreign loans was beginning to dry up. Consequently, the Government accumulated about \$15.3 billion in short-term loans in 1980 and 1981 mostly to cover capital flight (the errors and omissions account showed a net outflow of \$17 billion between 1981 and 1983), which was stimulated by a negative real interest rate and the increasing probability of a devaluation. The increase in the use of short-term loans (figure 1) and the growth in the size of the debt were substantial during this period. Whereas in 1978 short-term loans were \$4.9 billion or 14 percent of the \$35.7 billion debt, by 1982 short-term loans were 30 percent of the total.

The expected devaluation came on February 18, 1982, when the Bank of Mexico lowered the value of the peso from 26.6 to 44.6 pesos to the dollar. This action, however, did not end the crisis. Inflation worsened, and the rate of growth became more sluggish.

In August 1982 Mexico was forced to turn to the IMF in order not to default on its debt. In exchange for the right to purchase SDR 3.4 billion from the IMF, Mexico agreed to cut the budget deficit from 16.5 percent in 1981 to 8.5 percent in 1983, to reduce foreign borrowing to \$5 billion in 1983, to raise taxes, and to cut subsidies and limit wage increases. 1/

The year 1983 was one of steep economic decline for Mexico followed by significant improvements in 1984. In 1985, however, the economy was again stimulated by Government expenditures and the economic crisis returned in 1986.

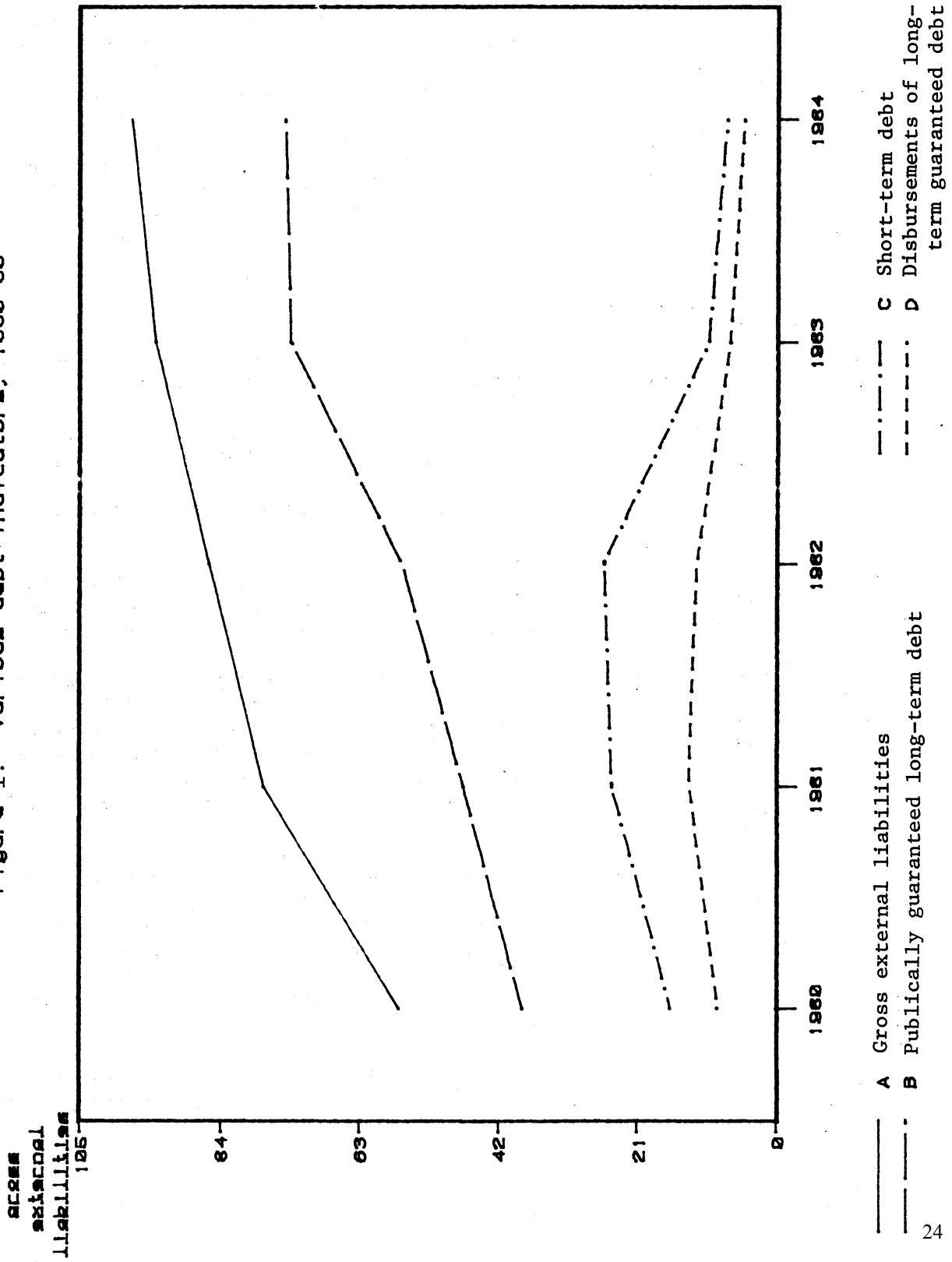
In 1983, the Government deficit was reduced to 8.7 percent of GDP, close to the IMF target of 8.5 percent. This resulted in a fall in GDP of 4.7 percent and an increase in unemployment. Real wages fell by over 25 percent during 1982-83. 2/ To raise foreign exchange, Mexico reduced imports from \$23 billion in 1981 to \$7.7 billion in 1983 and increased exports from \$19.4 billion to \$21.4 billion to produce the first current account surplus in 27 years (figure 2).

In 1983, the two-tier exchange rate system established in August 1982 continued to consist of a so-called "free-rate" and a controlled rate. The ultimate merging of the two rates was delayed in 1983, but both rates continued to be adjusted downward to encourage exports. Nonetheless, in 1980-82, the fall in the exchange rate was less than the decline in the purchasing power of the peso, and so, in real terms the peso appreciated.

1/ Joseph Kraft, The Mexican Rescue, Group of Thirty, New York, June 1984.

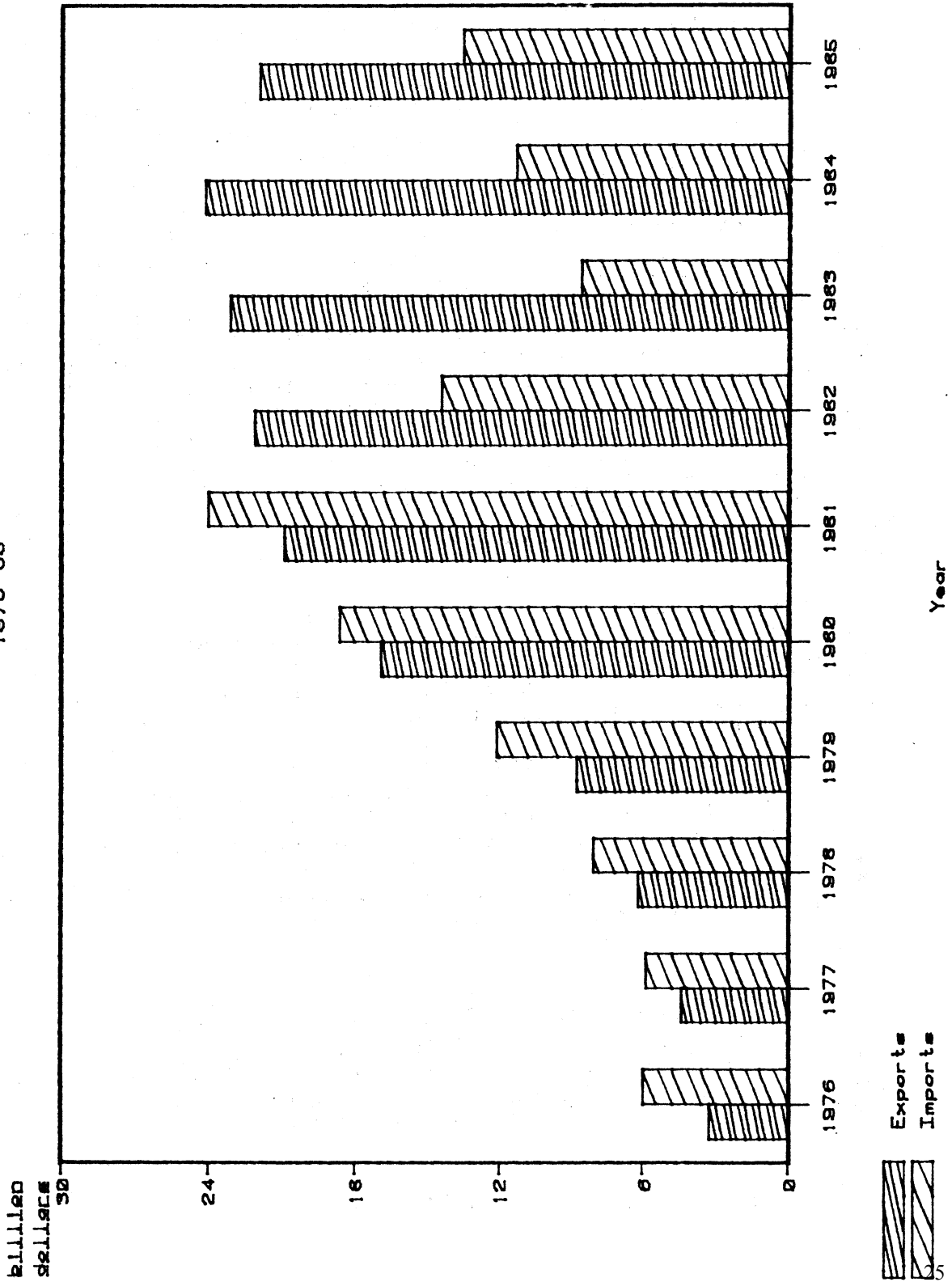
2/ Inter-American Development Bank, Economic and Social Progress in Latin America/1986 Report, p. 314.

Figure 1.--Various debt indicators, 1980-85



Source: World Bank, World Debt Tables, 1985-86.

Figure 2.--Mexico: Merchandise imports and exports
1976-85



Exports
Imports

After the contraction of 1983, the Mexican economy expanded in 1984 by 3.5 percent. The economic expansion was caused in large part by increased Government spending and a fiscal deficit of 6.9 percent of GDP. This was somewhat higher than the level agreed to with the IMF in 1982, 5.5 percent of GDP, and signaled the unraveling of the 1982 agreement.

On the positive side, inflation continued to fall, from 80 percent to 59 percent, in 1984. Also, Mexico maintained a positive current account and trade balance.

The trade and current account surpluses in 1983 and 1984 created a favorable climate for renegotiating the terms of its foreign debt. Consequently an agreement was reached between the Government and the largest foreign commercial creditors for restructuring the debt. The accord covered about half of Mexico's 1984 outstanding debt of \$97 billion and permitted the payments on this debt to be stretched out over 14 years instead of falling heavily in the 1985-89 period. The agreement was significant because, unlike prior reschedulings, which only delayed payments for 1 year, it allowed for multiyear delays, consisting of \$23.6 billion of outstanding balances that originally fell due between 1982 and 1984 but had been rescheduled in 1982 and 1983; \$20.1 billion of outstanding balances that fell due between 1985 and 1990 but were not rescheduled; and a post-crisis loan of \$5 billion granted in 1983. The loan agreement also reduced Mexico's interest payments by linking interest rates to the London Interbank Offered Rate (LIBOR) rather than to the U.S. prime rate, which is usually higher. As a consequence of this change and also because of falling interest rates, the effective interest rate Mexico must pay has declined since 1981. According to the World Bank Debt Tables, the average interest rate was 15.4 percent in 1981, and 11 percent in 1984. 1/

The main indicators of the level of debt service peaked in 1983 and declined in 1984. The ratio of external debt to GNP fell from a high of 70.4 percent in 1983 to 58.8 percent in 1984. Also total debt service to exports fell from 38.3 percent in 1983 to 34.3 percent in 1984. 2/ With the reschedulings these ratios were probably reduced even further.

By 1985, the overstimulation of the economy begun in 1984 by larger than planned Government deficits had created a fiscal deficit of 10 percent of GDP instead of the targeted 5 percent. The IMF revoked its loan agreement with Mexico, withdrawing the last disbursements of its 1982 commitment. Another consequence of the rapid increase in spending was a return to higher rates of inflation--up to 64 percent in 1985 from 59 percent the year before and well above the IMF target rate of 35 percent. The economy's overall growth rate in 1985 was 3.5 percent.

The international sector of the Mexican economy was affected by the declining demand for petroleum exports, which was partly reflected in the fall of the trade surplus, from \$12.9 billion in 1984 to \$8.4 billion in 1985. In addition, imports increased 20 percent. Even tourist revenues were reduced following the September 1985 earthquake. The net result was that the current account was just barely in surplus at \$90 million.

1/ World Bank, World Debt Tables, 1986, pp. 326-329.

2/ Ibid.

IMF agreement, 1986

In 1986 Mexico again needed both an IMF agreement and more loans from its creditors. In July 1986 an agreement was reached with the IMF for a stand-by credit of SDR 1.4 billion. This latest IMF agreement calls for current expenditure cuts, increased public investment, tax reform measures, and price adjustments to bring Mexican prices closer to market levels, all leading to a 3 percentage point reduction in the deficit/GDP ratio by the end of 1987.

The IMF standby credit is included with four World Bank policy loans totaling \$1.3 billion. The largest of these loans, a \$500 million trade liberalization loan, will support a substantial modification in Mexico's trade regime and help open its economy to foreign competition. The other loans are \$250 million for export development, \$400 million for agriculture credit and \$150 million to help restructure highly leveraged companies.

On September 30, 1986, Mexico also reached agreement in principle with its Bank Advisory Committee on a \$7.7 billion commercial bank financing package for 1986-87. ^{1/} The package includes \$6 billion of new loans and a reduction of interest on the \$43.7 billion of loans rescheduled in 1984 and on the 1983 and 1984 loan packages (\$5 billion and \$3.8 billion, respectively). Of the \$6 billion in new loans, \$1 billion will be linked to World Bank co-financing with \$500 million of principal will be covered by World Bank guarantees.

In addition to the World Bank's role in the commercial lending, another new feature of this agreement was the commercial banks commitment to a \$1.2 billion "contingency investment support facility." This facility, to which the IMF will also contribute an additional SDR 600 million, will be activated if reduced oil revenues alter the basic revenue/expenditure assumptions of the Mexican program. Another feature of the agreement was that the commercial banks agreed to provide \$500 million if Mexico's growth rate falls below 3.5 percent in 1987. The World Bank will guarantee half of this.

In exchange for the new IMF funds, World Bank loans, and the commercial bank package, Mexico agreed to the following reforms:

1. Reducing the public sector debt both by cutting Government expenditure and reforming the tax system to reflect the large changes in nominal income that have occurred because of inflation;
2. Adjusting the prices of Government controlled services and commodities to better reflect their costs;
3. Selling many Government corporations and increasing the operating efficiency of those remaining;
4. Reforming the import regime by reducing the requirement for import permits and lowering the level and number of tariffs and making other changes consistent with its new membership in GATT.

^{1/} This agreement has to be approved by over 500 banks before the IMF can disburse any of the funds.

5. Promoting exports through tax rebates, relaxation of exchange controls, and automatic approval of imports used in the production of exports.

6. Applying foreign investment loans more liberally to permit 100 percent ownership of foreign subsidiaries and also allow for debt/equity swaps whereby Mexico's public debt is converted into private ownership of corporations formerly held by the government.

What happens to Mexico's external debt is of considerable significance to U.S. banks. According to the Board of Governors of the Federal Reserve Bank System, U.S. banks held about a quarter of Mexico's foreign debt or about \$24.7 billion, in March 1986. Table 9 shows that nine large U.S. money center banks hold over half of the U.S. share. The total held by all U.S. banks is almost equally distributed among long-, medium-, and short-term loans, and over half of these U.S. bank loans were made to public borrowers in Mexico. If publicly-held Mexican banks are also included as public borrowers, this figure rises to 70 percent. ^{1/}

Recent Changes in U.S.-Mexico Trade and Effects on U.S. Industry

Trade between the United States and Mexico is important for both countries. The United States is Mexico's largest trading partner. In most years about two-thirds of Mexico's trade (both imports and exports) is with the United States. For the United States, Mexico is usually among the five most important trading partners. In 1984, for example, Mexico was the third largest source of imports to the United States (5.4 percent of all U.S. imports) and the fourth largest market for U.S. exports (5.5 percent of all U.S. exports).

Before 1978, Mexico's exports to the United States were evenly distributed among agriculture, extractive industries, and manufactures. However with the growth of the petroleum industry beginning in 1977, crude petroleum exports have grown and now make up over half of all Mexican exports and about 15 percent of U.S. imports from the world of this product. However, the share of crude petroleum in Mexican exports to the United States has fallen from 50 percent in 1982 to 43 percent in 1985. Other important U.S. imports from Mexico are motor vehicles and related equipment, food and agricultural products, and electronic industrial equipment.

Because of Mexico's policies of import protection to promote domestic industrialization, Mexico's imports have been concentrated in the capital and intermediate goods categories including such leading imports from the United States as auto parts, electronic tubes, and parts for office machines. Most imports of consumer goods have been agricultural products, especially soybeans and grain sorghum.

^{1/} Board of Governors of the Federal Reserve System, Federal Financial Institutions Examination Council, Statistical Release, E.16(126), August 1, 1986.

Table 9.--U.S. Bank exposure to Mexico's external debt by loan maturities, types of borrowers, and types of institutions, March 1986

Item	1 year and under	1 to 5 years	Over 5 years	Total
Maturity distribution of amounts owed (billion dollars)				
9 money center banks.....	4.7	5.1	4.1	13.9
15 other large banks.....	1.5	1.9	1.3	4.7
All other banks.....	1.6	2.1	2.4	6.1
Total.....	7.8	9.1	7.8	24.7
Percent of total maturity distribution				
9 money center banks....	19.0	20.6	16.6	56.3
15 other large banks.....	6.1	7.7	5.3	19.0
All other banks.....	6.5	8.5	9.7	24.7
Total.....	31.6	36.8	31.6	100.0
Total owed (billion dollars)				
	Banks	Public borrowers	Private nonbank borrowers	Total
9 money center banks.....	1.9	8.5	3.5	13.9
15 other large banks.....	.9	2.0	1.8	4.7
All other banks.....	.9	3.3	1.9	6.1
Total.....	3.6	13.9	7.2	24.7
Percent of total owed				
9 money center banks.....	7.7	34.4	14.2	56.3
15 other large banks.....	3.6	8.1	7.3	19.0
All other banks.....	3.6	13.4	7.7	24.7
Total.....	14.6	56.3	29.1	100.0

Note.--Because of rounding, figures may not add to the totals shown.

Source: Board of Governors of the Federal Reserve System, Federal Financial Institution Examination Council, Statistical Release, E. 16 (126), Aug. 1, 1986.

Trade

Until 1981 Mexico had a merchandise trade deficit with the United States. Because of the adjustment measures taken by the Mexican Government beginning in 1982, however, this traditional deficit has turned into a significant trade surplus for Mexico by reducing imports and raising exports. For example, in the 4 years, 1978-81, Mexico's imports exceeded exports by as much as 30 percent. However, during the 1982-1985 period, Mexico's exports to the United States were 25 percent to 50 percent greater than imports from the United States creating a surplus for the period of \$23 billion.

The recent dramatic reduction in the level of Mexico's imports and the rise in Mexico's exports was caused by several factors. One of these is the depreciation of the real exchange rate which caused the real price of imports to increase and the real price of exports to decrease. A second reason, which explains the decrease in imports, is that domestic Mexican demand contracted considerably as a consequence of the several adjustment policies adopted by Mexico in the early to mid 1980's. A third cause of the decline in imports is that specific import restraints were imposed on certain products to limit domestic availability.

Exchange rates

Beginning in 1982, a two-tier exchange rate system was established. Under this system a lower controlled rate was instituted alongside a higher "free market" rate. This latter rate, in spite of its name, was, like the former rate, controlled by Bank of Mexico intervention.

Table 10 shows the changes that have taken place in the value of the peso since 1980. The real value of the peso increased in 1979, 1980, and 1981. This real appreciation continued briefly in 1982 until the 1982 depreciation of 35 percent brought the peso down to a more competitive level. In spite of constantly depreciating the nominal value of the peso in 1983, 1984, and 1985, the rate of depreciation did not compensate for the differential rate of inflation between Mexico and its trading partners. Hence the real value of the peso started to appreciate in 1983, and the competitive margin of the large 1982 devaluation was gradually eroded until July 25, 1985, when the authorities devalued the controlled rate 17 percent and allowed the "free" rate to float without intervention. Since then, the controlled rate has depreciated significantly faster than inflation, and the free-market rate has increased in value faster than the controlled rate, reducing the differential between the two to less than 5 percent in 1986.

In sum, when U.S. exports to Mexico were rising before 1982, the value of the peso was appreciating, making Mexican imports less costly, and penalizing exports. A major devaluation in 1982 brought the level of the peso to below what it had been in 1979, making Mexican imports more expensive and promoting Mexican exports. This devaluation marked the turning point at which U.S. exports to Mexico rapidly declined (from \$17.8 billion in 1979 to \$11.7 billion in 1982 and again to \$9.1 billion in 1983). In 1984 and 1985, U.S. exports to Mexico increased slowly (to \$12 billion in 1984 and \$16.6 billion in 1985) as the real value of the peso rose.

Table 10.--Mexico: Exchange rates, 1979-85

Quarter and annual	U.S. dollar exchange rate				Relative unit labor costs 1/2/	Effective exchange rate index 1/			
	Actual		Average			Nominal rate 3/	Real rate 4/		
	End of period								
<u>1979</u>									
I	22.83		22.76		89.8	106.5		104.7	
II	22.84		22.83		94.0	105.8		104.2	
III	22.77		22.81		96.7	106.0		103.9	
IV	22.80		22.83		96.5	105.1		102.2	
Annual	22.80		22.80		94.2	105.7		103.7	
<u>1980</u>									
I	22.85		22.83		97.8	104.5		97.7	
II	22.93		22.85		100.6	104.5		94.8	
III	23.06		23.00		104.3	105.8		92.8	
IV	23.26		23.13		106.4	105.6		91.5	
Annual	22.26		22.95		102.2	105.1		93.8	
<u>1981</u>									
I	23.76		23.49		110.0	106.1		86.6	
II	24.44		24.09		121.8	106.8		84.3	
III	25.20		24.79		123.1	108.4		82.0	
IV	26.23		25.68		120.4	113.1		80.6	
Annual	26.23		24.51		118.8	108.5		83.2	
<u>1982</u>									
I	45.50		34.42		97.1	149.9		96.7	
II	48.00		46.78		95.4	202.6		114.0	
	(a) 5/	(b) 6/	(a)	(b) 6/		(a)	(b) 6/	(a)	(b) 6/
III	50.00	-	56.00	-	70.4	240.1	- 6/	112.5	-
IV	96.48 7/	148.50	55.90	80.13	73.9	279.9	401.2	108.8	154.4
Annual	96.48 7/	148.50	57.44	-	84.2	218.4	-	108.6	-
<u>1983</u>									
I	108.18 7/	148.65	102.28	148.72	57.72	448.2	651.7	137.1	199.3
II	120.01 7/	148.65	114.10	148.63	58.8	496.4	646.6	130.9	170.5
III	131.97 7/	149.39	125.99	148.39	62.9	543.3	639.9	128.2	151.0
IV	143.93 7/	161.35	137.95	154.93	59.4	594.0	336.1	125.3	140.7
Annual	143.96 7/	161.53	120.17	150.29	59.7	520.5	651.1	129.7	162.2

See footnotes at end of table.

Table 10.--Mexico: Exchange rates, 1979-85--Continued

Quarter and annual	U.S. dollar exchange rate				Relative unit labor costs 1/2/	Effective exchange rate index 1/	
	Actual	End of period	Average			Nominal rate 3/	Real rate 4/
<u>1984</u>							
I 130.9	155.76 7/	173.18	149.91	167.33	57.0	644.0	718.8 117.3
II 124.9	167.59 7/	185.01	161.74	179.16	60.8	693.4	768.1 112.8
III 119.8	179.55 7/	196.97	173.68	191.10	67.0	735.8	809.6 108.9
IV 114.6	192.56 7/	209.97	185.75	203.73	61.9	783.3	856.8 104.8
Annual 121.9	192.56 7/	209.97	167.77	185.19	61.7	714.2	788.4 110.4
<u>1985</u>							
I 104.0	208.9 6/	226.27	200.73	218.10	-	838.4	911.0 95.7

1/ 1976-81=100.

2/ Relative labor costs in Mexico and its main trading partners adjusted by exchange rate movements. An increase in competitiveness is indicated by a decline in the index.

3/ Weighted by non-oil trade with 8 major trading partners in 1980. Trade with these countries accounted for 90 percent of total imports and 80 percent of total exports.

4/ Effective exchange rate index adjusted by movements in relative wholesale prices, except for Mexico and Argentina. For these countries, the indices were adjusted by consumer prices.

5/ From August 6 to December 20, 1982, preferential rate and from December 20, 1982, onward the controlled market rate.

6/ From August 6 to December 20, 1982, free rate; from September 1 to December 20, 1982, the ordinary rate; and from December 20, 1982, onward the free rate.

7/ Average rate between buying and selling quotations in the controlled market.

Note.--In Mexican pesos per currency unit, unless otherwise specified.

Source: IMF (1985)

Mexican demand contraction

The Mexican economy began a contraction in late 1981 that became quite severe through 1982 and 1983, when the GDP fell by 5 percent (fig. 3). Through 1984 and 1985 the growth rate turned positive, but the level of GDP attained in 1985 was only equivalent to the peak reached in 1981. Real wages declined in every year from 1982 to 1985, although by decreasing amounts in 1984 and 1985. ^{1/}

Clearly the overall decline of economic activity had its effect on the demand for imports. As income fell, all types of importers--consumers, manufacturers, and raw material extractors, and the private and Government sectors--tended to import less than previously. Table 11 shows how the contraction affected imports by their end use. First, it is possible to see how the public sector replaced the private sector as the larger importer during 1983, but afterward the private sector regained its leadership. The 1983 import pattern probably reflects the need for food imported by CONASUPO, the state food distribution enterprise, and the import requirements of PEMEX, the state petroleum company. Second, consumer and capital goods decreased as a proportion of total imports whereas intermediate goods imports increased. This probably reflects the needs of export-oriented industries for imported inputs. The demand for these inputs expanded during this period.

Import restrictions

In 1982 and 1983, as an emergency measure, the Mexican Government used import licensing extensively to limit imports. The number of imports under quantity restraints as a result of licensing climbed to 100 percent during this period (table 12). Since 1983, as the Government committed more hard currency for imports, the number of items needing prior licensing has declined so that by July 1985, only 39 percent of imports required licenses. The products that have received priority for import licensing liberalization are raw materials for essential industries, such as chemical, petrochemical, and pharmaceutical industries, and for repair and replacement parts for industrial machinery and equipment. Imports of measuring and controlling instruments and machine tools were also allowed without licenses along with grain and other agricultural items. The Mexican Government is committed to phasing out most of the remaining licensing requirements under its trade policy reform program and as part of its GATT membership.

Effects on U.S. industry

The market share methodology described in the methodology section was used to estimate the effects of Mexico's post-1981 adjustment on imports, exports, and output in the United States in 61 nonservice industry sectors. The results are shown in Tables 13-15.

^{1/}Inter-American Development Bank, op. cit.

Figure 3.--Mexico: GDP, 1970-85
(in constant 1980 U.S. dollars)

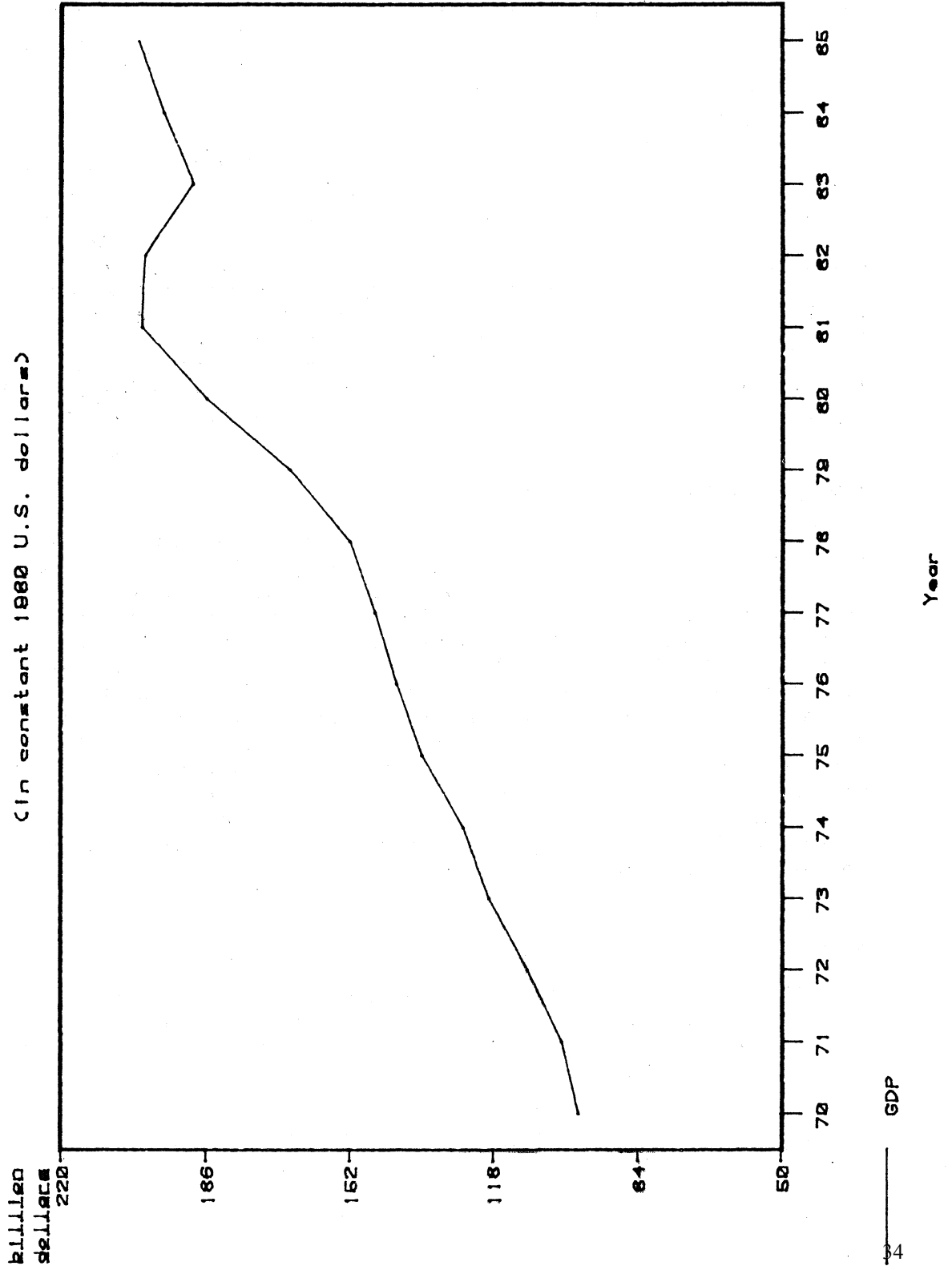


Table 11.--Mexico: End-use composition of imports, 1982-85

Item	1982		1983		1984		1985	
	Value Million dollars 1/	Percent of total	Value Million dollars 1/	Percent of total	Value Million dollars 1/	Percent of total	Value Million dollars 1/	Percent of total
Total imports.....	14,437.0	100.0	7,720.5	100.0	11,254.3	100.0	13,460.4	100.0
Public sector.....	5,400.5	37.4	4,243.2	55.0	4,789.7	42.6	4,354.2	32.3
Private sector.....	9,036.5	62.6	3,477.3	45.0	6,464.6	57.4	9,106.3	67.7
Consumer goods.....	1,516.8	10.5	554.8	7.2	848.1	7.5	1,075.0	8.0
Public sector.....	631.4	4.4	395.5	5.1	529.3	4.7	534.2	4.0
Private sector.....	885.4	6.1	159.3	2.1	318.7	2.8	540.9	4.0
Intermediate goods.....	8,417.8	58.3	5,346.8	69.3	7,833.4	69.6	9,162.3	68.1
Public sector.....	3,226.1	22.3	2,843.9	36.8	3,353.5	29.8	2,915.6	21.7
Private sector.....	5,191.7	36.0	2,502.8	32.4	4,479.9	39.8	6,246.7	46.4
Capital goods.....	4,502.5	31.2	1,818.9	23.6	2,572.8	22.9	3,223.1	23.9
Public sector.....	1,543.1	10.7	1,003.8	13.0	906.9	8.1	904.4	6.7
Private sector.....	2,959.4	20.5	815.1	10.6	1,666.0	14.8	2,318.7	17.2

1/ f.o.b.

Source: Indicadores Economicos (Bank of Mexico, May 1984, April 1986).

Table 12.--Mexico: Quantitative restrictions on imports, 1956-85

Year	Number of tariff positions			Percent of imports under QRs
	Total	Free	Controlled	
1956.....	4,129	2,753	1,376	28
1962.....	5,204	2,891	2,313	52
1966.....	11,000	4,400	6,600	63
1970.....	12,900	4,500	8,400	59
1973.....	16,000	3,200	12,800	64
1977.....	7,340	1,476	5,864	92
1978.....	7,453	4,214	3,239	81
1979.....	7,587	5,228	2,359	60
1980.....	7,776	5,910	1,866	55
1981.....	7,877	5,794	2,083	60
1982.....	8,017	0	8,017	100
1983.....	8,030	13	8,017	100
1984.....	8,063	2,844	5,219	83
1985, June.....	8,068	3,555	4,513	75
1985, July.....	8,068	7,168	929	39

Source: Secretarie de Comercio y Fometo Industrial (SECOF 1), unpublished statistics, various years.

Net trade effects.--According to these estimates, the effects on the U.S. trade balance were negative in 30 of the 61 industry sectors. This is indicated by a negative number in column 5 of table 13 which means that there was an estimated negative effect on the U.S. trade balance with Mexico in the sector. The largest negative numbers are for Crude petroleum and natural gas and Petroleum refining and related industries. Because of the dramatic changes in the world oil market during the study period, changes in U.S. import market shares cannot be wholly attributed to debt-related austerity. Besides these two industries the greatest estimated negative trade effects were for motor vehicles and equipment (\$1.375 billion), aircraft and parts (\$217 million), stone and clay mining and quarrying (\$190 million), and other transportation equipment (\$190 million). A positive net trade effect is estimated for 30 industries. The greatest estimated positive effects are for radio, TV, and communication equipment (\$734 million), electronic components and accessories (\$245 million), and apparel (\$224 million). Insufficient data precluded estimates of net trade effects for one industry.

Multiplying the net trade effects by the input-output matrix of the U.S. economy provides estimates of the net effect on output in each industry taking into account all secondary adjustments. The net effect on output, shown in column 6, is estimated to be negative for 34 industries and positive for 27. Besides the two oil industries, the industries most adversely affected are motor vehicles and equipment (\$1.903 billion), primary iron and steel manufacturing (\$675 million), and aircraft and parts (\$265 million). The estimated effect on output in each industry is expressed as a percentage of total industry output in column 7. This percentage is an indicator of the debt-related effects to the industry. The greatest relative negative effects, besides the oil industries, are estimated for stone and clay mining and quarrying (2.68 percent), engines and turbines (1.56 percent), and iron and ferroalloy ores mining (1.41 percent). The largest positive production effects are for radio, TV, and communication equipment (\$748 million), electronic components and accessories (\$410 million), and apparel (\$281 million). The greatest relative positive effects are estimated for footwear and other leather products (2.60 percent), leather, tanning, and finishing (2.10 percent), and radio, TV, and communication equipment (1.11 percent).

U.S. exports to Mexico.--The share of U.S. exports going to Mexico decreased in 27 of the 61 industries during 1982-85 compared with 1985. This is indicated by a value of less than 1 in column 3 of Table 14. The largest estimated losses of exports, shown in column 6 are for motor vehicles and equipment (\$241 million), other transportation equipment (\$221 million), and construction and mining machinery (\$193 million). Exports to Mexico gained market share in 33 industries. The greatest gains were in electric lighting and wiring equipment (\$250 million), agricultural products other than livestock (\$176 million), and rubber and miscellaneous plastic products (\$121 million). There were insufficient data to estimate a market share change for one industry.

After making the input-output adjustment, 27 of the industries are estimated to have lost production because of reduced exports to Mexico in 1985. Losses are indicated by a negative number in column 7. The industries suffering the greatest losses are motor vehicles and equipment (\$343 million), primary iron and steel manufacturing (\$294 million), aircraft parts (\$230 million) and other transportation equipment (\$230 million). The

Table 13. --The estimated effects of Mexico's debt-related austerity on U.S. net exports to Mexico and U.S. output in 61 nonservice industry sectors

Industry sector	U.S. employment (1)	U.S. industry output (2)	Actual 1985 net exports (3)	Net exports under constant market share (4)	Difference (5)	Estimated change in output (6)	Estimated change of industry output (7)	Percent (7)
Livestock and livestock products.....	944	87,14	-5	-89	83	150	0.172	
Other agricultural products.....	2,014	110,35	-48	-222	174	250	0.227	
Forestry and fishery products.....	80	8,98	4	-2	7	5	0.051	
Iron and ferroalloy ores mining.....	15	3,10	-3	3	-6	-44	-1.408	
Nonferrous metal ores mining.....	44	3,43	-3	-6	4	1	0.029	
Coal mining.....	203	30,68	35	52	-17	-74	-0.242	
Crude petroleum and natural gas.....	280	126,46	-7,809	-2,969	-4,840	-5,198	-4.110	
Stone and clay mining and quarrying.....	94	7,84	-168	22	-190	-210	-2.679	
Chemical and fertilizer mineral mining.....	21	3,97	-119	-127	8	6	0.142	
Ordnance and accessories.....	205	22,85	-1	13	-14	-15	-0.067	
Food and kindred products.....	1,659	317,70	-140	-257	117	180	0.057	
Tobacco manufactures.....	67	22,79	-5	1	-7	-7	-0.030	
Broad and narrow fabrics, yarn and thread mills.....	438	40,86	84	-4	87	221	0.541	
Miscellaneous textile goods and floor coverings.....	117	12,05	16	-33	49	51	0.423	
Apparel.....	1,242	53,58	-111	-334	223	281	0.524	
Miscellaneous fabricated textile products.....	190	9,93	-7	-13	2	-34	-0.341	
Lumber and wood products, except containers.....	687	57,27	-31	-13	-18	-48	-0.084	
Wood containers.....	19	65	3	6	3	3	0.488	
Household furniture.....	288	17,38	-41	-74	33	41	0.235	
Other furniture and fixtures.....	215	14,50	-34	-23	-11	-16	-0.112	
Paper and allied products, except containers.....	487	81,35	291	253	38	38	0.047	
Paperboard containers and boxes.....	196	22,40	6	1	5	3	0.014	
Printing and publishing.....	1,452	107,31	6	1	5	2	0.002	
Chemicals and selected chemical products.....	175	80,92	431	469	-38	-106	-0.131	
Plastics and synthetic materials.....	349	36,71	203	245	-41	4	0.012	
Drugs, cleaning and toilet preparations.....	62	55,43	43	71	-28	-29	-0.052	
Paints and allied products.....	188	9,56	21	6	14	-2	-0.026	
Petroleum refining and related industries.....	802	179,98	480	528	-48	-139	-0.077	
Rubber and miscellaneous plastic products.....	18	67,42	204	200	4	-47	-0.069	
Leather tanning and finishing.....	187	1,84	7	7	-1	39	2.099	
Footwear and other leather products.....	170	7,71	-102	-295	193	201	2.604	
Glass and glass products.....	456	12,82	-110	-35	-75	-89	-0.693	
Stone and clay products.....	555	41,60	-120	-103	-17	-62	-0.149	
Primary iron and steel manufacturing.....	360	85,01	88	275	-187	-675	-0.794	
Primary nonferrous metals manufacturing.....	61	54,03	-55	-107	51	-9	-0.016	
Metal containers.....	530	11,42	1	15	-15	-12	-0.107	
Heating, plumbing, and structural metal products.....	315	37,39	67	81	-14	-54	-0.145	
Screw machine products and stampings.....	486	28,32	22	8	14	-126	-0.445	
Other fabricated metal products.....	114	41,83	-6	-39	33	-62	-0.148	
Engines and turbines.....	114	13,26	265	400	-135	-207	-1.563	

Table 13. --The estimated effects of Mexico's debt-related austerity on U.S. net exports to Mexico and U.S. output in 61 nonservice industry sectors--Continued

Industry sector	U.S. employ- ment 1/ (1)	U.S. industry output 1/ (2)	Actual 1985 net exports (3)	Net exports under constant market share 2/ (4)	Differ- ence 3/ (5)	Esti- mated change in out- put 4/ (6)	Esti- mated change as share of industry output 5/ (7)
	1,000 JOBS	Million dollars	Million dollars	Million dollars	Million dollars	Percent	Percent
Farm and garden machinery.....	116	14,20	144	120	24	28	0.199
Construction and mining machinery.....	194	27,36	284	461	-177	-234	-0.853
Materials handling machinery and equipment.....	83	6,02	30	49	-18	-23	-0.377
Metalworking machinery and equipment.....	317	23,71	292	232	60	39	0.164
Special industry machinery and equipment.....	168	14,11	104	148	-44	-45	-0.319
General machinery and equipment.....	277	26,96	189	238	-49	-124	-0.461
Miscellaneous machinery, except electrical.....	298	18,46	131	162	-31	-88	-0.477
Office, computing, and accounting machines.....	507	42,04	151	136	14	20	0.047
Service industries machines.....	181	18,03	97	67	29	4	0.021
Electric industrial equipment and apparatus.....	434	28,81	-79	-162	84	41	0.144
Household appliances.....	153	16,26	6	9	-3	-6	-0.038
Electric lighting and wiring equipment.....	204	18,15	-172	-292	120	111	0.613
Radio, TV, and communication equipment.....	707	67,56	159	-576	734	748	1.108
Electronic components and accessories.....	685	47,26	28	-217	245	410	0.868
Misc. electrical machinery and supplies.....	167	14,39	21	-32	53	22	0.156
Motor vehicles and equipment.....	870	172,65	-463	912	-1,375	-1,903	-1.102
Aircraft and parts.....	639	71,85	429	646	-217	-265	-0.368
Other transportation equipment.....	348	31,41	74	264	-190	-199	-0.634
Scientific and controlling instruments.....	417	24,42	97	128	-31	-42	-0.173
Optical, ophthalmic, and photographic equipment.....	201	20,31	-27	44	-71	-76	-0.374
Miscellaneous manufacturing.....	431	26,57	-238	-255	17	20	0.074

1/ 1984 data. Output figures include the value of the industry's output plus the value of intermediate inputs.
 2/ Net exports under constant market share is the difference between exports and imports under constant market share.
 3/ The difference between actual net exports (col. 3) and net exports under constant market share (col. 4).
 4/ The estimated total change includes direct and indirect changes, and is calculated by multiplying the matrix of total requirements coefficients of the input-output table of the U.S. economy by the vector of estimated differences (col. 5) in trade.

5/ The estimated change (col. 7) as a share of industry output (col. 2).

6/ Absolute value less than \$500,000.

7/ Not available.

Note. --Because of rounding, actual figures may not equal results shown.

Source: Employment and production statistics compiled from U.S. Bureau of Labor Statistics data, trade statistics compiled from official statistics of the U.S. Bureau of the Census.

Table 14. --The estimated effects of Mexico's debt-related austerity on U.S. exports to Mexico and U.S. output in 61 nonservice industry sectors

Industry sector	Ratio of					Differ- ence 3/ (6)	Esti- mated change in out- put 4/ (7)	Esti- mated change of industry output 5/ (8)
	U.S. employ- ment 1/ (1)	U.S. industry output 2/ (2)	1985 market share to 1978-81 average market share (3)	Actual 1985 exports (4)	Exports under constant market share 2/ (5)			
	1,000 jobs	Million dollars	Million dollars	Million dollars	Percent			
Livestock and livestock products.....	944	87,147	2,251	121	54	67	0.127	
Other agricultural products.....	2,014	110,356	1,200	1,057	881	176	0.207	
Forestry and fishery products.....	80	8,982	1,321	8	6	2	-0.006	
Iron and ferroalloy ores mining.....	15	3,102	0.435	3	7	-4	-0.633	
Nonferrous metal ores mining.....	44	3,436	1.408	10	7	3	0.129	
Coal mining.....	203	30,682	0.749	39	52	-13	-0.100	
Crude petroleum and natural gas.....	280	126,466	1.364	96	70	26	0.053	
Stone and clay mining and quarrying.....	94	7,844	1.016	36	36	1	0.015	
Chemical and fertilizer mineral mining.....	21	3,971	1.328	30	23	7	0.216	
Ordnance and accessories.....	205	22,852	0.103	2	16	-14	-0.065	
Food and kindred products.....	1,659	317,706	1.137	495	435	60	0.031	
Tobacco manufactures.....	67	22,795	0.171	1	6	-5	-0.028	
Broad and narrow fabrics, yarn and thread mills.....	438	40,867	3.409	104	31	74	0.281	
Miscellaneous textile goods and floor coverings.....	117	12,057	2.025	36	18	19	0.160	
Apparel.....	1,242	53,588	1.180	135	115	21	0.048	
Miscellaneous fabricated textile products.....	190	9,936	0.814	33	40	-7	-0.161	
Lumber and wood products, except containers.....	687	57,277	0.736	73	100	-26	-0.061	
Wood containers.....	19	655	1.726	4	2	2	0.312	
Household furniture.....	288	17,384	1.980	33	17	17	0.088	
Other furniture and fixtures.....	215	14,507	2.892	63	22	41	0.274	
Paper and allied products, except containers.....	487	81,352	1.330	460	346	114	0.170	
Paperboard containers and boxes.....	196	22,403	0.697	25	36	-11	-0.033	
Printing and publishing.....	1,452	107,316	0.990	781	790	-8	0.067	
Chemicals and selected chemical products.....	175	80,929	1.039	275	265	10	0.153	
Plastics and synthetic materials.....	349	36,710	0.643	68	105	-38	-0.070	
Drugs, cleaning and toilet preparations.....	62	55,436	3.172	21	7	14	0.120	
Paints and allied products.....	188	179,980	1.075	589	548	41	0.031	
Petroleum refining and related industries.....	802	67,421	1.512	359	237	121	0.168	
Rubber and miscellaneous plastic products.....	18	1,842	0.569	8	14	-6	-0.366	
Leather tanning and finishing.....	187	7,710	1.025	25	24	1	0.002	
Footwear and other leather products.....	170	12,824	0.927	35	37	-3	0.029	
Glass and glass products.....	456	41,607	1.142	90	78	11	0.011	
Stone and clay products.....	555	85,014	0.624	222	356	-134	-0.346	
Primary iron and steel manufacturing.....	360	54,030	1.121	308	274	33	0.037	
Primary nonferrous metals manufacturing.....	61	11,422	0.629	13	21	-8	-0.038	
Metal containers.....	530	37,391	0.786	71	91	-19	-0.098	
Heating, plumbing, and structural metal products.....	315	28,326	1.546	25	16	9	-0.071	
Screw machine products and stampings.....	486	41,832	1.362	165	121	44	0.073	
Other fabricated metal products.....	114	13,268	0.667	267	400	-133	-1.258	

Table 14. --The estimated effects of Mexico's debt-related austerity on U.S. exports to Mexico and U.S. output in 61 nonservice industry sectors--Continued

Industry sector	U.S. employment		U.S. industry output		Ratio of 1985 market share to 1978-81 average market share		Exports under constant market share		Difference		Estimated change in output		Estimated change as share of industry output	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	1,000 jobs	Million dollars	Percent	Million dollars	Percent	Percent	Million dollars	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Farm and garden machinery.....	116	14,204	1.184	152	129	24	0.194							
Construction and mining machinery.....	194	27,369	0.613	306	499	-193	-0.774							
Materials handling machinery and equipment.....	83	6,028	1.262	78	62	16	0.276							
Metallworking machinery and equipment.....	317	23,711	1.139	298	261	36	0.120							
Special industry machinery and equipment.....	168	14,118	0.729	112	153	-42	-0.291							
General machinery and equipment.....	277	26,966	0.886	252	284	-32	-0.232							
Miscellaneous machinery, except electrical.....	298	18,462	0.808	131	162	-31	-0.271							
Office, computing, and accounting machines.....	507	42,045	0.973	472	486	-13	-0.038							
Service industries machines.....	181	18,035	1.203	125	104	21	0.095							
Electric industrial equipment and apparatus.....	434	28,817	1.183	301	255	47	0.145							
Household appliances.....	153	16,262	1.060	94	89	5	0.020							
Electric lighting and wiring equipment.....	204	18,151	3.182	365	115	250	1.390							
Radio, TV, and communication equipment.....	707	67,568	0.960	661	688	-27	-0.068							
Electronic components and accessories.....	685	47,268	1.086	467	430	37	0.064							
Misc. electrical machinery and supplies.....	167	14,397	1.206	434	360	74	0.518							
Motor vehicles and equipment.....	870	172,657	0.837	1,237	1,478	-241	-0.199							
Aircraft and parts.....	639	71,858	0.716	476	665	-189	-0.320							
Other transportation equipment.....	348	31,414	0.287	89	310	-221	-0.731							
Scientific and controlling instruments.....	417	24,425	0.875	224	256	-32	-0.148							
Optical, ophthalmic, and photographic equipment.....	201	20,315	0.741	58	78	-20	-0.113							
Miscellaneous manufacturing.....	431	26,576	0.740	465	628	-163	-0.651							

1/ 1984 data. Output figures include the value of the industry's output plus the value of intermediate inputs.
 2/ Exports under constant market share is the quotient of actual exports (col. 4) and the market share ratio (col. 3).
 3/ The difference between actual exports (col. 4) and exports under constant market share (col. 5).
 4/ The estimated total change includes direct and indirect changes, and is calculated by multiplying the matrix of total requirements coefficients of the input-output table of the U.S. economy by the vector of differences in trade (col. 6).
 5/ The estimated change (col. 7) as a share of industry output (col. 2).
 6/ Absolute value less than \$500,000.
 7/ Not available.

Note.--Because of rounding, actual figures may not equal results shown.

Source: Employment and production statistics compiled from U.S. Bureau of Labor Statistics data, trade statistics compiled from official statistics of the U.S. Bureau of the Census.

greatest relative production losses, shown in column 8, are for engines and turbines (1.26 percent of industry output), construction and mining machinery (0.77 percent), and other transportation equipment (0.73 percent). The greatest estimated positive production effects were in electric lighting and wiring (\$252 million), other agricultural products (\$228 million), and paper and allied products, except containers (\$138 million). The greatest positive production effects relative to industry output are for electric lighting and wiring equipment (1.39 percent), miscellaneous electrical machinery and supplies (0.52 percent), and wood containers (0.31 percent).

U.S. imports from Mexico.--The share of U.S. imports coming from Mexico increased in 29 of the 61 industries. This is indicated by a value greater than 1 in column 3 of table 15. The estimated increases in imports are shown in column 6. Besides the two oil industries, the greatest estimated increases are in motor vehicles and equipment (\$1.134 billion), stone and clay mining and quarrying (\$190 million), and electric lighting and wiring equipment (\$130 million). The share of U.S. imports decreased in 32 industries. The greatest estimated decreases are in radio, TV, and communications equipment (\$762 million), electronic components and accessories (\$208 million), and apparel (\$202 million).

After the input-output adjustment, negative effects on production were estimated for 41 industries. Decreases in U.S. production are indicated by a positive number in column 7. Besides the oil industries, the greatest negative effects are estimated for motor vehicles and equipment (\$1.561 billion), primary iron and steel manufacturing (\$381 million), and stone and clay mining and quarrying (\$211 million). The negative production effects are expressed as a percentage of industry output in column 8. The largest is for stone and clay mining and quarrying (2.69 percent), motor vehicles and other equipment (0.90 percent), electric lighting and wiring (0.78 percent), and iron and ferroalloy ores mining (0.78 percent). A positive effect on U.S. production, indicated by a negative number in column 7, is estimated for 20 industries. The greatest positive effects are estimated for radio, TV, and communications equipment (\$794 million), electronic components and accessories (\$380 million), and apparel (\$255 million). The greatest relative positive production effects are for footwear and other leather products (2.60 percent), leather tanning and finishing (2.47 percent), and radio, TV, and communication equipment (1.18 percent).

Table 15. --The estimated effects of Mexico's debt-related austerity on U.S. imports from Mexico and U.S. output in 61 nonservice industry sectors

Industry sector	U.S. employ- ment 1/ (1)	U.S. industry output 1/ (2)	Ratio of		Actual 1985 imports (4)	Imports under constant market share 2/ (5)	Differ- ence 3/ (6)	Esti- mated change in out- put 4/ (7)	Esti- mated change of industry output 5/ (8)
			1,000 jobs	Million dollars					
Livestock and livestock products.....	944	87,147	0.889	127	143	-16	-39	-0.045	
Other agricultural products.....	2,014	110,356	1.002	1,105	1,103	2	-22	-0.020	
Forestry and fishery products.....	80	8,982	0.449	4	9	-5	-5	-0.057	
Iron and ferroalloy ores mining.....	15	3,102	1.757	6	4	3	24	0.775	
Nonferrous metal ores mining.....	44	3,436	0.948	13	13	-1	3	0.100	
Coal mining.....	203	30,682	5.465	4	1	3	44	0.143	
Crude petroleum and natural gas.....	280	126,466	2.601	7,904	3,039	4,865	5,265	4.163	
Stone and clay mining and quarrying.....	94	7,844	14.432	204	14	190	2,211	2.693	
Chemical and fertilizer mineral mining.....	21	3,971	0.997	149	150	6/	3	0.074	
Ordnance and accessories.....	205	22,852	1.187	2	2	6/	6/	0.002	
Food and kindred products.....	1,659	317,706	0.917	635	692	-57	-83	-0.026	
Tobacco manufactures.....	67	22,795	1.064	6	6	6/	6/	0.002	
Broad and narrow fabrics, yarn and thread mills.....	438	40,867	0.602	21	34	-14	-106	-0.261	
Miscellaneous textile goods and floor coverings.....	117	12,057	0.382	19	51	-31	-32	-0.263	
Apparel.....	1,242	53,588	0.549	247	449	-202	-255	-0.476	
Miscellaneous fabricated textile products.....	190	9,936	0.805	40	49	-10	18	0.180	
Lumber and wood products, except containers.....	687	57,277	0.924	104	113	-9	13	0.023	
Wood containers.....	19	655	0.201	6/	2	-2	-1	-0.176	
Household furniture.....	288	17,384	0.818	74	91	-16	-26	-0.147	
Other furniture and fixtures.....	215	14,507	2.161	97	45	52	56	0.385	
Paper and allied products, except containers.....	487	81,352	1.823	169	93	76	100	0.123	
Paperboard containers and boxes.....	196	22,403	0.337	6/	1	6/	4	0.019	
Printing and publishing.....	1,452	107,316	0.537	19	35	-16	-16	-0.015	
Chemicals and selected chemical products.....	1,475	80,929	1.092	350	321	29	161	0.198	
Plastics and synthetic materials.....	175	36,710	3.567	72	20	52	52	0.141	
Drugs, cleaning and toilet preparations.....	349	55,436	0.726	25	34	-9	-10	-0.018	
Paints and allied products.....	62	9,567	0.231	6/	6/	6/	14	0.146	
Petroleum refining and related industries.....	188	179,980	5.538	108	20	89	194	0.108	
Rubber and miscellaneous plastic products.....	802	67,421	4.111	154	38	117	160	0.237	
Leather tanning and finishing.....	18	1,842	0.174	1	7	-6	-45	-2.465	
Footwear and other leather products.....	187	7,710	0.397	127	319	-193	-201	-2.602	
Glass and glass products.....	170	12,824	2.007	145	72	73	93	0.722	
Stone and clay products.....	456	41,607	1.158	210	181	29	67	0.160	
Primary iron and steel manufacturing.....	555	85,014	1.655	134	81	53	381	0.448	
Primary nonferrous metals manufacturing.....	360	54,030	0.953	363	381	-18	29	0.053	
Metal containers.....	61	11,422	2.269	13	6	7	8	0.069	
Heating, plumbing, and structural metal products.....	530	37,391	0.399	4	9	-6	18	0.047	
Screw machine products and stampings.....	315	28,326	0.401	3	8	-5	106	0.374	
Other fabricated metal products.....	486	41,832	1.068	171	161	11	92	0.221	
Engines and turbines.....	114	13,268	29.497	2	6/	2	40	0.305	

Table 15. --The estimated effects of Mexico's debt-related austerity on U.S. imports from Mexico and U.S. output in 61 nonservice industry sectors--Continued

Industry sector	U.S. employ- ment 1/ (1)	U.S. industry output 1/ (2)	Ratio of		Imports under constant market share 2/ (5)	Differ- ence 3/ (6)	Esti- mated change in out- put 4/ (7)	Esti- mated change of industry output 5/ (8)
			U.S. industry output 1/ share (3)	Actual 1985 imports (4)				
Farm and garden machinery.....	116	14,204	0.914	8	9	-1	-0.005	
Construction and mining machinery.....	194	27,369	0.564	22	39	22	0.080	
Materials handling machinery and equipment.....	83	6,028	3.557	48	13	34	0.652	
Metallworking machinery and equipment.....	317	23,711	0.204	6	29	-10	-0.044	
Special industry machinery and equipment.....	168	14,118	1.415	8	5	4	0.028	
General machinery and equipment.....	277	26,966	1.370	63	46	62	0.229	
Miscellaneous machinery, except electrical.....	298	18,462	3.358	6/	6/	38	0.206	
Office, computing, and accounting machines.....	507	42,045	0.921	322	350	-36	-0.085	
Service industries machines.....	181	18,035	0.773	28	36	13	0.074	
Electric industrial equipment and apparatus.....	434	28,817	0.911	380	417	-6/	0.001	
Household appliances.....	153	16,262	1.099	88	80	9	0.058	
Electric lighting and wiring equipment.....	204	18,151	1.321	537	406	141	0.776	
Radio, TV, and communication equipment.....	707	67,568	0.397	502	1,264	-762	-1.175	
Electronic components and accessories.....	685	47,268	0.679	439	1,647	-208	-0.803	
Misc. electrical machinery and supplies.....	167	14,397	1.055	414	392	22	0.362	
Motor vehicles and equipment.....	870	172,657	3.003	1,700	566	1,134	0.904	
Aircraft and parts.....	639	71,858	2.519	47	19	28	0.048	
Other transportation equipment.....	348	31,414	0.335	16	46	-31	-0.098	
Scientific and controlling instruments.....	417	24,425	0.991	127	128	-1	0.025	
Optical, ophthalmic, and photographic equipment.....	201	20,315	2.504	85	34	53	0.261	
Miscellaneous manufacturing.....	431	26,576	0.796	703	883	-180	-0.725	

1/ 1984 data. Output figures include the value of the industry's output plus the value of intermediate inputs.
 2/ Imports under constant market share is the quotient of actual imports (col. 4) and the market share ratio (col. 3).
 3/ The difference between actual imports (col. 4) and imports under constant market share (col. 5).
 4/ The estimated total change includes direct and indirect changes, and is calculated by multiplying the matrix of total requirements coefficients of the input-output table of the U.S. economy by the vector of differences in trade (col. 6).
 5/ The estimated change (col. 7) as a share of industry output (col. 2).
 6/ Absolute value less than \$500,000.
 7/ Not available.

Note. --Because of rounding, actual figures may not equal results shown.

Source: Employment and production statistics compiled from U.S. Bureau of Labor Statistics data, trade statistics compiled from official statistics of the U.S. Bureau of the Census.

BRAZIL: A CASE STUDY

Historical Background 1/

During much of the 20th century and most of the post-World War II period Brazil has experienced rapid economic growth. Since 1946, its economy has expanded at an average rate of 7 percent annually, led by growth in manufacturing at 9 percent per annum. Much of the growth in manufacturing resulted from policies promoting import-substituting industrialization. Following steep increases in world petroleum prices in 1973-74 and again in 1979-80, Brazil borrowed heavily to finance massive trade deficits rather than risk aborting its economic expansion by raising energy prices or restraining demand. Brazil also used foreign loans to greatly expand its industrial capacity, especially in steel, electrical power, chemicals, and public transport. U.S.-Brazilian trade benefited from this growth, expanding from \$1.5 billion to \$7.5 billion during 1970-80 alone.

However, Brazil's economic performance since 1980 has been severely constrained by mounting foreign indebtedness. Initiatives taken in 1981-82 to adjust to a deteriorating balance of payments position proved inadequate and precipitated a domestic recession. By the end of 1982, rising debt-service payments, falling export revenues, domestic recession, and sharply curtailed commercial bank lending rendered Brazil illiquid. Under IMF supervision, measures were taken to correct distortions that had arisen because Brazil had postponed adjustment to the previous decade's twin oil shocks. As an immediate result, Brazilians suffered cumulative declines in their per capita incomes that averaged 11 percent between 1980 and 1983. Real wages were estimated to have fallen by 23 percent. During this period, U.S. exports to Brazil declined by over 40 percent.

The Brazilian economy began its recovery during 1984, and GDP growth surpassed 8 percent during 1985, spurred by strong export demand. As a result, improvement in its trade accounts exceeded expectations, much of the debt was rescheduled, and the risk of renewed illiquidity problems seemed to diminish. However, problems with inflation and the public-sector deficit grew worse. In February of 1986 Brazil instituted the "Cruzado Plan," which featured a de-indexation of the economy and the imposition of wage and price controls. This resulted in a dramatic decline in measured inflation. A one-time wage increase boosted demand further. Real economic growth for 1986 is expected to exceed 10 percent.

1/ The historical section derives extensively from the following sources: Werner Baer, The Brazilian Economy: Growth and Development, 1983; World Bank, Brazil: Economic Memorandum, 1984; World Bank, Brazil: Industrial Policies and Manufactured Exports, 1983; Paulo Nogueira Batista, Jr., International Financial Flows to Brazil since the Late 1960s: An Analysis of Debt Expansion and Current Payments Problems, (mimeo); Jorge del Canto, Brazil: Economic Growth, The Role of Financial Policies in Economic Development and External Financing in the Post World War II Period, 1981; Inter-American Development Bank, Economic and Social Progress in Latin America, various issues; Celso L. Martone, "Macroeconomic Policies, Debt Accumulation, and Adjustment in Brazil, 1965-84," (mimeo).

However, demand growth strained industrial capacity, leading to widespread shortages of key producer and consumer goods. As a result, inflationary pressures mounted throughout 1986. Sharp price increases for selected items were announced following the November 15 elections, but shortages persisted. Investment that might otherwise have provided additional capacity to satisfy growth in consumption has not materialized. Public sector investment remains depressed because of budgetary cutbacks and private investment remains low because of price controls, shortages of materials, and longer run uncertainties regarding the economy. Foreign investors that must also confront market reservation policies and uncertainties concerning the new constitution have sharply reduced their investment into Brazil.

Late in December 1986, a resumption of inflationary expectations compelled the Government to reindex interest rates on Government bonds, signalling the end of the Cruzado Plan. Inflation for 1987 has been projected to exceed 200 percent, and short-term certificates of deposit commanded over 400 percent early in January 1987.

In its external position, Brazil continues to rely heavily on strong external demand to service its \$108 billion debt. Yet the newly created cruzado has become severely overvalued, as suggested by the 50 percent discount on cruzados in the free market. In addition, exportables have been diverted for domestic consumption, narrowing the trade surplus and resulting in rapid depletion of foreign reserves. Brazil's refusal to negotiate with the IMF on an adjustment program has resulted in curtailed access to concessional trade financing and has raised an impasse with Paris Club creditors that might otherwise have resulted in reduced interest rates on these loans. Any new agreement concluded with the World Bank might well include prescriptions to control a rapidly growing public-sector deficit. The resurgence of inflation and continuing large subsidies for wheat and various state enterprises would make this a formidable challenge.

In what follows, Brazil's post-war economic history is surveyed with emphasis on the evolution of Brazil's debt problems and the implications for trade. Included is a detailed account of recent changes in Brazilian policies affecting trade and foreign debt. With this background, the recent course of U.S.-Brazilian trade and investment relations is then discussed.

Import-substituting industrialization, 1946-64

Following the World War II, Brazil continued its evolution from an agrarian economy to a modern industrial state. ^{1/} This period witnessed a decline in the relative importance of nondurable manufactures, such as textiles and food products, and the ascent of durable intermediate and consumer products, such as chemicals, electrical machinery, and automobiles. Much of the impetus for this pattern of industrialization originated with policies that promoted import substitution. Central to this apparatus was the "Law of National Similarity," which provided for registry of domestically produced goods, or of an intent to produce such products. This law, which originated in 1911, became the basis for multiple exchange rate practices and

^{1/} Richard F. Nyrop, ed., Brazil, a country study. American University area handbook series, 1983.

the structure of tariff protection during the 1950s. For example, imports comparable with those available domestically had to be purchased with foreign exchange acquired at the most disadvantageous rate. In addition, when ad valorem tariffs were introduced in August 1957 the highest tariffs (up to 150 percent) were applied to imports registered as available domestically.

Some of Brazil's industrial expansion has been attributed to direct Government ownership of industry, particularly in steel, chemicals, mining, petroleum, banking, public utilities, and transport services. ^{1/} Additional incentives were provided by the state-owned National Bank for Economic Development (BNDE), which offered long-term financing for the steel industry at subsidized rates. Often, equity shares held by BNDE as collateral ultimately resulted in the Government becoming the largest shareholder in many industrial projects. The high degree of protection afforded domestic industry and optimistic assessments of Brazil's growth potential prompted large inflows of foreign capital. Expansionary fiscal and monetary policies further stimulated industrial expansion.

However, by the late 1950s symptoms of underlying economic difficulties emerged, including accelerating inflation, deepening budgetary imbalances, and widening trade deficits. Wage and price controls were adopted in an unsuccessful attempt to stifle inflation. In 1961 and again in 1964 Brazil found itself unable to meet its foreign debt obligations. Inflation increased dramatically, from under 20 percent to over 80 percent by 1964. That year civil disorder led to the military seizing political control.

Stabilization, reforms, and the Brazilian economic "miracle," 1964-73

Stabilization and reforms.--Between 1964 and 1967 the Brazilian Government instituted sweeping policy changes that stabilized the economy by deemphasizing growth while it attended to correcting distortions. Fiscal and monetary restraints were applied, external debts were rescheduled, tax reforms were adopted, and labor unions were forced to accept wage reductions. Wages, prices, taxes, rents, interest rates, and other financial assets and liabilities were subjected to a monetary correction (ie, indexed) in an effort to mitigate the effects of inflation. The creation of a central bank and the emergence of a local equity market were major steps toward modernizing the financial system that contributed to savings formation and improved economic policy making. ^{2/}

Some liberalization of the trade sector also occurred, including unification of the exchange rate and the relaxation of many import restrictions. Exports were encouraged by exemptions granted on payment of indirect taxes for exported goods, a duty draw-back system, ^{3/} and a variety of subsidies that were made available to exporters of manufactured goods. The latter included fiscal credits, preferential financing of working capital, and

^{1/} Werner Baer, The Brazilian Economy: Growth and Development, 1983.

^{2/} World Bank, Brazil: Economic Memorandum, 1984.

^{3/} Duty drawback provides incentives for certain exports by suspending or reimbursing duties on imports used in the production of exports. Duties may also be waived on imports destined for the domestic market if the firm commits to specified export performance requirements.

exemptions from corporate profit taxation on exports. In 1967, Resolution 63 permitted Brazilian banks to borrow abroad and to lend dollars domestically. In 1968, a crawling-peg regime was adopted to stabilize real exchange rates, although rate adjustments never fully eliminated the cruzeiro's overvaluation.

The Brazilian Economic Miracle.--The stabilization programs adopted over 1964-67 appeared to be effective, judging by the rapid economic growth, averaging 11 percent annually, that Brazil experienced between 1968 and 1973 (see Table 16). Some of the growth in output exploited underutilized capacity installed during the 1950s, but accommodating monetary and fiscal policies adopted after 1967 also led to much new investment. Partial liberalization of the trade sector resulted in imports rising from 6 percent of national output in 1964 to nearly 12 percent by 1973, as shown in Table 17. Meanwhile, export growth grew at an unprecedented rate, averaging 22 percent per annum (in current dollars). The introduction of export incentives, intended to offset currency overvaluation and costs to domestic industry from import protection, along with strong external demand, are often credited with spurring the export growth. 1/

External Debt.--During this period, Brazil's gross foreign debt grew rapidly, from \$3.6 billion in 1965 to about \$12.5 billion by 1973 (see table 18). However, nearly one-half of this debt was matched by increased official holdings of international reserves. 2/ As a result, net foreign indebtedness totaled only \$6.1 billion in 1973, compared with \$3.1 billion in 1965. Indeed, two of the more important debt indicators improved significantly through 1973 as net indebtedness declined in proportion to both merchandise exports and GDP. On the other hand, debt service relative to exports was roughly unchanged at 35 percent. This reflected a shift in Brazil's debt composition towards commercial borrowing on which higher interest rates were incurred. The average nominal cost of foreign debt (annual interest payments divided by total debt as of the previous year) doubled between 1968 and 1973 to 9.6 percent, and the share of loans carrying variable interest rates also doubled to over one-third.

External shocks, ISI revisited, and debt accumulation, 1973-82

First Oil Shock.--The quadrupling of crude petroleum prices during 1973-74 resulted in a sharp deterioration in Brazil's merchandise trade account, from a small surplus in 1973 to a deficit of nearly \$5 billion in 1974. The value of Brazil's merchandise imports doubled from 1973 to \$12 billion in 1974. Part of this increase occurred because Brazil relied on imported oil for 80 percent of its supply. However, nonoil imports rose by 80 percent in 1974 over 1973, and this increase accounted for over two-thirds of the increase in merchandise imports. A growing deficit in traded services also contributed to a widening of the current account deficit from about \$2 billion in 1973 to \$7.5 billion in 1974.

1/ See, for example, Jorge del Canto, *Brazil: Economic Growth, The Role of Financial Policies in Economic Development and External Financing in the Post World War II Period*, for IADB, 1981.

2/ Paulo Nogueira Batista, Jr., *International Financial Flows to Brazil since the Late 1960s: An Analysis of Debt Expansion and Current Payments Problems*, (mimeo).

Table 16.--Brazil: Basic economic indicators, 1966-85

Year	Real GDP	Gross investment	Inflation rates		Real exchange rates		Real
	growth	rate 1/	Deflator	CPI	Dollar 3/	Weighted 3/	wages 4/
	-----percent-----						
1966.....	5.4	22.1	38.6	41.3	92.3	N/A	N/A
1967.....	4.7	19.4	28.8	30.5	99.1	N/A	N/A
1968.....	11.0	21.5	27.8	22.3	97.0	N/A	N/A
1969.....	10.2	24.8	20.3	22.0	93.5	N/A	N/A
1970.....	8.3	25.5	18.2	22.4	94.6	N/A	N/A
1971.....	12.0	26.0	17.3	20.2	94.4	N/A	N/A
1972.....	11.1	26.1	17.4	16.6	95.9	N/A	N/A
1973.....	13.6	27.5	20.5	12.7	101.3	N/A	N/A
1974.....	9.7	30.5	31.5	27.6	103.4	N/A	N/A
1975.....	5.4	32.1	32.7	29.0	106.2	N/A	N/A
1976.....	9.7	27.4	41.3	41.9	113.6	N/A	N/A
1977.....	5.7	25.9	44.5	43.7	116.8	N/A	N/A
1978.....	5.0	25.2	37.2	38.7	122.2	N/A	N/A
1979.....	6.4	22.1	57.6	52.7	115.1	N/A	N/A
1980.....	7.2	22.5	94.5	95.3	100.0	100.0	100.0
1981.....	-1.6	21.2	97.8	98.6	102.9	121.7	98.7
1982.....	0.9	21.2	96.5	100.4	102.5	132.3	99.2
1983.....	-3.2	15.9	144.5	133.4	77.8	101.3	87.9
1984.....	4.5	15.5	207.9	188.8	73.1	101.1	81.3
1985.....	8.3e	15.5e	224.6e	224.6	70.9	100.0	83.7

1/ As percent of GDP.

2/ Cost of living, Rio de Janeiro.

3/ Increase denotes appreciation; 1980 = 100.

4/ 1980 = 100.

Sources: Fundacao Getulio Vargas; Conjuntura Economica;
Boletim do Banco do Brasil; Morgan Guaranty Trust

Table 17.--Brazil: Summary balance of payments, 1966-85

Year	Merchandise (FOB)		Trade balance	Services (Net)	Current account balance	Capital account 1/	Change in reserves 2/
	Exports	Imports					
(millions of dollars)							
1966.....	1,741	1,303	438	-463	-25	203	-178
1967.....	1,654	1,441	213	-527	-314	104	210
1968.....	1,881	1,855	26	-556	-530	563	-33
1969.....	2,311	1,993	318	-630	-312	902	-590
1970.....	2,739	2,507	232	-815	-583	1,036	-453
1971.....	2,904	3,247	-3,437	-980	-1,323	1,860	-537
1972.....	3,991	4,232	-241	-1,250	-1,491	3,497	-2,006
1973.....	6,199	6,192	7	-1,722	-1,715	3,539	-1,824
1974.....	7,951	12,641	-4,690	-2,433	-7,123	6,255	868
1975.....	8,670	12,210	-3,540	-3,162	-6,702	6,191	511
1976.....	10,128	12,383	-2,255	-3,763	-6,018	6,594	-576
1977.....	12,120	12,023	97	-4,134	-4,037	5,278	-1,241
1978.....	12,659	13,683	-1,024	-5,062	-6,086	10,987	-4,901
1979.....	15,244	17,961	-2,717	-7,778	-10,495	6,361	2,900
1980.....	20,132	22,955	-2,823	-10,152	-12,975	9,846	3,470
1981.....	23,276	22,091	1,185	-13,135	-11,950	12,990	-621
1982.....	20,173	19,395	778	-17,082	-16,304	11,478	5,201
1983.....	21,898	15,429	6,469	-13,414	-6,945	5,640	-1,890
1984.....	27,002	13,916	13,086	-13,215	-129	5,099	-5,368
1985.....	25,634	13,168	12,466	-12,894	-428	447	511

1/ Includes net current transfers.

2/ (-) denotes increase in reserves.

Source: 1966-1978 data from Banco Central do Brasil; 1979-85 based on data from IMF International Financial Statistics.

Table 18.--Brazil: Debt indicators, 1966-85

Year	Debt/ GDP 1/ ----- Percent	Debt/ Exports 2/ ----- Percent	Debt Service/ Exports 3/ ----- Percent	Gross debt 4/ \$ billion
1966.....	10.3	157.7	26.9	3.7
1967.....	10.4	185.8	34.5	3.3
1968.....	10.7	186.0	30.3	3.8
1969.....	11.1	171.2	26.2	4.4
1970.....	12.4	173.1	29.6	5.3
1971.....	13.4	202.0	35.1	6.6
1972.....	16.4	218.3	35.8	9.5
1973.....	15.9	187.8	32.7	12.6
1974.....	16.5	198.7	29.8	17.2
1975.....	17.0	224.6	37.9	21.2
1976.....	17.1	239.3	44.2	26.0
1977.....	18.2	246.3	47.3	32.0
1978.....	20.9	319.0	58.8	43.5
1979.....	21.2	298.9	63.3	56.1
1980.....	21.6	246.3	51.8	62.8
1981.....	26.1	280.9	61.0	71.9
1982.....	29.4	378.5	83.3	83.2
1983.....	43.6	387.8	78.5	91.6
1984.....	46.0	335.5	62.2	102.0
1985.....	NA	NA	NA	104.7

1/ GDP calculated using 1980 exchange rate.

2/ Exports refer to goods and nonfactor services.

3/ Includes interest and amortization payments.

4/ Excludes short-term debt before 1979.

Source: Banco Central do Brasil

Brazilian policy.--Brazilian authorities thought that the effects of the oil shock would be transitory, so they responded by adopting a countercyclical policy intended to preserve growth, employment, and consumption. 1/ Domestic petroleum prices were not elevated to world levels, nor were restraints imposed on aggregate demand. 2/ Instead of devaluing the cruzeiro, authorities permitted the cruzeiro to appreciate in an effort to curb rising inflation. 3/ Although export-promotion programs were expanded, the trend toward import liberalization was reversed. To restrict imports, Brazil imposed import surcharges that effectively doubled existing rates, and added an assortment of nontariff barriers. Quantitative restrictions were imposed on imports by Government-owned enterprises, the "Law of National Similarity" was enforced more aggressively, and advanced import deposits were required (with 1-year maturities, no accrual of interest, and no compensation for inflation that averaged 20-40 percent at the time). These contributed to a decline in total imports from 11.6 percent of GDP in 1973 to 9.6 percent by 1978. Perhaps more meaningful was the steeper decline in non-oil imports, from 10.4 percent to 6.7 percent.

During this period, growth in domestic demand once again derived from an ambitious program of import substitution. 4/ Plans for enormous public expenditures in pulp and paper, petrochemicals, fertilizers, steel, and nonferrous metals were implemented, based on expectations formed prior to the oil shock that rapid growth would continue. Public spending on the economic infrastructure also expanded, especially in hydroelectric and nuclear power, alcohol, public transport, and communications. As a result, gross capital formation rose to 28 percent of GDP over the period 1974-78. Typically, foreign capital financed about one-sixth of this gross investment. The surge in direct Government investment during this period was a significant factor in reducing the share of foreign equity in Brazilian manufacturing from 34.4 percent in 1971 to 22.5 percent by 1979. 5/

Effects on trade and debt.--The world economy's sluggish recovery from the 1974-75 recession, the anti-export effects of Brazil's import restrictions, and the cruzeiro's overvaluation slowed the growth of Brazil's exports to one-half of the rate prevailing before 1973. Because the nominal

1/ Celso L. Martone, "Macroeconomic Policies, Debt Accumulation, and Adjustment in Brazil, 1965-84," (mimeo). Prepared for the World Bank's WDR 1985.

2/ Carlos F. Diaz-Alejandro, "Some Aspects of the 1982-83 Brazilian Payments Crisis," Brookings Papers on Economic Activity, 1983.

3/ Policymakers in developing countries frequently used the nominal exchange rate to dampen inflationary pressures. In Brazil, inflation that had fallen beneath 20 percent by 1973, increased to 30 percent during 1974-75, and reached 40 percent during 1976-78. The cruzeiro was allowed to appreciate continuously during this period in an unsuccessful effort to apply external price discipline.

4/ Eliana A. Cardoso, "What Policymakers Can Learn from Brazil and Mexico," Challenge, September-October 1986.

5/ USITC, Foreign Industrial Targeting and its Effects on U.S. Industries, Phase III, 1985.

value of imports was virtually unchanged at about \$12 billion during 1974-77, 1/ Brazil registered a cumulative trade deficit exceeding \$10 billion over 1974-76 before balance was restored in its merchandise trade during 1977. However, gradual improvement in Brazil's trade balance was offset by the steady deterioration in its services balance, as growing foreign indebtedness resulted in larger interest payments. 2/ Thus, Brazil's current account deficit averaged above \$6 billion annually through 1978. As a result, Brazil drew heavily upon foreign borrowing to balance its payments, with net foreign debt rising from \$6.1 billion in 1973 to \$31.6 billion by the end of 1978. Gross debt increased to over \$43 billion, nearly \$5 billion of which was accounted for by a reserve buildup in 1978. Debt service relative to merchandise exports increased from 35 percent in 1973 to 63 percent in 1978.

Second oil shock--As a result of the second round of petroleum price increases during 1979-80, large price increases on other major import categories, and sharp price declines for principal exports, Brazil experienced a 40 percent decline in its terms-of-trade between 1978 and 1982. This compares with the 16 percent decline resulting from the first oil shock. As a consequence of OPEC price increases, Brazil's crude oil imports rose sharply in value, from \$4.1 billion in 1978 to well over \$10 billion by 1981, and increased in share from 30 percent of merchandise imports to nearly 50 percent. Because the value of nonoil imports also rose, total imports increased from \$13.6 billion in 1978 to \$23 billion in 1981 before declining.

Brazilian trade policies.--In response to a widening trade deficit that developed during 1979, Brazilian authorities declared a 30 percent maxidevaluation in December. This propelled exports to a one-third increase during 1980. Overall, Brazil's exports expanded from \$12.7 billion in 1978 to \$23.3 billion by 1981. 3/ As a result, Brazil's trade deficits following the second oil shock were relatively modest and temporary, compared with the first oil shock. Indeed, trade surpluses were registered during 1981 and 1982. Nevertheless, these surpluses were small and fell short of expectations. The disappointing trade figures after 1980 resulted in part because of a gradual return to an overvalued cruzeiro. Export revenues also declined markedly after the late-1980 collapse of prices for sugar, coffee, and cocoa. Finally, export demand from newly significant markets in Argentina, Mexico, Nigeria, and Poland contracted sharply during 1981-82 as these countries encountered their own balance-of-payments difficulties.

Brazil's inability to earn large trade surpluses as anticipated contributed to the deterioration in Brazil's external payments situation. However, it was principally because of growing deficits in its service accounts, consisting largely of interest payments abroad, that Brazil's

1/ However, dollar inflation during the period meant that real imports declined 5 percent, p.a.

2/ Changes in debt levels dominated changes in interest rates in an explanation of rising debt-service payments during this period. Average interest costs on Brazil's outstanding debt rose from 9.6 percent in 1973 to 12.6 percent in 1975, but retreated to under 11 percent over 1976-78.

3/ Much of the growth in Brazilian exports was a result of debt-financed consumption demand from Argentina, Poland, and Chile, or through barter arrangements with crude oil suppliers such as Nigeria.

external accounts position ultimately became untenable. Most of this deterioration stemmed from increases in world interest rates attributable to shifting macroeconomic priorities in the industrialized countries.

Middle-income developing countries such as Brazil were especially vulnerable to this rise in interest rates, having contracted much of their debt through commercial banks at variable market rates. By 1982, three-quarters of Brazil's foreign debt was owed to commercial banks, of which 70 percent was carried at floating interest rates. Furthermore, most of the debt was dollar-denominated, so the ongoing appreciation of the dollar via-a-vis other industrial currencies compounded Brazil's repayment problems by raising the domestic resource cost of its dollar earnings.

Effects of rising world interest rates on debt.--Because of rising world interest rates, Brazil's indebtedness became a self-reinforcing phenomenon. In 1978, new lending totaled nearly \$14 billion, compared with interest and amortization payments of \$8 billion. However, between 1978 and 1982, Brazil's annual interest payments alone increased from \$2.7 billion to \$11.4 billion. This meant that each year larger loan disbursements were needed to avert net capital outflows. Indeed, from 1979 to 1981, a rough balance between inflows and outflows was maintained, with progressively higher levels of new lending required each year. This pattern was ultimately broken in 1982 when Brazilian repayments of debt and interest surpassed \$18 billion, and new lending from commercial banks fell to \$12 billion in the wake of developments involving Poland, Mexico and Argentina.

Brazilian macroeconomic policies 1980-81.--Rapid growth of the current account deficit during 1979 prompted the authorities to announce a 30 percent devaluation in December. Unsettled by the maxidevaluation, and concerned over a possible recurrence, Brazilian firms and financial institutions became reluctant to contract new external debt. Hence, in January 1980, the authorities announced that for 1980 the cumulative rates of monetary correction on financial assets and nominal devaluation of the exchange rate would be limited to 45 percent and 40 percent, respectively, and somewhat lower than current inflation. This policy was implemented by announcing what the forthcoming month's rate of correction would be, before actual inflation was known. The objectives were to promote domestic investment (through low real interest rates) and stimulate foreign debt financing, while curbing inflationary expectations. Further oil price increases were unanticipated. So when inflation approached 100 percent, the negative real interest rates that resulted spurred portfolio shifts out of financial assets into speculative inventory accumulation, consumer durables, real estate, and new construction activity. The result was 8 percent growth in GDP, led by a 12 percent increase in gross capital investment. Spending was also channeled into non-oil imports, which rose by 17 percent (in current dollars) over 1979.

Realizing that pre-announcement of the rates of indexation was not viable, the authorities abandoned the approach in November 1980 and returned to a policy of indexing financial instruments in line with inflation. They also introduced measures to control credit expansion and restrain import growth with the objective of restoring confidence in the economy. By early 1981, contractionary monetary policies were sharply restricting economic activity. Portions of the segmented financial market were decontrolled, resulting in real interest rates for commercial credit that exceeded

40 percent. Consumer credit costs became prohibitively expensive, and new access to low-risk financial assets offering positive real returns sharply curtailed demand for consumer durables. For example, auto inventories grew by 500 percent between August 1980 and March 1981. Spending patterns that had shifted towards durable assets earlier in 1980, now shifted away. Consequently, gross fixed investment that had grown by 12 percent in 1980 fell commensurately in 1981. Much of the adversity was concentrated in the automobile industry and among its suppliers. These factors contributed to a 1.6 percent decline in Brazil's GDP during 1981 and only negligible growth during 1982. A 15 percent decline in export earnings during 1982 contributed to further retard Brazil's economic growth.

Presented in the context of stagnant growth, and lower export earnings especially, rising debt repayment obligations led to substantial deterioration in Brazil's debt indicators. Between 1978 and 1982, Brazil's debt to GDP ratio increased from 21 percent to 29 percent, and debt service relative to exports rose from 59 percent to 83 percent.

In the wake of Mexico's announced suspension of interest payments to creditor banks in August 1982, Brazil's access to international credit became severely curtailed. By the close of 1982, Brazil was obliged to seek emergency financing assistance from the IMF, as a precondition to negotiations over rescheduling of its foreign commercial debt.

Debt rescheduling, IMF austerity, and the Cruzado Plan, 1982-86

Extent of Indebtedness.--By the close of 1982 Brazil's registered net foreign debt had reached \$69 billion, more than double the level of 1978. Its gross debt was slightly higher, at \$73 billion, as official reserves had fallen sharply. Of this, \$50 billion was public and publicly guaranteed debt, whereas \$23 billion was nonguaranteed private debt. However, officials soon began to discover that these figures understated the magnitude of Brazil's debt problem. All prior references to debt levels pertained only to registered medium- and long-term debt, ie, those with maturities exceeding one year. Apparently, starting about 1978 Brazil resorted increasingly to (unregistered) short-term debt. The World Bank's tabulations suggest that such short-term debt rose from \$7 billion in 1978 to over \$17.5 billion by 1982. Closer examination also revealed that much of Brazil's longer-term debt was in fact more accurately classified as short term. Foreign branches of Brazilian commercial banks were borrowing dollars short term, and then lending through their home offices to the Brazilian public sector at longer maturities. As a result, Brazil's total foreign debts in 1982 are now estimated to have been \$91 billion.

IMF rescue--The IMF came to Brazil's assistance in December 1982 by approving the first of two drawings upon its Commodity Financing Facility, each for about \$500 million. The second drawing followed in February 1983, accompanied by a 3-year, \$4.9 billion loan package through the IMF's Extended Financing Facility. Brazil was provided with these credits contingent upon its commitment to a program of structural changes designed to restore high and sustainable economic growth. Under terms of the agreement commercial banks would then supply \$4.4 billion in new loans, and the U.S. Government would contribute \$1.9 billion in additional credits.

Negotiations over debt rescheduling took place on two fronts, one with commercial banks and the second with the Paris Club of official creditors. Negotiations with the commercial banks were completed in February 1983. These agreements provided for \$4.4 billion in new loans, conversion of \$4.5 billion of amortizations due during 1983 into new long-term loans, the rollover of \$10 billion in short-term trade credits, and the restoration of \$6 billion in interbank deposits to largely overseas branches of the Bank of Brazil.

Austerity measures and consequences--The adjustment program agreed upon by the Brazilian authorities had two major objectives: (1) to raise domestic savings, especially in the public sector, and thereby reduce current account deficits, and (2) to increase allocative efficiency in the economy by promoting relative price adjustments, eliminating subsidies, and relaxing some restrictions. Trade surpluses were to be generated by real devaluation of the cruzeiro, export promotion, and import restraints.

Following the adoption of demand-restraining policies, Brazil's economy recorded a 3.5 percent drop in GDP during 1983, the largest decline since the Great Depression. Tightened expenditures by the public sector and increased efficiency of tax collection reduced the operational component of the public sector deficit from 6.2 percent of GDP to less than 2 percent. A 20 percent decline in real capital outlays by state enterprises most severely affected construction (down 15 percent) and manufacturing (down 6 percent). The continuing high level of interest rates also contributed to these declines.

Meanwhile, Brazil made significant progress with respect to its balance-of-payments. Brazil generated a \$6.5 billion trade surplus during 1983, well beyond the prescribed target of \$4 billion. The unexpectedly large surplus followed a 23 percent maxidevaluation announced in February 1983. In response, exports increased by 8.5 percent during 1983, despite continued weakness in worldwide demand for manufactures and depressed prices for most commodity exports. Meanwhile, imports declined by 20.5 percent. This sharp decline was aided by a falling petroleum import bill as world prices for crude oil softened and domestic production of substitute energy sources expanded.

However, further progress towards domestic stabilization was complicated by two major structural impediments confronting the Brazilian authorities: triple-digit inflation and increasing Federal sector deficits. The two problems were closely related because of widespread indexing of the Brazilian economy. Inflation accelerated during 1983, averaging over 200 percent, compared with the 100 percent level that was prevalent during 1980-82. Some of this increase originated with the maxidevaluation in February 1983 and its effect on import prices, which was then transmitted by indexing throughout the economy, including wages. Rising prices among agricultural products because of adverse weather conditions also contributed. These price increases were accommodated by rapid credit expansion. Rising inflation added to public-sector borrowing requirements, which in turn, further fueled the inflationary process. Although the operational component of the public sector deficit was being reduced by the implementation of austerity measures, Federal authorities were forced by rising inflation to mobilize additional resources to finance interest payments (largely composed of the monetary correction) on a growing domestic debt. Ultimately, much of this deficit was financed by monetary expansion.

As a result of these difficulties, Brazil was unable to meet its commitments with the IMF, and in May 1983 over \$400 million in pending disbursements were suspended. As a result, commercial bank lending also ceased. Not until the end of November was a new agreement signed. Much of the delay resulted from difficulties Brazil encountered enacting legislation that would partially de-index wage adjustments. In the meantime, the interruption of capital inflows led to a worsening of Brazil's balance-of-payments situation and resulted in further efforts to curtail imports that were already at critically low levels.

Subsequent to the revised agreement reached with the IMF in November 1983, Brazil successfully negotiated with private banks and creditor governments for a new package of debt refinancing and additional loans. These were calculated to cover arrears from 1983 and current account deficits anticipated for 1984. The package included (a) rescheduling of nearly \$4 billion in obligations to creditor governments through the Paris Club, (b) \$6.5 billion in new lending from commercial banks, and (c) the rescheduling of \$5.5 billion in amortizations maturing in 1984 over a 9-year period. Negotiations were also initiated to reschedule all principal payments on medium-term loans falling due over 1985-90.

Economic recovery.--The Brazilian economy rebounded during 1984, growing by 4.5 percent. The strongest recovery was in the mining sector, where increases in petroleum production enabled Brazil to satisfy 50 percent of its domestic demand. Extraction of iron ore, copper, and bauxite also rose substantially. The manufacturing sector expanded by 6 percent, reversing the decline from 1983, and providing the impetus for a broadened recovery. Resumption of growth in the world economy boosted Brazilian exports of manufactured goods by over one-third. In particular, the U.S. market absorbed over one-half of Brazil's manufactured exports. Overall, exports increased by about 23 percent during 1984, to \$27 billion, while imports declined by another 10 percent to under \$14 billion. Petroleum continued to represent about one-half of Brazil's imports, but further declines in world oil prices shaved 14 percent off its oil import bill. These developments enabled Brazil to achieve a record trade surplus of \$13.1 billion, far greater than the \$9 billion targeted at the start of the year.

The \$13 billion trade surplus, along with net transfers, allowed Brazil to generate a small surplus on its current account for 1984. Coupled with the \$12 billion debt refinancing package, Brazil's trade surplus enabled it to add over \$5 billion to its international reserves that reached \$3.7 billion (net of liabilities) by yearend. However, the package also boosted Brazil's total foreign indebtedness to \$104 billion at the close of 1984.

Despite Brazil's progress in restoring balance to its external accounts, difficulties with inflation and the federal-sector budget deficit persisted. Indexing policies provided inflation with an inertial component. Nominal values of key economic variables (e.g. wages) were automatically adjusted following price shocks to preserve real levels. Consequently, inflation that averaged 180 percent in 1983, exceeded 200 percent during 1984. As a result, budget restraints that generated a surplus on public-sector operations were overwhelmed by outlays for the inflation adjustments on the domestic debt. The inflation component of the deficit grew from 9 percent of GDP in 1982, to 16 percent in 1983, and to almost 21 percent during 1984.

Domestic management of the economy's financial sector was further complicated by the authorities' efforts to neutralize the expansionary effects of unanticipated inflows of foreign exchange during 1984. Sterilization through open market operations 1/ exerted upward pressure on domestic real interest rates, and led to concerns that these policies were "crowding out" private investment.

Brazil's economic recovery accelerated in 1985 as real GDP increased by an estimated 8.3 percent, the largest gain recorded since 1976. Industrial production also increased by 8.3 percent, led by a 15 percent increase in the demand for automobiles, appliances, and other consumer durables. Manufacturing investment also resumed, contributing to boost capital-goods output by 12 percent. In response, measured unemployment in major urban centers dropped by nearly 2 percentage points to 5.3 percent by the end of 1985. This robust performance of the domestic economy occurred without provoking a deterioration in Brazil's external payments position. The trade balance for 1985 was in surplus by \$12.5 billion, only slightly lower than the previous year's record despite a 5.1 percent decline in export receipts. Falling import prices and expanding domestic production of petroleum and derivatives were instrumental in compensating for the decline in export earnings. Declining world interest rates also enabled Brazil to attain rough balance in its current account, thereby relieving Brazil of the need to resort to additional external borrowing during 1985.

Following the accession to power of the new civilian government in March 1985, the New Republic outlined its First National Development Plan during the latter half of the year. Its implementation began in December when the Brazilian Congress passed a fiscal package that included tax reforms and curbs on certain categories of public-sector spending. However, inflation worsened with annualized rates exceeding 400 percent by yearend 1985 and into 1986, compared with 100 percent during 1980-82 and 200 percent during 1983-85.

Cruzado plan--On February 28, 1986, Brazilian authorities implemented a stabilization program to eliminate the economy's inflationary inertia. 1/ The package featured a redenomination of the national currency, with the cruzado replacing 1,000 cruzeiros, as a symbol of the new economic regime. More substantively, authorities announced the de-indexing of the economy, to be achieved by freezing wages and prices, virtually abolishing the monetary correction, and replacing a key indexed treasury bond with a nonindexed successor. Except for passbook savings, all interest rates were allowed to respond to market forces. In a notable departure, the exchange rate was pegged to the dollar at 13.84 cruzados to the dollar.

According to official statistics, inflation declined from over 400 percent before the Cruzado Plan to 1 percent monthly through July. 2/ Economic growth accelerated to as high as 11 percent for 1986 overall. Much of the spurt in growth resulted from large, one-time, real wage increases

1/ Open market operations are sales of Brazilian treasury bonds (ORTN) and bills (LTN) conducted by the central bank to absorb cruzeiros after the public converts foreign exchange earned from export sales.

2/ Federative Republic of Brazil, Secretariat of Planning of the Presidency of the Republic, Economic Stabilization Program, 1986.

awarded when the Cruzado Plan was announced. Consumption rose dramatically, so that by the third quarter of 1986 widespread shortages had arisen among significant consumer and producer goods. Although prices were technically frozen, many suppliers began charging agios (premiums) on products that were in short supply.

Domestic investment did not respond to the growing domestic shortages. Public sector investment was curtailed by budgetary cutbacks. Price controls undermined profitability, as costs rose because of wage increases and agios, while prices received did not. For many producers, shortages of raw materials made expanding capacity futile. Construction materials became especially scarce. Concerns over the longer-run health of the economy further discouraged private investment. Foreign investors responded by reducing net direct foreign investment (DFI). DFI has been declining since 1982, and net disinvestment may have occurred during 1986. In addition to the problems facing domestically-based firms, foreigners are concerned that the new constitution may contain clauses adverse to foreign investment. These uncertainties are not expected to be resolved until late in 1987, at the earliest. In addition, some foreign investors cited Brazilian policies such as those reserving the "informatics" industry to domestic producers. These are viewed as inhibiting the adoption of advanced (digital) technologies that Brazilian-based export-oriented companies require to compete in international markets.

Indications that the public was also losing confidence in the anti-inflationary program first became apparent in the free market for foreign exchange. Since October 1986, the dollar has purchased twice as many cruzados on the free market as could be obtained at the official rate. 1/ This premium reflects growing expectations that future devaluations of the cruzado will be necessary. Late in December 1986, accelerating inflationary expectations compelled the Government to reindex interest rates on government bonds. In January 1987, inflation was projected to exceed 200 percent for the year, and short-term certificates of deposit commanded interest rates of more than 400 percent.

The expansion of the Brazilian economy since the inception of the Cruzado Plan has also adversely affected its merchandise trade position, and threatens to renew Brazil's balance-of-payments difficulties. Through the first half of 1986 Brazil recorded a \$7 billion dollar trade surplus, or an average of over \$1 billion per month. However, the shortages have prompted many exportables to be diverted to satisfy rising domestic demand. As a result, the trade surplus has narrowed sharply since August, and was only \$156 million during December. 2/ CACEX, the foreign trade department within the central bank, suspended import licenses on 2,000 products until trade figures improve. Without a large trade surplus Brazil would be hard pressed to pay \$8.5 billion in interest due over 1987 on its \$108 billion foreign debt. In addition, Brazil is currently scheduled to repay \$14.1 billion in principal during 1987. On February 20, 1987, Brazil declared that it would suspend interest

1/ Morgan Guaranty Trust, World Financial Markets, August 1986.

2/ Wall Street Journal, "Fresh from debt accord, Brazil faces internal divisions over economic policy," January 23, 1987.

payments on \$81 billion in foreign commercial debts for 90 days. Brazil adamantly opposes review of its economic policies by the IMF, normally a precondition for negotiations over debt rescheduling or new loan agreements. Following meetings with President Sarney in October, the Reagan administration withdrew its insistence on IMF review. In January, creditor governments agreed to postpone repayment of \$4 billion in amortizations due over 1985-87 and interest arrears spanning 1985-86. This sets the stage for negotiations to begin over rescheduling \$50 billion of the foreign debt held by commercial banks and suppliers. The World Bank is expected to lead these discussions in place of the IMF. The resurgence of triple-digit inflation and the possible return of large public deficits are likely to pose formidable obstacles to an agreement.

Recent Changes in U.S.-Brazilian Trade and Effects on U.S. Industry

Trends in market shares

Brazilian export shares.--As a destination for Brazilian exports, the United States continues to rank first. For most of the last two decades the U.S. market was of diminishing relative importance to Brazilian exporters. Since 1980 this pattern has reversed. During the mid-1960s the United States purchased one-third of Brazil's exports. By 1970, however, the U.S. share had fallen to one-quarter, as Brazil cultivated markets among oil exporting countries. By 1980, less than one-fifth of all Brazilian exports were sold in the United States. However, since 1980 this figure has increased, reaching 26.5 percent by 1985.

Brazilian import shares.--Trends in Brazilian imports have been dominated by the effect of its historical dependence on foreign supplies of oil. During the 1970s the value of Brazil's crude petroleum imports increased from 10 to 50 percent of total imports. As a result, Brazilian imports of U.S. products declined as a proportion of total imports, from 30 percent or more during 1966-76, to 20 percent between 1977-80, and to about 15 percent since 1981. However, if attention is confined to nonoil Brazilian imports, the U.S. share has been remarkably stable from 1973 through 1983, ranging between 27.4 percent and 32.6 percent. However, this statistic is misleading, since it obscures the slow growth of Brazilian imports relative to GDP and the absolute decline that has occurred since 1980. Brazilian nonoil imports are now at levels that are unusually low by comparison with other major developing economies. The apparent stability of the U.S. import share during 1981-85 is also deceptive. Concealed is a loss of market share in volume terms that was disguised by dollar appreciation. The recent decline in the dollar's value, relative to major competitors in the Brazilian market (e.g. West Germany), has revealed a fallen share of export volume from the United States to Brazil that has been in process for several years.

U.S. export shares.--For the United States, Brazil ranked as its 17th largest export market in 1985. However, exports to Brazil, relative to total U.S. exports, have recently been trending downward. Brazil's share of total U.S. exports rose from under 2 percent in 1970 to 2.8 percent in 1975. By comparison, this proportion fell to 2 percent in 1980 and further declined to 1.5 percent in 1985.

U.S. import shares.--In contrast to its recent decline as a destination for U.S. exports, Brazil has increased in importance as a supplier of U.S. imports. Between 1970 and 1980, United States imports from Brazil represented about 1.5 percent of total U.S. imports. However, by 1985 Brazilian imports had increased to over 2.2 percent of total U.S. imports. Brazil has become the 11th ranking supplier of U.S. imports.

Trends in the composition of trade

Brazilian exports to the United States.--The level and composition of Brazil's exports to the United States have both changed significantly over recent years. In 1978, Brazil exported \$3 billion worth of merchandise to the United States. Agricultural products (principally coffee, sugar, and cocoa) constituted \$1 billion of this total, and food products represented another \$670 million. Brazilian exports of footwear, motor vehicle components, iron ore, and primary steel products were more modest in scale, each totaling between \$125 and \$250 million. 1/

Since 1978, Brazilian exports to the United States have increased rapidly, surpassing \$8 billion in 1984, before receding to \$7.5 billion in 1985. During this period, agricultural exports have been stagnant in dollar terms, and have declined steadily in relative importance, while manufactures have gained in absolute and relative significance. Brazilian exports of agricultural products have fluctuated between \$800 million and \$1.2 billion. So also have exports of food products, except for a surge of frozen concentrated orange juice that peaked in 1984. Meanwhile, exports of footwear quadrupled, from \$250 million to over \$1 billion, auto components quadrupled, from \$170 million to nearly \$700 million, primary steel exports increased from \$200 million to over \$800 million. Refined petroleum product exports increased from \$6 million to \$800 million. Exports of organic chemicals increased from \$33 million to about \$350 million. Large percentage increases in Brazilian exports that involved smaller volumes of trade were also registered by other sectors.

U.S. exports to Brazil.--In recent years the composition of U.S. exports to Brazil have been concentrated in wheat, coal, organic chemicals, computing equipment, and aircraft. Exports of assorted machinery and equipment have also been collectively substantial. In 1985, each of these six sectors contributed 10 percent or more toward \$3 billion in total U.S. exports to Brazil. 2/

Significant shifts in the composition of U.S. exports have occurred between 1978-85. Following increases early in the period, large export declines were recorded among U.S. exporters of organic chemicals, machinery, and wheat. U.S. exports of organic chemicals rose from \$600 million in 1978 to \$900 million in 1980, before falling to under \$400 million since 1982. Exports of machinery and equipment rose from \$600 million to nearly \$800 million in 1981, before falling to about \$350 million over 1983-85.

1/ U.S. Department of Commerce, ITA, Latin American Trade Review: A U.S. Perspective, 1985.

2/ U.S. Department of Commerce, ITA, United States Trade: Performance in 1985 and Outlook, 1985.

Sales of wheat and other agricultural products rose from about \$500 million in 1978 to nearly \$700 million in 1981, before falling to about \$450 million for 1983-85. Improvements in U.S. export performance over 1978-85 were recorded by producers of coal (increasing from \$100 million to \$300 million), computing equipment (also rising from \$100 million to \$300 million), and aircraft (increasing erratically from \$100 million to almost \$400 million).

Recent changes in factors affecting trade

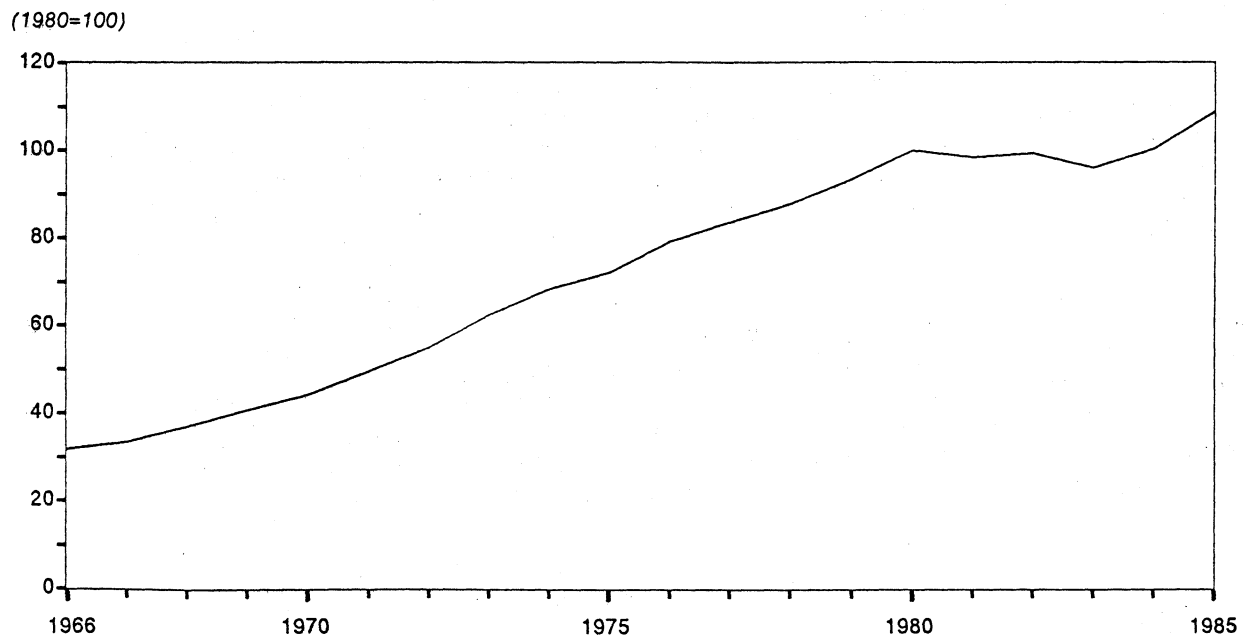
An analysis of the most significant factors affecting trade between Brazil and the United States over the period 1978-85 places emphasis on (a) changes in the relative rates of growth in demand, (b) changes in real exchange rate relationships, and (c) changes in commercial policies.

Changes in relative rates of growth.--Over the period 1978-85, the Brazilian economy went from rapid growth to sharp recession, and back to rapid growth, as shown in figure 4. Brazilian imports increased rapidly during the first growth phase of this period, remained very high for the first year of the recession phase, and then dropped sharply. Imports are expected to have risen from 1985 to 1986, the first such increase since 1980.

From 1978 to 1980, Brazil's real GDP growth averaged 6.2 percent. Imports that had been stagnant over 1974-78 increased sharply, from \$13.6 billion in 1978 to \$23 billion in 1980. Much of this growth was attributable to a \$5 billion increase in oil imports; nonoil imports rose by \$4 billion.

From 1981 through 1983, Brazil's cumulative decline in real GDP totaled 3.9 percent. During this period Brazilian imports declined from \$23 billion to \$15.4 billion, with the largest decline occurring in 1983. Quarterly

Figure 4.—Brazil: Real GDP growth, 1966-85



Source: Table 16.

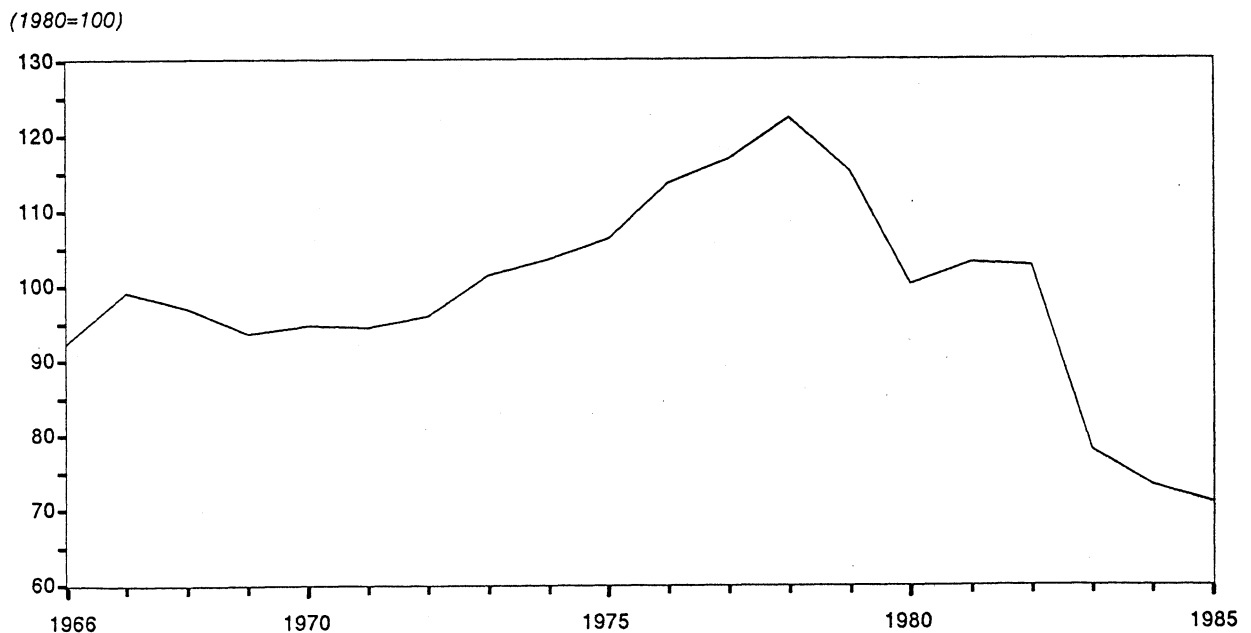
statistics indicate that the sharpest decline in imports occurred between the last quarter of 1982 and the first quarter of 1983, when quarterly imports declined from \$5 billion to \$4 billion.

Growth in the Brazilian economy resumed during 1984, as real GDP increased by 4.5 percent, and accelerated to over 8 percent during 1985. Growth is expected to increase further during 1986. However, imports continued to decline during 1984-85, from \$15.4 billion to \$13.2 billion, although expectations are that imports will be up sharply for 1986.

Economic theory suggests that Brazil's export performance should correspond closely with economic growth in its foreign markets, especially in the United States. Nominal GNP for the United States, for example, grew by 11 percent annually from 1978-81. Brazilian exports nearly doubled (in current dollars) between 1978 and 1981, increasing from \$12.5 billion to \$23.3 billion. Brazilian exports were somewhat lower in 1982-83, at a time when nominal GNP growth for the United States slowed to under 6 percent. U.S. GNP rose by 11 percent in 1984 and 5.8 percent in 1985. Brazilian exports surged to \$27 billion in 1984, before receding to \$25.6 billion during 1985.

Changes in real exchange rate relationships.--Brazil has used multiple exchange rates at various times over the period 1978-85, complicating an analysis of exchange rate effects on trade. However, based on available indices, real exchange rate movements have played a significant role in Brazil's recent trade performance.

Figure 5.—Brazil: Real exchange rate¹, 1966-85



¹ Increase denotes real appreciation.

Source: Table 16.

The cruzeiro's value rose steadily in real terms against the dollar prior to December 1979. At this time, the authorities declared a maxidevaluation of 30 percent. This spurred export growth of 30 percent during 1980. However, the cruzeiro resumed its real appreciation, and by June 1980 the effects of the December devaluation were fully negated. Despite frequent

minidevaluations, further real appreciation continued until March 1983, at which time the cruzeiro was nominally devalued by 23 percent. This restored the cruzeiro's real effective rate of exchange to its average level for 1980. Under a crawling peg the cruzeiro has since maintained its trade-weighted real exchange rate. However, because of the dollar's appreciation over much of 1983-85, the Brazilian currency depreciated by 30 percent vis-a-vis the U.S. dollar in real terms. This has encouraged Brazilian exports to the United States while discouraging imports.

Commercial Policies: An Overview--Brazil's post-war trade policies have been subject to frequent and significant shifts in orientation. The ISI strategy of the 1950s relied upon multiple exchange rates, nontariff barriers to imports, and screening of foreign investors. Ad-valorem tariffs were introduced in 1957. Major reforms carried out in the 1960s placed new emphasis on export competitiveness. Unification of the exchange rate, the introduction of export subsidies on manufactured goods (credito-premio), and import duty exemptions for export-oriented industries highlighted this shift in policy. The statutory tariff was the principal instrument of protection policy during this period.

Following the first oil shock import surcharges - many prohibitively large - were imposed, and supplemented by intensified use of nontariff barriers. A complex structure of fiscal incentives was devised to stimulate production and exports in targeted industries. Some of the incentives were installed to compensate for the cruzeiro's persistent overvaluation during 1974-79 estimated to have averaged 25-35 percent. 1/

Intensified use of import-protecting measures and more restricted access to foreign exchange followed the second oil crisis. Maxidevaluations in 1979 and 1983, along with periodic minidevaluations, were required to maintain Brazil's export competitiveness as inflation escalated rapidly. Restoration of normal access to trade credits in 1984 provided the conditions for modest liberalization of Brazil's trade system. Exchange controls were abolished in March. Comprehensive reform of the basic tariff structure, including the abolition of import surcharges, occurred in September. Nevertheless, Brazilian industry continues to benefit from very high nominal tariffs and widespread use of quantitative restrictions.

Import policies.--The Brazilian Government has employed a wide range of policy measures to protect its home market from foreign competition. Tariffs and import surtaxes, import licensing, import quotas, import financing requirements, foreign exchange taxes, local content provisions, market reservation provisions for infant industries, and Government procurement policies have all been used to restrict imports.

The structure of tariff protection prevailing through September 1984 involved nominal rates ranging up to 205 percent ad valorem. In addition, import surcharges between 30 and 100 percent were also in force. The highest rates applied to consumer goods, while the lowest rates were assessed on raw materials and agricultural machinery. Most other categories were subjected to import duties ranging from 30 to 85 percent. However, exemptions from import duties were granted on products related to the promotion of exports.

1/ William G. Tyler, The Brazilian industrial economy, 1981.

A revised tariff code, adopted in September 1984, incorporated existing surcharges into the tariffs and lowered the average nominal duty rate from about 80 percent to 50 percent. Nevertheless, tariff collections have typically been very small in relation to total import value. This suggests that tariffs are (a) prohibitive for many import categories, (b) actual imports are concentrated in categories subject to the lowest duty rates, or (c) imports are entering under special incentives qualifying them for duty exemptions. Indeed, for every year since 1974, fuel products, raw materials, and capital goods constituted over 90 percent of Brazilian imports. This figure rose to 95 percent for 1981-83.

Nontariff barriers (NTBs) remain the principal instruments for regulating the flow of imports into Brazil. 1/ A variety of NTBs are used in Brazil, either directly as import limitations, or indirectly through tax provisions. Most of the direct import restrictions are administered by CACEX, the foreign trade department within the Central Bank of Brazil. For example, import licenses are required for most products. These are issued to registered importers only, entail disclosure requirements, and may be subject to delayed approval. Under the Law of National Similar, import licenses may be denied if comparable products are available from Brazilian producers.

Since August 1980, further restriction of imports has been accomplished through annual import quotas for both public and private firms. Public sector imports are limited as a part of the budgetary process. Private firms' imports have been constrained by firm-specific import budgets. In 1981, for example, quotas were set equal to actual imports in 1980, which had a strongly restrictive effect on the real value of imports due to the high rate of inflation prevailing. 2/

Indirect controls have included the imposition of taxes on foreign exchange purchases used for importing goods and services, advanced import deposits, and regulations requiring foreign financing of imports. The tax on financial transactions (IOF) applies to foreign exchange purchased for importation of merchandise. This tax was raised from 15 percent to 25 percent in 1980, and applies to roughly one-half of all product categories. Advanced import deposits, introduced following the first oil shock, were eliminated in 1979. Central Bank resolution 767, instituted in October 1982, stipulated foreign financing under specified terms for all imports. Terms specify minimum payment periods according to the nature of the import and its value. When minimum maturity schedules exceeded those available to Brazilian importers, as occurred after 1982, the effect of these controls was highly restrictive.

Government spending programs have been tailored to encourage increased domestic value-added or to encourage majority Brazilian ownership in selected industries. Because of the high profile of Government-owned enterprises, the practice of making purchases contingent upon suppliers satisfying local content and ownership criteria has had significant effects upon certain industries.

1/ World Bank, Brazil: Industrial Policies and Manufactured Exports, 1983.

2/ ECLAC, Trade Relations Between Brazil and the United States, 1985.

The use of duty exemptions and the importance of NTBs, raises difficulties in measuring the level of effective protection in Brazil. One recent study that attempted to take account of both tariffs and nontariff trade barriers by comparing internal prices with international prices suggested that the rate of effective protection for manufactured goods averaged 46 percent in 1980-81. ^{1/} The highest levels of protection, at over 100 percent, applied to electrical and communications equipment, pharmaceuticals, and miscellaneous manufactures. The lowest, even negative, rates pertained to agro-based manufacturing industries.

Export promotion policies Exports, particularly of manufactured goods, are promoted by Brazil through a variety of direct and indirect subsidies and taxes. Most significant among these have been BEFIEEX, the credito-premio, the corporate tax credit, and duty drawback. According to a World Bank analysis using 1980 data, more than one-half of these fiscal incentives were conferred upon the automotive industry. Food processing, mechanical equipment, and electrical equipment received another one-quarter of the benefits. While the nominal rate of incentives involved collectively averaged 13 percent of export value during 1980, factoring in inflation and an overvalued currency led the World Bank to estimate the average real subsidy to be only 3.5 percent.

The BEFIEEX agreements grew out of export-promotion policies initiated during the late 1960s. The first wave of these agreements were signed between 1971-73, and offered a package of tax incentives to firms (mostly in the automotive sector) in exchange for long-term export commitments. Incentives included duty reductions, exemptions from corporate profit taxes on exports or remitted earnings, exemptions on value-added taxation, and others. Most of the export commitments spanned 10 years, and were therefore a major spur to growth in manufactured exports throughout the 1970s.

The credito-premio, no longer in use, provided subsidies to most exporters of manufactured goods. This program originated during 1968, and provided grants that, in principle, were equivalent to the value of indirect value-added taxes incurred. Although it was abolished in 1979 consistent with Brazil's obligations as a signatory to the GATT Agreement on Subsidies and Countervailing Duties, it was reintroduced in 1981 under a waiver agreement. The agreement that allowed its reintroduction at a flat rate of 15 percent also called for the subsidy to be phased out by May 1985.

Duty drawback provides incentives for certain exports by suspending or reimbursing import duties on imports used in the production of exports. Duties may also be waived on imports destined for the domestic market if the firm commits to specified export performance requirements.

Indirect subsidies to exports are also provided through concessional financing of trade credit, export credit insurance, and export guarantees. A variety of Brazilian exports to the United States are subject to export taxes, imposed in response to unfair trade complaints filed by U.S. industries.

^{1/} Tyler, op. cit.

Effects on U.S. industry

The market share methodology described in the methodology section was used to determine which industries were most affected by the changes in bilateral trade that occurred as a result of Brazil's post-1981 adjustment. The results are shown in tables 19-21. The analysis that follows encompasses nonservice, merchandise trade for 61 industry sectors.

Net trade effects.--Fourteen U.S. industries were estimated to have increased their net exports to Brazil, while in 42 industries these net exports are estimated to have fallen as a result of Brazil's debt problems. The largest estimated gains in direct exports were in food products (\$514 million), coal (\$122 million), and radio, TV, and communication equipment (\$64 million). The largest declines were estimated for industries producing chemical products (\$708 million), refined petroleum products (\$593 million), and footwear (\$234 million).

When the overall effects of changing bilateral trade with Brazil are considered, the direct and indirect effects on output were positive for 12 U.S. industries, whereas these estimated effects were negative for 49 industries. The largest estimated positive output effects were in food products (\$617 million) and livestock (\$139 million). Smaller positive effects were estimated for producers of coal and other agricultural products. However, for none of these 12 industries was the estimated effect large in proportion to domestic output. The largest effect was on the coal mining industry, where positive effects on net exports to Brazil added 0.27 percent to industry production. The next largest effects were on producers of Food products (0.19 percent) and Livestock (0.16 percent).

The largest estimated negative effects on net exports to Brazil were in chemicals (over \$1 billion), crude petroleum (\$831 million), refined petroleum products (\$752 million), and primary metals manufactures (\$574 million for iron and steel, and \$499 million for nonferrous). Taken together, producers of various machinery and equipment lost \$519 million. Other industries where negative output effects exceeded \$100 million during 1985 include motor vehicles (\$294 million), footwear (\$244 million), rubber products (\$212 million), plastics (\$154 million), broad and narrow fabrics (\$131 million), and paper products (\$115 million). When the negative output effects are compared with industrial production, the largest proportionate effects were sustained by producers of footwear (3.2 percent), leather (2.2 percent), iron ores (1.9 percent), nonferrous metallic ores (1.7 percent), and chemical products (1.35 percent). Negative effects on net exports greater than 0.50 percent of domestic output were in petroleum products, primary metals manufactures (both of iron and steel and of non-ferrous metals), and specialized industrial machinery.

U.S. exports to Brazil.--Table 20 compares the actual level of U.S. exports to Brazil in 1985 with the level of these exports had Brazil's share of total U.S. exports remained at its level of 1978-81. Of the 61 industries examined, 13 industries increased their direct export shares to Brazil and 46 industries lost export share. The largest increases in direct exports were registered by industries producing coal (\$124 million), aircraft (\$20 million), stone and clay (\$10 million), and chemical and fertilizer minerals (\$10 million). The largest estimated declines were sustained by

Table 19. --The estimated effects of Brazil's debt-related austerity on U.S. net exports to Brazil and U.S. output in 61 nonservice industry sectors

Industry sector	U.S. employment 1/ (1)	U.S. industry output 1/ (2)	Actual 1985 net exports (3)	Net exports under constant market share 2/ (4)	Difference 3/ (5)	Estimated change in output 4/ (6)	Estimated change as share of industry output 5/ (7)
	1,000 jobs	Million dollars	Million dollars	Million dollars	Million dollars	Percent	Percent
Livestock and livestock products.....	944	87,147	6	8	-2	139	0.160
Other agricultural products.....	2,014	110,356	-783	-789	6	88	0.079
Forestry and fishery products.....	80	8,982	-7	1	-8	-11	-0.122
Iron and ferroalloy ores mining.....	15	3,102	-72	-49	-23	-58	-1.871
Nonferrous metal ores mining.....	44	3,436	-28	-14	-14	-57	-1.666
Coal mining.....	203	30,682	305	184	122	84	0.274
Crude petroleum and natural gas.....	280	126,466	-276	-49	-227	-831	-0.657
Stone and clay mining and quarrying.....	94	7,844	-8	-1	-8	-24	-0.305
Chemical and fertilizer mineral mining.....	21	3,971	46	36	10	-8	-0.199
Ordnance and accessories.....	205	22,852	-16	-16	0	0	-0.000
Food and kindred products.....	1,659	317,706	-684	-1,199	514	617	0.194
Tobacco manufactures.....	67	22,795	-7	-7	0	0	0.039
Broad and narrow fabrics, yarn and thread mills.	438	40,867	-110	-55	-55	-131	-0.321
Miscellaneous textile goods and floor coverings.	117	12,057	-53	-71	18	-5	-0.039
Apparel.....	1,242	53,588	-83	-39	-43	-58	-0.108
Miscellaneous fabricated textile products.....	1,190	9,936	-12	-12	0	0	-0.207
Lumber and wood products, except containers.....	687	57,277	-139	-119	-20	-64	-0.112
Wood containers.....	19	655	-26	-25	-1	-1	-0.034
Household furniture.....	288	17,384	-1	1	-2	-1	-0.008
Other furniture and fixtures.....	215	14,507	-1	1	-2	-2	-0.015
Paper and allied products, except containers.....	487	81,352	-81	-20	-61	-115	-0.142
Paperboard containers and boxes.....	196	22,403	6/	16	1/	-15	-0.067
Printing and publishing.....	1,452	107,316	6/	675	-15	-26	-0.024
Chemicals and selected chemical products.....	175	80,929	-33	128	-708	-1,093	-1.351
Plastics and synthetic materials.....	175	36,710	69	63	-59	-154	-0.420
Drugs, cleaning and toilet preparations.....	349	55,436	47	62	-16	-27	-0.049
Paints and allied products.....	62	9,567	2	2	-1	-10	-0.102
Petroleum refining and related industries.....	188	179,980	-494	99	-593	-752	-0.418
Rubber and miscellaneous plastic products.....	802	67,421	-130	7	-137	-212	-0.315
Leather tanning and finishing.....	18	1,842	-12	-18	6	-40	-2.185
Footwear and other leather products.....	187	7,710	-1,082	-848	-234	-244	-3.163
Glass and glass products.....	170	12,824	-5	22	-27	-29	-0.229
Stone and clay products.....	456	41,607	-59	-9	-50	-86	-0.206
Primary iron and steel manufacturing.....	555	85,014	-562	-262	-300	-574	-0.675
Primary nonferrous metals manufacturing.....	360	54,030	-267	-29	-238	-499	-0.923
Metal containers.....	61	11,422	-14	-23	10	15	0.130
Heating, plumbing, and structural metal products	530	37,391	-14	10	-24	-42	-0.112
Screw machine products and stampings.....	315	28,326	-4	-4	0	-40	-0.142
Other fabricated metal products.....	486	41,832	-50	-17	-33	-86	-0.204
Engines and turbines.....	114	13,268	75	111	-35	-60	-0.452

Table 19.--The estimated effects of Brazil's debt-related austerity on U.S. net exports to Brazil and U.S. output in 61 nonservice industry sectors--Continued

Industry sector	U.S. employment	U.S. industry output	Actual 1985 net exports	Net exports under constant market share	Difference 3/	Estimated change in output	Estimated change as share of industry output
	(1) 1,000 jobs	(2) Million dollars	(3) -----Million dollars	(4) -----Million dollars	(5) -----Million dollars	(6) -----	(7) -----Percent
Farm and garden machinery.....	116	14,204	-14	8	-21	-22	-0.154
Construction and mining machinery.....	194	27,369	68	172	-105	-120	-0.440
Materials handling machinery and equipment.....	83	6,028	-7	6	-13	-15	-0.254
Metalworking machinery and equipment.....	317	23,711	22	52	-30	-53	-0.222
Special industry machinery and equipment.....	168	14,118	-34	33	-68	-81	-0.576
General machinery and equipment.....	277	26,966	-30	47	-76	-121	-0.449
Miscellaneous machinery, except electrical.....	298	18,462	10	I/	-47	-47	-0.254
Office, computing, and accounting machines.....	507	42,045	231	228	3	2	0.006
Service industries machines.....	181	18,035	9	30	-21	-29	-0.162
Electric industrial equipment and apparatus.....	434	28,817	37	70	-33	-70	-0.242
Household appliances.....	153	16,262	-41	-7	-34	-36	-0.222
Electric lighting and wiring equipment.....	204	18,151	-18	18	-36	-42	-0.234
Radio, TV, and communication equipment.....	707	67,568	105	42	64	65	0.096
Electronic components and accessories.....	685	47,268	38	17	21	26	0.055
Misc. electrical machinery and supplies.....	167	14,397	-1	-21	20	14	0.094
Motor vehicles and equipment.....	870	172,657	-623	-421	-203	-294	-0.170
Aircraft and parts.....	639	71,858	340	312	28	31	0.044
Other transportation equipment.....	348	31,414	25	91	-66	-71	-0.227
Scientific and controlling instruments.....	417	24,425	27	95	-68	-76	-0.313
Optical, ophthalmic, and photographic equipment.....	201	20,315	-24	28	-52	-57	-0.281
Miscellaneous manufacturing.....	431	26,576	-94	-135	41	35	0.132

1/ 1984 data. Output figures include the value of the industry's output plus the value of intermediate inputs.
2/ Net exports under constant market share is the difference between exports and imports under constant market share.
3/ The difference between actual net exports (col. 3) and net exports under constant market share (col. 4).
4/ The estimated total change includes direct and indirect changes, and is calculated by multiplying the matrix of total requirements coefficients of the input-output table of the U.S. economy by the vector of estimated differences (col. 5) in trade.
5/ The estimated change (col. 7) as a share of industry output (col. 2).
6/ Absolute value less than \$500,000.
7/ Not available.

Note.--Because of rounding, actual figures may not equal results shown.

Source: Employment and production statistics compiled from U.S. Bureau of Labor Statistics data, trade statistics compiled from official statistics of the U.S. Bureau of the Census.

Table 20. --The estimated effects of Brazil's debt-related austerity on U.S. exports to Brazil and U.S. output in 61 nonservice industry sectors

Industry sector	U.S. employ- ment 1/ (1)	U.S. industry output 1/ (2)	Ratio of 1985 market share to 1978-81 average market share (3)		Actual 1985 exports (4)	Exports under constant market share 2/ (5)	Differ- ence 3/ (6)	Esti- mated change in out- put 4/ (7)	Esti- mated change of industry output 5/ (8)
			Million dollars (2)	Million dollars (5)					
Livestock and livestock products.....	944	87,147	0.632	13	8	13	-5	-0.013	
Other agricultural products.....	2,014	110,356	0.985	440	433	440	-7	-0.013	
Forestry and fishery products.....	80	8,982	0.319	11	3	11	-9	-0.104	
Iron and ferroalloy ores mining.....	15	3,102	0.253	2	1	2	-2	-0.291	
Nonferrous metal ores mining.....	44	3,436	0.098	7	1	7	-7	-0.607	
Coal mining.....	203	30,682	1.673	184	307	184	124	0.418	
Crude petroleum and natural gas.....	280	126,466	3.896	1	4	1	178	-0.137	
Stone and clay mining and quarrying.....	94	7,844	2.473	7	17	7	10	0.063	
Chemical and fertilizer mineral mining.....	21	3,971	1.277	37	47	37	10	-0.020	
Ordnance and accessories.....	205	22,852	0.078	2	6	2	-2	-0.008	
Food and kindred products.....	1,659	317,706	0.869	25	22	25	-3	-0.006	
Tobacco manufactures.....	67	22,795	1.211	1	1	1	6	0.000	
Broad and narrow fabrics, yarn and thread mills.	438	40,867	1.110	3	3	3	6	-0.016	
Miscellaneous textile goods and floor coverings.	117	12,057	0.250	8	2	8	-6	-0.081	
Apparel.....	1,242	53,588	0.219	1	6	1	-1	-0.004	
Miscellaneous fabricated textile products.....	190	9,936	0.744	2	2	2	-2	-0.017	
Lumber and wood products, except containers.....	687	57,277	1.024	7	7	7	6	-0.022	
Wood containers.....	19	655	1.564	1	6	1	7	-0.060	
Household furniture.....	288	17,384	0.596	1	9	1	6	-0.002	
Other furniture and fixtures.....	215	14,507	0.596	1	6	1	-1	-0.004	
Paper and allied products, except containers.....	487	81,352	1.125	24	27	24	3	-0.026	
Paperboard containers and boxes.....	196	22,403	0.461	17	8	17	-9	-0.049	
Printing and publishing.....	1,452	107,316	0.388	812	315	812	-497	-0.015	
Chemicals and selected chemical products.....	175	80,929	0.732	129	95	129	-35	-0.866	
Plastics and synthetic materials.....	349	36,710	0.740	79	59	79	-21	-0.156	
Drugs, cleaning and toilet preparations.....	62	9,567	0.431	2	1	2	-1	-0.050	
Paints and allied products.....	188	179,980	0.139	118	16	118	-102	-0.051	
Petroleum refining and related industries.....	802	67,421	1.008	27	27	27	6	-0.088	
Rubber and miscellaneous plastic products.....	18	1,842	51.112	4	4	4	4	-0.039	
Leather tanning and finishing.....	187	7,710	0.776	1	1	1	6	0.215	
Footwear and other leather products.....	170	12,824	0.390	23	9	23	-14	-0.005	
Glass and glass products.....	456	41,607	0.761	16	12	16	-4	-0.152	
Stone and clay products.....	555	85,014	0.569	31	17	31	-13	-0.034	
Primary iron and steel manufacturing.....	360	54,030	0.483	61	29	61	-32	-0.120	
Primary nonferrous metals manufacturing.....	61	11,422	0.064	11	6	11	6	-0.216	
Metal containers.....	61	11,422	0.064	11	6	11	6	-0.078	
Heating, plumbing, and structural metal products	530	37,391	0.507	5	5	5	-5	-0.041	
Screw machine products and stampings.....	315	28,326	0.740	2	1	2	6	-0.039	
Other fabricated metal products.....	486	41,832	0.541	14	8	14	-7	-0.060	
Engines and turbines.....	114	13,268	0.713	79	79	79	-32	-0.330	

Table 20.--The estimated effects of Brazil's debt-related austerity on U.S. exports to Brazil and U.S. output in 61 nonservice industry sectors--Continued

Industry sector	U.S. employment 1/ (1)	U.S. industry output 1/ (2)	Ratio of 1985 market share to 1978-81 average market share (3)		Actual exports 1985 (4)	Exports under constant market share 2/ (5)	Difference 3/ (6)	Estimated change in output 4/ (7)	Estimated change as share of industry output 5/ (8)
			Million dollars (2)	Million dollars (3)					
Industry sector	1,000 jobs	Million dollars							
Farm and garden machinery.....	116	14,204	0.048	0.048	6/	9	-9	-0.072	
Construction and mining machinery.....	194	27,369	0.658	0.658	118	180	-61	-0.230	
Materials handling machinery and equipment.....	83	6,028	0.585	0.585	8	14	-6	-0.101	
Metalworking machinery and equipment.....	317	23,711	0.731	0.731	47	65	-17	-0.109	
Special industry machinery and equipment.....	168	14,118	0.601	0.601	22	37	-15	-0.152	
General machinery and equipment.....	277	26,966	0.513	0.513	36	70	-34	-0.190	
Miscellaneous machinery, except electrical.....	298	18,462	0.360	0.360	10	28	-18	-0.157	
Office, computing, and accounting machines.....	507	42,045	0.889	0.889	268	301	-33	-0.096	
Service industries machines.....	181	18,035	0.685	0.685	20	30	-9	-0.066	
Electric industrial equipment and apparatus.....	434	28,817	0.677	0.677	52	77	-25	-0.142	
Household appliances.....	153	16,262	0.683	0.683	9	13	-4	-0.033	
Electric lighting and wiring equipment.....	204	18,151	0.171	0.171	3	20	-17	-0.108	
Radio, TV, and communication equipment.....	707	67,568	0.938	0.938	149	159	-10	-0.016	
Electronic components and accessories.....	685	47,268	0.840	0.840	67	80	-13	-0.059	
Misc. electrical machinery and supplies.....	167	14,397	0.512	0.512	34	67	-32	-0.249	
Motor vehicles and equipment.....	870	172,657	1.071	1.071	68	63	4	-0.002	
Aircraft and parts.....	639	71,858	1.056	1.056	375	355	20	0.031	
Other transportation equipment.....	348	31,414	0.267	0.267	31	115	-84	-0.282	
Scientific and controlling instruments.....	417	24,425	0.563	0.563	67	118	-52	-0.227	
Optical, ophthalmic, and photographic equipment.....	201	20,315	0.560	0.560	22	40	-18	-0.097	
Miscellaneous manufacturing.....	431	26,576	0.991	0.991	35	36	6/	-0.008	

1/ 1984 data. Output figures include the value of the industry's output plus the value of intermediate inputs.
2/ Exports under constant market share is the quotient of actual exports (col. 4) and the market share ratio (col. 3).
3/ The difference between actual exports (col. 4) and exports under constant market share (col. 5).
4/ The estimated total change includes direct and indirect changes, and is calculated by multiplying the matrix of total requirements coefficients of the input-output table of the U.S. economy by the vector of differences in trade (col. 6).
5/ The estimated change (col. 7) as a share of industry output (col. 2).
6/ Absolute value less than \$500,000.
7/ Not available.

Note.--Because of rounding, actual figures may not equal results shown.

Source: Employment and production statistics compiled from U.S. Bureau of Labor Statistics data, trade statistics compiled from official statistics of the U.S. Bureau of the Census.

industries producing chemical products (\$497 million), refined petroleum products (\$102 million), and other transportation equipment (\$84 million).

When indirect contributions to exports are accounted for, only five industries increased output as a result of changing levels of exports to Brazil. The largest gain reported was for the coal mining industry, which increased production by \$128 million as a result of increased direct or indirect exports of coal. This additional production for export represented an increase of 0.42 percent relative to domestic output. For no other industry was the positive effect on domestic output as large as \$25 million, or greater than 0.25 percent as a proportion of output. The next largest output effects from increased exports were for producers of aircraft (\$22 million) and stone and clay (\$5 million). The next largest proportional gains were on industries producing leather products (0.21 percent) and stone and clay (0.06 percent).

For 56 of the 61 industries under consideration, direct and indirect effects of estimated changes in U.S. exports to Brazil resulted in negative effects on domestic production. The largest dollar losses were recorded by industries producing chemical products (\$701 million), crude petroleum (\$173 million), refined petroleum products (\$159 million), primary iron and steel or nonferrous manufactures (\$102 million and \$117 million, respectively). U.S. output of various nonelectrical machinery and equipment for export to Brazil was estimated to have declined by \$251 million. However, relative to domestic output in these industries, none of these declines were large. The largest proportionate declines were for producers of chemical products (0.86 percent), nonferrous metal ores (0.60 percent), and engines and turbines (0.33 percent).

U.S. Imports from Brazil.--Table 21 examines the actual level of U.S. imports from Brazil in 1985 compared with what U.S. imports from Brazil would have been in 1985 under the counterfactual assumptions. Imports from Brazil declined in 1985 relative to 1978-81 for 17 industries and increased for 39 industries. The largest estimated declines in Brazilian import penetration were sustained by the following industries: food products (\$518 million), radio, TV, and communication equipment (\$73 million), and miscellaneous manufacturing (\$37 million). The largest estimated increases in Brazilian imports were on industries producing refined petroleum products (\$491 million), primary metal manufactures (\$287 million for iron and steel and \$207 million for nonferrous), footwear (\$234 million), crude petroleum (\$229 million), and motor vehicles (\$207 million).

When indirect effects are added into consideration, the changes in U.S. imports from Brazil had a net negative effect on output for 45 U.S. industries, and the net effect was positive for 16 industries.

Examining the 16 industries that may have had greater output because of reduced import competition from Brazil, the largest potential gains accrued to the agricultural sector. The positive effect on output of the food product industry totaled \$636 million. Smaller output increases resulted from estimated declines in imports of livestock (\$150 million) and other agricultural products (\$102 million) from Brazil. When comparing the estimated output effects with domestic production, miscellaneous electrical machinery gained 0.34 percent, and metal containers and food products each gained 0.20 percent.

Table 21. --The estimated effects of Brazil's debt-related austerity on U.S. imports from Brazil and U.S. output in 61 nonservice industry sectors

Industry sector	U.S. employ- ment 1/ (1)	U.S. industry output 1/ (2)	Ratio of		Actual 1985 imports (4)	Imports under constant market share 2/ (5)	Differ- ence 3/ (6)	Esti- mated change in out- put 4/ (7)	Esti- mated change as share of industry output 5/ (8)
			1,000 jobs	Million dollars					
Industry sector		Million dollars							
Livestock and livestock products.....	944	87,147	0.516	3	5	-2	-150	-0.173	
Other agricultural products.....	2,014	110,356	0.990	1,216	1,229	-12	-102	-0.093	
Forestry and fishery products.....	80	8,982	1.071	11	10	1	2	0.018	
Iron and ferroalloy ores mining.....	15	3,102	1.405	72	52	21	49	1.580	
Nonferrous metal ores mining.....	44	3,436	1.360	29	21	8	36	1.058	
Coal mining.....	203	30,682	277.107	2	6	2	44	0.144	
Crude petroleum and natural gas.....	280	126,466	5.582	280	50	229	658	0.520	
Stone and clay mining and quarrying.....	94	7,844	3.407	25	7	18	29	0.368	
Chemical and fertilizer mineral mining.....	21	3,971	0.841	1	1	6	7	0.179	
Ordnance and accessories.....	205	22,852	0.899	16	18	-2	-2	-0.007	
Food and kindred products.....	1,659	317,706	0.577	706	1,224	-518	-636	-0.200	
Tobacco manufactures.....	67	22,795	0.057	6	7	-7	-9	-0.038	
Broad and narrow fabrics, yarn and thread mills.....	438	40,867	1.953	112	58	55	125	-0.305	
Miscellaneous textile goods and floor coverings.....	117	12,057	0.701	55	79	-24	-5	-0.042	
Apparel.....	1,242	53,588	2.026	83	41	42	55	0.103	
Miscellaneous fabricated textile products.....	190	9,936	6.790	14	2	12	19	0.090	
Lumber and wood products, except containers.....	687	57,277	1.164	147	126	21	51	0.190	
Wood containers.....	19	655	0.073	6	6	6	6	-0.026	
Household furniture.....	288	17,384	1.080	27	25	2	1	0.006	
Other furniture and fixtures.....	215	14,507	8.859	1	6	1	1	0.010	
Paper and allied products, except containers.....	487	81,352	2.451	108	44	64	94	0.115	
Paperboard containers and boxes.....	196	22,403	5.461	6	6	6	4	0.018	
Printing and publishing.....	1,452	107,316	4.997	8	2	6	9	0.009	
Chemicals and selected chemical products.....	475	80,929	2.533	348	137	210	392	0.485	
Plastics and synthetic materials.....	175	36,710	16.909	26	2	24	97	0.264	
Drugs, cleaning and toilet preparations.....	349	55,436	0.718	12	16	-5	-1	-0.001	
Paints and allied products.....	62	9,567	9.943	6	6	6	5	0.051	
Petroleum refining and related industries.....	188	179,980	26.704	510	19	491	593	0.330	
Rubber and miscellaneous plastic products.....	802	67,421	7.922	157	20	137	186	0.276	
Leather tanning and finishing.....	18	1,842	0.880	16	18	-2	44	2.400	
Footwear and other leather products.....	187	7,710	1.275	1,083	849	234	243	3.158	
Glass and glass products.....	170	12,824	18.000	14	1	13	10	0.077	
Stone and clay products.....	456	41,607	2.869	71	25	47	71	0.171	
Primary iron and steel manufacturing.....	555	85,014	1.980	580	293	287	472	0.556	
Primary nonferrous metals manufacturing.....	360	54,030	3.311	296	90	207	382	0.707	
Metal containers.....	61	11,422	0.580	14	23	-10	-24	-0.208	
Heating, plumbing, and structural metal products.....	530	37,391	19.164	19	1	18	26	0.071	
Screw machine products and stampings.....	315	28,326	0.855	5	6	-1	29	0.103	
Other fabricated metal products.....	486	41,832	1.835	58	32	26	60	0.145	
Engines and turbines.....	114	13,268	303.215	3	6	3	16	0.122	

Table 21.--The estimated effects of Brazil's debt-related austerity on U.S. imports from Brazil and U.S. output in 61 nonservice industry sectors--Continued

Industry sector	U.S. employ- ment 1/ (1)	U.S. industry output 1/ (2)	U.S. industry output 1/ share (3)	Ratio of 1985 market share to 1978-81 average market share (3)	Actual 1985 imports (4)	Imports under constant market share 2/ (5)	Differ- ence 3/ (6)	Esti- mated change in out- put 4/ (7)	Esti- mated change as share of industry output 5/ (8)
Farm and garden machinery.....	116	14,204	7.354	7.354	14	2	12	0.082	
Construction and mining machinery.....	194	27,369	6.709	6.709	51	8	43	0.210	
Materials handling machinery and equipment.....	83	6,028	1.880	1.880	15	8	7	0.153	
Metalworking machinery and equipment.....	317	23,711	2.016	2.016	26	13	13	0.112	
Special industry machinery and equipment.....	168	14,118	15.603	15.603	57	4	53	0.424	
General industry machinery and equipment.....	277	26,966	2.866	2.866	65	23	43	0.259	
Miscellaneous machinery, except electrical.....	298	18,462	Z/	Z/	6/	Z/	18	0.097	
Office, computing, and accounting machines.....	507	42,045	0.499	0.499	36	73	-37	-0.102	
Service industries machines.....	181	18,035	478.909	478.909	11	6/	11	0.096	
Electric industrial equipment and apparatus.....	434	28,817	2.051	2.051	16	8	29	0.100	
Household appliances.....	153	16,262	2.537	2.537	50	20	30	0.189	
Electric lighting and wiring equipment.....	204	18,151	9.335	9.335	22	2	19	0.126	
Radio, TV, and communication equipment.....	707	67,568	0.373	0.373	44	117	-73	-0.112	
Electronic components and accessories.....	685	47,268	0.461	0.461	29	63	-34	-0.114	
Misc. electrical machinery and supplies.....	167	14,397	0.397	0.397	35	88	-53	-0.344	
Motor vehicles and equipment.....	870	172,657	1.428	1.428	691	484	207	0.169	
Aircraft and parts.....	639	71,858	0.802	0.802	34	43	-8	-0.013	
Other transportation equipment.....	348	31,414	0.248	0.248	6	24	-18	-0.055	
Scientific and controlling instruments.....	417	24,425	1.701	1.701	39	23	16	0.086	
Optical, ophthalmic, and photographic equipment.	201	20,315	4.000	4.000	46	12	35	0.184	
Miscellaneous manufacturing.....	431	26,576	0.759	0.759	129	170	-41	-0.140	

1/ 1984 data. Output figures include the value of the industry's output plus the value of intermediate inputs.
 2/ Imports under constant market share is the quotient of actual imports (col. 4) and the market share ratio (col. 3).
 3/ The difference between actual imports (col. 4) and imports under constant market share (col. 5).
 4/ The estimated total change includes direct and indirect changes, and is calculated by multiplying the matrix of total requirements coefficients of the input-output table of the U.S. economy by the vector of differences in trade (col. 6).
 5/ The estimated change (col. 7) as a share of industry output (col. 2).
 6/ Absolute value less than \$500,000.
 7/ Not available.

Note.--Because of rounding, actual figures may not equal results shown.
 Source: Employment and production statistics compiled from U.S. Bureau of Labor Statistics data, trade statistics compiled from official statistics of the U.S. Bureau of the Census.

Among the 45 industries that lost potential output because of increased U.S. imports from Brazil, the largest absolute effects were upon producers of crude petroleum (\$658 million), refined petroleum products (\$593 million), primary metal manufactures (\$472 million for iron and steel and \$382 million for nonferrous), and chemical products (\$392 million). Other losses in potential output exceeding \$100 million were experienced by producers of broad and narrow fabrics, rubber products, footwear, and various machinery and equipment products taken together. For four industries estimated potential output losses exceeded 1.0 percent of the domestic output: footwear (over 3.0 percent), leather products (2.4 percent), iron and nonferrous metallic ore mining (each over 1 percent). Losses of potential output greater than 0.5 percent of domestic production were sustained by producers of crude petroleum, chemical products, and primary metal manufactures (both iron and steel and nonferrous).

ARGENTINA: A CASE STUDY

Historical Background 1/

Prior to the Great Depression, Argentina was among the 10 wealthiest nations in the world. This prosperity was, in part, the result of six decades of foreign investment that developed its vast agricultural resources and transformed Argentina into a major world exporter of beef and grains. However, with the contraction of world trade during the 1930's and the strain this placed on its debt-servicing capabilities, Argentina began to shift its economic orientation towards import-substituting industrialization. At this time, the role of the public sector grew substantially, and was largely responsible for shifting resources away from agriculture towards Argentina's emerging manufacturing industries. However, the Argentine economy suffered from frequent balance-of-payments difficulties that resulted in "stop-go" economic growth. One by product of this erratic pattern of economic growth was political instability that further impeded the formulation of economic policies consistent with sustained growth.

Following the collapse of the Peron government in 1976, sweeping reforms resulted in a greatly liberalized economy. Considerable loosening of trade and financial market restrictions were among the most significant of these. However, an exchange rate management policy designed to curb triple-digit inflation resulted in massive overvaluation of the peso that persisted for over 3 years. This policy was supported by unprecedented levels of foreign borrowing. During this period, Argentina's foreign indebtedness grew from \$12 billion to \$39 billion, largely sustaining a binge on consumer imports, a military buildup, and growth in citizens' foreign-held assets. The conflict between Argentina and the United Kingdom over the Falklands/Malvinas during the spring of 1982 highlighted Argentina's economic and political turmoil. Following Mexico's revelation in August 1982 that it was unable to pay interest on its debts, commercial lending to Argentina was interrupted, prompting Argentina to turn to the IMF as its balance-of-payments situation became acute. Among other prescriptions, the resulting agreement called for Argentina to sharply curtail imports in order to generate trade surpluses. Three years of austerity followed during which economic activity became severely depressed and momentum towards hyperinflation increased. In June 1985, the newly elected constitutional government abandoned the gradualist approach to combating inflation in favor of a "shock" treatment. The Austral Plan brought inflation abruptly to a halt, slowed the pace of speculative economic activity, and reversed the decline in political and economic confidence. However, public and private investment remains very weak, largely because depressed real wages have restrained demand. Argentina's balance-of-payments problems remain severe, because of the burden of servicing

1/ The material presented in the historical section was derived extensively from the following sources: World Bank, Argentina: Economic Memorandum, 1983; Business International Corporation, The New Argentina - Planning for Profits in the 1980's, 1984; Inter-American Development Bank, Economic and Social Progress in Latin America, various issues; Rudiger Dornbusch, "A New Chance for Argentina," Challenge, January-February 1986; John Johnson, "Role of International Finance in Argentine Development," (mimeo), 1985.

a \$53 billion external debt, and also because foreign exchange earnings continue to be depressed by the declining world market for agricultural products.

In what follows, Argentina's postwar economic history is surveyed with emphasis on the evolution of Argentina's debt problems and its trade implications. Detailed presentation of recent changes in Argentine policies affecting trade and foreign debt follows. With this background, the recent course of U.S.-Argentine trade relations is then discussed.

DFI, export-led growth, and prosperity, 1870-1929

In 1929, Argentina had the seventh highest per capita income in the world, and was regarded as a "developed" nation. ^{1/} Argentina's prosperity was the result of six decades of economic expansion that averaged 5 percent annually. Much of this growth was due to extensive direct foreign investment (DFI) into the country's grain and beef export industries. These exports contributed over 25 percent to Argentina's GDP. Argentina's export-led growth and its receptiveness to direct foreign investment enabled it to be among the first Latin American countries to gain access to foreign debt financing. Argentina tapped bond markets, first in London and later in New York, to finance its urban infrastructure.

Import-substituting industrialization and stop-go development, 1930-76

The Great Depression and WWII--With the Great Depression came a steep decline in world trade. This sharply curtailed Argentina's export earnings and strained its capacity to service its debts. Nevertheless, Argentina continued to honor its repayment obligations, although it was alone among Latin American countries in doing so. ^{2/} Argentina was dependent upon access to export markets among creditor nations, making it difficult for Argentina to do otherwise. In response to greatly weakened export markets and limited prospects for additional external borrowing, Argentina shifted its economic orientation by adopting inward-looking policies. Further stimulus to import-substituting industrialization (ISI) occurred during WWII as shortages of industrial and consumer goods developed. The wartime buildup of reserves accumulated from food exports was then used to buy out foreign-owned assets.

Postwar Stop-Go Development--Following the war, growth in the Argentine economy became more erratic and has been characterized as stop-go development. ^{3/} Meanwhile, the state's role in the economy expanded. This expansion was followed by budget deficits, inflationary pressures, surging imports, stagnant exports, and finally, balance-of-payments crises. Austerity measures that followed resulted in higher taxes and unemployment. This was often followed by the resumption of expansionary policies or a new government.

^{1/} Economist, "Years of the dragon," August 23, 1986.

^{2/} World Bank, Argentina: Economic Memorandum, 1983.

^{3/} John Johnson, "Role of International Finance in Argentine Development," mimeo.

One result of Argentine economic policies of this period was the promotion of industry at the expense of agriculture. Agriculture in general, especially agricultural exports, became much more heavily taxed. Industrial growth was rapid, although industrial exports grew very slowly. Steep tariffs afforded domestic industries protection from foreign competition, creating profitable captive home markets for consumer goods. In 1955, these policies contributed to a balance-of-payments crisis that precipitated the first of a series of Argentine debt reschedulings.

External borrowing resumed in 1959, encouraged by Argentina's election of a civilian government, and its ambitious program to expand the automobile and petroleum industries. From 1960 to 1965, Argentina recorded impressive growth in its exports. However, debt accumulation was also rapid, rising from \$800 million to \$3 billion by 1962. Because Argentina faced harsh borrowing terms, had a large debt relative to the GDP, and had a low export profile, Argentina's debt servicing absorbed nearly 30 percent of Argentina's gross export earnings. As a result, refinancing of portions of Argentina's debt became necessary in 1961 and 1962. Following agreement with the IMF on a stabilization program in 1962, Argentina reduced its indebtedness by 10 percent during 1963-65. This program also sought to reduce inflation of 20 percent annually and a federal sector deficit of 5 percent of the GDP. However, these problems persisted, and overvaluation of the Argentine peso led to growing current account deficits. By mid-1965, Argentina faced another balance-of-payments crisis. The stabilization program in progress unraveled as widespread labor unrest resulted in wage concessions that greatly exceeded guidelines. Inflation subsequently increased to over 30 percent. Domestic credit policies tightened and limits remained on nominal interest rates, prompting an increase in capital flight. This compounded the contraction of domestic liquidity, and ultimately halted economic growth. The civilian government collapsed in mid-1966, and control of the Government reverted to the military.

The new regime faced foreign debt-servicing obligations without access to foreign credit, forcing it to generate fiscal surpluses. In March 1967, it raised tax rates and more aggressively collected arrears, raised prices on publicly provided goods, and froze public-sector wages. The net effect of this program was to reduce savings in the private sector to finance the public sector. Private investment rates remained at their historic levels, sustained at the margin by increased external borrowing. During this period, public sector investment grew rapidly, from 5.4 percent of the GDP in 1966 to 8.0 percent by 1970. Objections by industry and labor to these policies were mollified by price guidelines, increased export taxes on beef and other agricultural products (that depressed domestic food prices), reduced import duties on industrial imports, and expanded credit to the private sector.

However, the March 1967 stabilization program added to structural problems in the economy. For example, to moderate inflation, this program included a 2-year freeze of the nominal exchange rate. Together with wage and price guidelines, this helped to suppress inflation to less than 10 percent, as indicated in table 22. However, exports declined by 14 percent from 1966 to 1968, as can be seen in table 23. In response, the Government sought to promote exports of manufactures. However, manufactures were a small share in total exports, and this growth was unable to compensate for the large decline

Table 22.--Argentina: Basic economic indicators, 1966-85

Year	Real GDP growth	Gross fixed investment 1/	Inflation rates		Real-exchange-rate indices		Real wage index 3/
			GDP deflator	Consumer prices	Dollar 2/	Weighted 2/	
1966....	0.7	17.7	23.8	31.9		132	NA
1967....	2.5	18.1	27.2	29.2		105	NA
1968....	4.6	19.0	11.0	16.2		103	NA
1969....	7.9	19.5	8.0	7.6		107	NA
1970....	4.1	21.2	3.2	13.6		109	100
1971....	3.7	22.0	37.5	34.7		99	107
1972....	2.0	21.7	63.1	58.5		102	100
1973....	3.4	19.5	64.5	60.3		119	106
1974....	4.6	19.3	29.5	29.9		138	118
1975....	-0.3	19.4	199.5	170.6		85	119
1976....	-0.5	21.5	423.1	444.1	119	116	78
1977....	6.4	24.1	159.6	176.0	100	100	72
1978....	-3.4	21.9	158.2	175.5	119	124	69
1979....	6.7	21.5	150.2	159.5	166	175	81
1980....	0.7	22.1	100.7	100.8	210	225	89
1981....	-6.5	19.5	103.3	104.5	164	186	82
1982....	-5.2	15.5	196.5	164.8	79	85	74
1983....	3.4	14.9	355.6	343.8	87	97	95
1984....	2.4	13.1	617.6	626.7	96	111	110
1985....	-4.6	12.6	652.8	672.2	80	131	94

1/ Expressed as a percent of GDP.

2/ 1977=100.

3/ 1970=100.

Sources: World Bank, Argentina: Economic Memorandum, 1985; Inter-American Development Bank, Economic and Social Progress in Latin America: 1986 Report.

of agricultural exports. As shown in table 24, the Argentine debt grew from \$2.7 billion to \$5.2 billion, almost entirely because of increased private external borrowing. Consequently, Argentina's debt-servicing capacity deteriorated further, as debt service relative to exports rose to 28 percent in 1970. By mid-1969, the economic program introduced in 1967 collapsed as rapid economic expansion undermined adherence to the Government's wage and price guidelines. By mid-1970, another military government assumed power.

Over the next several years, economic policies alternated between expansion and contraction. As a result, this period was marked by weak economic growth and a return to high inflation. Total foreign indebtedness increased modestly, from \$5.2 billion in 1970 to \$6.2 billion in 1973, with all of the increase attributable to the public sector. Most significant was the steady deterioration of public sector finances, as inflation eroded real tax receipts.

Table 23.--Argentina: Summary balance of payments, 1966-85

(In millions of dollars)

Year	Merchandise (fob)		Trade balance	Services (net)	Current account balance	Capital account 1/	Change in reserves 2/
	Exports	Imports					
1966.....	1,593	995	598	-342	256	-224	-32
1967.....	1,465	970	494	-317	177	261	-438
1968.....	1,368	1,035	333	-348	-15	155	-140
1969.....	1,613	1,395	217	-436	-219	138	81
1970.....	1,773	1,499	274	-433	-159	418	-259
1971.....	1,740	1,653	87	-376	-389	-311	420
1972.....	1,941	1,685	256	-479	-223	113	110
1973.....	3,266	1,978	1,289	-568	721	-143	-864
1974.....	3,931	3,216	714	-587	127	-172	45
1975.....	2,961	3,510	-549	-735	-1,284	177	1,107
1976.....	3,916	2,744	1,172	-507	665	700	35
1977.....	5,652	3,798	1,854	-564	1,290	708	1,998
1978.....	6,400	3,489	2,911	-1,078	1,833	165	1,998
1979.....	7,810	6,028	1,782	-2,352	-570	4,552	-4,225
1980.....	8,021	9,394	-1,373	-3,424	-4,797	2,507	2,598
1981.....	9,143	8,431	712	-5,402	-4,690	1,702	3,193
1982.....	7,623	4,859	2,764	-5,151	-2,387	2,119	669
1983.....	7,835	4,119	3,716	-6,168	-2,452	442	2,457
1984.....	8,100	4,118	3,982	-6,479	-2,497	2,718	-166
1985.....	8,396	3,519	4,877	-5,831	-954	2,297	-1,031

1/ Includes net current transfers.

2/ The (-) denotes increase in reserves.

Source: 1966-78 data from Central Bank of the Republic of Argentina; 1979-85 based on data from IMF International Financial Statistics.

Peron, 1973-76--Argentina returned to civilian rule under Juan Peron in May 1973. The new government benefited immediately from the doubling of merchandise exports between 1972 and 1974, largely because of record world prices for grains and beef. An enormous trade surplus in 1973 enabled Argentina to register its first current account surplus since 1967. On the basis of expectations that large trade surpluses would continue, even after allowance was made for some reversal in its terms of trade, the new government

Table 24.--Argentina: Debt indicators, 1966-85

Year	Debt/ GDP 1/	Debt/ exports 2/	Debt service/ exports 3/	Gross debt 4/ <u>Billion</u> <u>dollars</u>
	-----Percent-----			
1966.....	-	-	-	2.7
1967.....	-	-	-	NA
1968.....	-	-	-	NA
1969.....	-	-	-	NA
1970.....	29.0	293.3	27.5	5.2
1971.....	24.7	321.8	28.8	5.6
1972.....	24.2	298.8	27.7	5.8
1973.....	23.6	189.8	22.8	6.2
1974.....	22.0	170.4	25.6	6.7
1975.....	19.9	222.9	38.6	6.6
1976.....	22.1	196.6	31.4	7.7
1977.....	23.8	166.3	22.8	9.4
1978.....	30.4	195.3	50.9	12.5
1979.....	38.8	243.3	27.0	19.0
1980.....	48.9	340.4	44.9	27.3
1981.....	61.9	390.5	61.8	35.7
1982.....	64.7	571.9	82.3	43.6
1983.....	68.1	587.0	128.7	46.0
1984.....	72.2	NA	NA	47.8
1985.....	-	-	-	49.3

1/ Gross external debt divided by GDP.

2/ Gross external debt divided by merchandise exports.

3/ Total debt service on M< debt divided by merchandise exports.

4/ Excludes short-term debt before 1979.

Sources: IMF, International Financial Statistics.

launched its 1974-77 Development Plan. 1/ However, the world recession of 1974-75 and the closure of EC markets for imported beef after 1973 upset these expectations. From 1974 to 1975, exports declined from \$4 billion to \$3 billion. By 1975, the economy contracted, public sector deficits were 16 percent of the GDP, inflation exceeded 300 percent, and foreign exchange reserves were being rapidly depleted. Debt service rose to almost three-quarters of export earnings, more a result of declining exports than growth in the stock of debt. 2/ The economy contracted further in the early months of 1976, as the inflation rate surpassed 1000 percent, foreign reserves were exhausted, and social unrest became widespread. In March, a military junta seized control and appointed new leadership.

1/ Argentina was not directly affected by the oil price shocks because of its self-sufficiency in petroleum resources.

2/ However, debt accumulation remained modest, rising by \$400 million from \$6.2 billion 2 years earlier.

Economic reforms, debt accumulation, and the conflict in the South Atlantic, 1976-1982

Orthodox stabilization, 1976-78--The new government proceeded with urgency to bring the economy under control, focusing on inflation and the restoration of international liquidity. The disinflationary effort began by lowering the federal budget deficit from 16 percent in 1975 to an average of 7.7 percent during 1976-78. This was accomplished by cutting real wages in the public sector by nearly one-half, raising tax collections, and by raising prices on products of state enterprises. 1/

Argentina's international liquidity was restored in 1976 by a \$3.5 billion refinancing package, of which \$1.3 billion represented new money. These loans were provided following agreement with the IMF to adopt a stabilization program, and to make a commitment to take measures toward broad economic liberalization. This commitment encompassed the liberalization of prices, a unification of exchange rates, the reduction of import barriers and export taxes, increases in export incentives, and numerous financial market reforms.

From the standpoint of subsequent debt accumulation, the financial reforms of June 1977 were the most significant changes to be adopted. 2/ The reforms eliminated ceilings on interest rates, abolished regulatory barriers to entry into the financial sector, and reduced Central Bank credit to the system. The authorities also began to ease capital and exchange controls. Deregulation of the domestic financial market increased the economy's sensitivity to differences between domestic and foreign borrowing costs, and the gradual removal of capital controls enabled external borrowing to proceed. Foreign lenders were encouraged, despite Argentina's troubled economic history, by the Government's moves to liberalize the economy.

The immediate consequences of the stabilization effort were encouraging. Exports recovered impressively, increasing from under \$3 billion in 1975 to over \$6 billion by 1978. Largely because real wages had fallen sharply, imports were unchanged over this period. Trade surpluses of roughly \$1 billion, \$2 billion, and \$3 billion resulted during 1976-78. Direct foreign investment became significant for the first time in Argentina's postwar period. Although gross external indebtedness increased sharply, from \$6.6 billion to \$12.5 billion by 1978, growth of official reserves accounted for most of this increase. External debt, net of gross official reserves, totaled \$7.5 billion at the end of 1978. Overall, Argentina's indebtedness relative to the GDP and exports showed general improvement between 1976 and 1978.

1/ Nevertheless, Federal investment spending grew dramatically, from about 8 percent of the GDP before 1975 to 12 percent after.

2/ Argentina's financial sector had become severely repressed following decades of tight regulation. Interest rate ceilings gradually resulted in disintermediation and credit rationing. The Central Bank came to be the primary source of credit in the economy. Private external borrowing was limited by capital controls.

Argentina's progress with its external payments was not matched in the domestic arena. From a standstill during 1975-76, the GDP grew by over 6 percent in 1977, only to fall by more than 3 percent during 1978. Inflation fell markedly from peak levels attained in early 1976, but failed to fall below 150 percent after mid-1977. Throughout 1978 there was intensified debate over changes in policy that would curb inflation and restore economic vitality. In December 1978, advocates of a "monetarist" approach to these problems gained control of the financial ministries.

Monetarist reforms, 1979-81--The "monetarist" agenda, also known as the Martinez de Hoz Plan, centered on attacking inflationary expectations. Instead of using traditional wage and price controls, officials recommended that (a) exchange rates, wages, and public-sector tariffs be announced in advance as signals to guide future disinflation; (b) import restrictions be liberalized to apply external competitive pressures on domestic prices; and (c) financial liberalization be accelerated to relieve upward pressure on domestic interest rates. In addition, this agenda called for further reductions of the Federal-sector deficit, and a monetary policy that relied on self-adjusting mechanisms to determine domestic liquidity. Only portions of this program were actually implemented. A schedule for depreciation of the nominal exchange rate (la tablita) was published, import tariffs were reduced, and financial deregulation was accelerated. Some reduction in inflation was achieved, from 150 percent to 100 percent. In addition, economic growth turned sharply upward, averaging nearly 7 percent for the year.

In 1979, large increases in real wages and the peso's real appreciation (40 percent relative to 1978, and 75 percent relative to its value in 1977) contributed to a dramatic increase in import spending, from \$3.5 billion in 1978 to \$6 billion. Imports of consumer goods rose considerably, from about \$100 million in 1978 to \$700 million in 1979, and to over \$1.8 billion by 1981. This surge was fed by massive inflows of capital encouraged by the policy of preannouncing the rate of currency devaluation that lagged behind the rate of price inflation (and nominal interest rates). During 1979 alone, private sector foreign indebtedness rose from \$4 billion to \$9 billion. Total indebtedness rose from \$12.5 billion to \$19 billion.

During 1980, Argentina's economy slumped back into recession, growing by less than 1 percent. Continued appreciation of the peso raised its real exchange value by another 29 percent, bringing the cumulative real appreciation during 1977-80 to 125 percent. Imports that had risen by two-thirds during 1979 increased in 1980 by another 50 percent. As a result, Argentina's current account deficit grew by about \$4 billion. When the Central Bank closed Argentina's largest private bank in March, a run on bank deposits ensued and many citizens redeposited their savings overseas. Capital flight, as measured by short-term capital outflows, grew to \$2 billion in 1980. Argentina's debt service rose to \$9.1 billion, up from \$4.9 billion in 1979. This increase was a result of a growing balance of indebtedness, rising world interest rates, and a shortening of the maturity composition of the debt. Short-term debt rose to nearly one-half of private external debt, and over one-third of the overall foreign debt. As a result, amortizations on this short-term debt became a large component of Argentina's total debt service. Argentina's foreign indebtedness increased by \$8.2 billion, to over \$27 billion during 1980. Debt service relative to exports increased from 51 percent to 84 percent.

By 1981, the Argentine economy had slumped into a depression, with the GDP falling by over 6 percent for the year. In March 1981, there was another change in the military government. The new Viola government abandoned the policy of preannouncing the exchange rate and twice devalued the peso by 30 percent. Import licensing, quantitative limits, and export taxes were restored. Financial market restrictions were reinstated, including interest rate ceilings, exchange controls, and a two-tiered exchange rate. The public sector assumed greater responsibility for servicing private debts through subsidized loan swaps and guarantees. These policies resulted in massive public-sector deficits, exceeding 15 percent of the GDP. In response to these policies, gross domestic investment fell sharply, and capital flight increased to nearly \$9 billion for the year. Additional borrowing of \$8.5 billion over the year raised foreign indebtedness to \$35.7 billion. Debt service increased to \$7.7 billion, or 84.2 percent of exports of goods and nonfactor services. Confidence in the Government collapsed within the year, and control under Gen. Galtieri began in December 1981.

Conflict in the South Atlantic, 1982--As 1982 began, the Galtieri government sought to revert to the policies of economic liberalization that prevailed during 1976-80. Capital controls were relaxed, and interest rates were allowed to move freely, restoring positive real rates. Efforts were made to bring the public-sector deficit under control by cutting public-sector investment and freezing public-sector wages. In a departure from the 1976-80 economic model, the peso was allowed to float freely, and depreciated by 20 percent in real terms.

However, in April 1982, the conflict between Argentina and the United Kingdom over the Malvinas/Falklands erupted. The immediate effects included a mutual embargo of trade between the EC and Argentina, the interruption of new commercial lending, and yet another shift in economic policy. Exchange controls were once again imposed, public sector spending controls were relaxed, selective import restrictions were adopted, and regulation of financial markets was tightened. These policies further stimulated the flight of capital, accelerated the depreciation of the peso on the free market for foreign exchange, and aggravated the public sector deficit. Sharp declines in imports produced a trade surplus of \$2.8 billion. However, because of the halt of foreign commercial lending, Argentina's reserves were rapidly being depleted. Concerns among creditors mounted as debt-service obligations fell behind schedule. The economic and political consequences of Argentina's war with the United Kingdom ultimately led to the toppling of the Galtieri government in July 1982.

The new regime confronted an economy that was severely distressed. By the close of 1982, the Argentine external debt totaled \$38.7 billion, and debt service of \$8.2 billion absorbed 95 percent of export earnings. For the year, the GDP had fallen by 5.2 percent, the second consecutive year of steep decline. The public sector deficit stood at 17 percent of the GDP, and inflation had risen from an average rate of 100 percent during 1981 to over 150 percent during 1982, while showing signs of further acceleration. Meanwhile, falling real wages and real peso depreciation curtailed access to normal trade financing and import restrictions combined to cause a decline in import purchases of 45 percent, from \$8.4 billion to \$4.9 billion.

In this context, the Bignone government reached agreement with the IMF to bring foreign debt obligations up to date, and promote economic recovery through export expansion. Specifically, these commitments called for 5 percent growth in the GDP, inflation held to 160 percent, and a public-sector deficit (on operations) of 2.1 percent of the GDP. This agreement, reached in January 1983, provided \$3.9 billion in bridging loans from the IMF, creditor banks, and the BIS. In addition, negotiations were to be initiated over refinancing \$4 billion in debt-repayment obligations spanning 1982-83, and provision of \$1.5 billion in new lending over 5 years.

The Argentine economy showed modest signs of recovery during 1983, growing by 3.4 percent. However, inflationary pressures increased to over 300 percent for the year. The Federal-sector deficit remained very large, at 15.6 percent of the GDP. These developments resulted in the suspension of the IMF Stand-by Arrangement in September 1983.

The New Republic and the Austral Plan, 1983-86

The New Republic--In the autumn of 1983, elections promoted Raul Alfonsin to the presidency of the New Argentine Republic. The new constitutional government confronted a desperate economic situation, including a huge external debt, high inflation, and an economy whose productive capacity was virtually unchanged from a decade before. Modest economic growth continued in 1984 and the public-sector deficit narrowed to 12.4 percent of the GDP. However, inflation surpassed 600 percent, and threatened to develop into hyperinflation. In September 1984, a new stabilization program was agreed upon with the IMF, committing Argentina to policies that would gradually reduce inflation, fiscal deficits, and external financing requirements without sacrificing economic growth or real wage levels. This agreement led to further agreements with private and official creditors that provided Argentina with \$4.2 billion in new commercial credits, \$1.2 billion in trade credits, and the rescheduling of \$16.6 billion of commercial and official loans. Portions of the new commercial credits were applied to arrears accumulated since 1982.

During the first quarter of 1985, inflation surpassed 1000 percent at an annual rate. As a result, the IMF Stand-by Arrangement was suspended in March. By June the rate of inflation approached 2000 percent on an annualized basis. At this time the Argentine authorities abandoned the gradualist approach to combating inflation in favor of a "shock treatment" that came to be known as the Austral Plan.

Austral Plan, 1985--The key elements of the Austral Plan were as follows: (a) a sharp devaluation and increases in public sector-prices, followed by wage and price controls until further notice; (b) budgetary discipline through taxation and expenditure reduction without monetary financing; (c) a timetable for adjusting outstanding contracts to the unanticipated cessation of inflation; (d) the establishment and maintenance of high real interest rates; and (e) redenomination of the currency into the austral, which was then pegged to the dollar.

Over the remainder of 1985, the cost of living rose 21 percent in contrast with over 400 percent for the first semester. ^{1/} This apparently was sufficient to change the inflationary expectations of consumers and businesses. Businesses liquidated inventories, and consumers slowed their purchases of real estate, automobiles, and other traditional hedges against inflation. As a result, the GDP fell sharply during the third quarter, contributing to a decline in the GDP of 4.4 percent for the year overall. The public sector deficit declined from 12 percent of the GDP in the first semester to 2.5 percent for the second half of 1985, improving prospects for sustaining low inflation as monetary financing of the budget deficit became unnecessary. ^{2/}

Argentina's trade surplus for 1985 grew to \$4.8 billion, despite further deterioration in the terms of trade. Volume increases among agricultural exports, increased industrial exports, and lower imports were responsible. Following the 18-percent devaluation just before the Austral Plan's inception, the austral/dollar rate of nominal exchange remained unchanged until April 1986. The dollar's real depreciation vis-a-vis other major currencies enabled the austral's real effective rate of exchange to remain stable despite the moderate domestic inflation. Nevertheless, the austral has been discounted on the black market by an average of 10 to 15 percent since its creation. The austral was devalued by 3.6 percent on April 7, and has been devalued in nominal terms by 2 percent monthly throughout the remainder of 1986 to preserve its real competitiveness.

During 1985, extensive debt restructuring, \$4.1 billion in commercial bank disbursements, and some private capital inflows resulting from a more realistic and stable exchange rate enabled foreign exchange reserves to grow by nearly \$2 billion and arrears to be trimmed by \$2.5 billion. Nevertheless, a number of problems threaten the country's near-term economic prospects. The recovery that began to appear late in 1985 remains weak because of low real wages, crop losses from flooding, declining world export prices, and the continuing decline in the rate of capital investment. Efforts to contain the public-sector deficit have reduced public investment to 4 percent of the GDP, or one-half of the rate that prevailed throughout the 1970's. Private investment also remains low, at 9 percent of the GDP, compared with rates above 12 percent that were typical before 1981. Savings that were deposited with the financial system have largely been absorbed by the Central Bank's issuance of domestic debt. Most commercial finance must therefore be conducted through an interfirm market at rates that discourage all but distress borrowing. Therefore, commercial borrowing rates have recently averaged 10 percent monthly. Flight of capital continues, though not at the exceptional levels of 1979-82, as real returns available to the general public remain insufficient to compensate for continued uncertainty regarding inflation and the economic climate generally. Consumer price inflation that had fallen to 3 percent monthly during the second semester of 1985 has risen

^{1/} Ministeria de Economia and Banco Central de la Republica Argentina, Argentine Economic Memorandum 1986, First Quarter.

^{2/} Rudiger Dornbusch, "A New Chance for Argentina," Challenge, January/February 1986.

to over 8 percent during the third quarter of 1986. Finally, total debt service on Argentina's \$53 billion of foreign indebtedness is expected to consume 70 percent of foreign exchange earnings during 1987.

Recent Changes in U.S.--Argentine Trade and Effects on U.S. Industry

Trends in bilateral trade shares

Argentine export shares.--Following the liberalization of Argentine trade policies in 1976, exports increased by more than one-half in volume and twofold in value during 1976-79. Since 1979, total Argentine export volume has stagnated, and export value has fluctuated between \$7.6 to \$9.1 billion. Following the U.S. grain embargo against the Soviet Union in 1979, the U.S.S.R. has been Argentina's largest export market, purchasing about 20 percent of Argentine exports, largely grains. A new agreement concluded in January 1986 extended the 1981-85 grain agreement for another 5 years. Included is a Soviet commitment to minimum annual purchases of 4.5 million metric tons of grains and soybeans. The United States continues to be Argentina's second largest export market, consuming about 11 percent of Argentina's exports during 1981-85. This figure is up from 1976-80, when the United States purchased an average of 7.5 percent of Argentina's exports.

Argentine import shares.--Total Argentine imports were relatively stable during 1974-78, averaging about \$3.5 billion before higher real wages, peso appreciation, and lower import restrictions combined to propel imports dramatically higher. From \$3.5 billion in 1978, imports surged to \$6 billion, \$9.4 billion, and \$8.4 billion over successive years. After 1981, total imports fell sharply and steadily, and dropped below \$4 billion in 1985. As Argentine imports declined, U.S. exports to Argentina also fell, from \$2.6 billion in 1980 to \$700 million in 1985. In addition, the U.S. share of Argentine imports fell from 22 percent to 18 percent. ^{1/} During this time, Brazil's share of Argentine imports has risen from 10 to 16 percent. Although the United States remains Argentina's largest foreign supplier, this position has eroded and is no longer secure. Recent agreements reached among Argentina, Brazil, and Uruguay to liberalize mutual trade suggest that these trends will continue.

U.S. export share.--In 1985, Argentina ranked 38th as a destination for U.S. exports. Total Argentine purchases of U.S. merchandise totaled \$721 million, or about 0.3 percent of total U.S. exports. This share represents a sharp decline from the 1.2 percent share of total U.S. exports that Argentina represented in 1980, when U.S. exports totaled \$2.6 billion. The figure for 1985 is also well below Argentina's share of U.S. exports in 1970 and 1975.

U.S. import share.--In 1985, Argentine exports to the United States totaled \$1.2 billion, ranking it 36th among foreign suppliers to the U.S. market. This total represents about 0.3 percent of total U.S. imports, a proportion that is unchanged relative to 1980 and not fundamentally different from figures for 1970 and 1975.

^{1/} Ministerio de Economía, Boletín de Comercio Exterior Argentino, Agosto 1986.

Trends in the composition of bilateral trade

Argentine exports to the United States.--Argentine exports to the world have traditionally been concentrated in agricultural exports. Since 1973, these exports have comprised 75 to 80 percent of total Argentine exports. Argentina's major exports to the United States have centered on four industries: petroleum, food products, leather products, and primary steel. In 1985, these four sectors accounted for \$900 million, or three-quarters of Argentina's exports to the United States. ^{1/} Since 1980, exports of petroleum products have risen from \$20 million to \$350 million. Food products, mostly beef and sugar, have fluctuated around \$300 million annually, although unusually large purchases of sugar raised this figure to \$480 million in 1981. Argentine exports of leather products have averaged around \$125 million since 1981. Exports of primary steel products to the United States have ranged between \$75 million and \$100 million annually, except for the period 1979-81 when steel exports declined because of the peso's overvaluation. Argentine exports of chemicals quadrupled to \$85 million during 1978-81, but subsequently stabilized around \$40 million. Since 1982, Argentina has been rapidly increasing its exports of aluminum products; these totaled \$40 million in 1985.

U.S. exports to Argentina.--The value of U.S. exports to Argentina have fluctuated substantially during 1978-85. These exports doubled in value from \$810 million in 1978 to over \$1.7 billion in 1979, increased by another 50 percent to \$2.6 billion the following year, but have since declined to \$700 million in 1985. The largest categories of U.S. exports to Argentina have traditionally been chemicals, machinery and equipment, data processing equipment, and aircraft. During 1979-81, the years when Argentine imports were highest, motor vehicles, consumer electronics, construction machinery, and scientific instruments also became significant U.S. exports. Indeed, a wide range of U.S. industries realized rapid growth in their exports to Argentina during 1979-81. Most of these gains were reversed by 1983.

Recent changes in Argentine policies affecting trade and investment

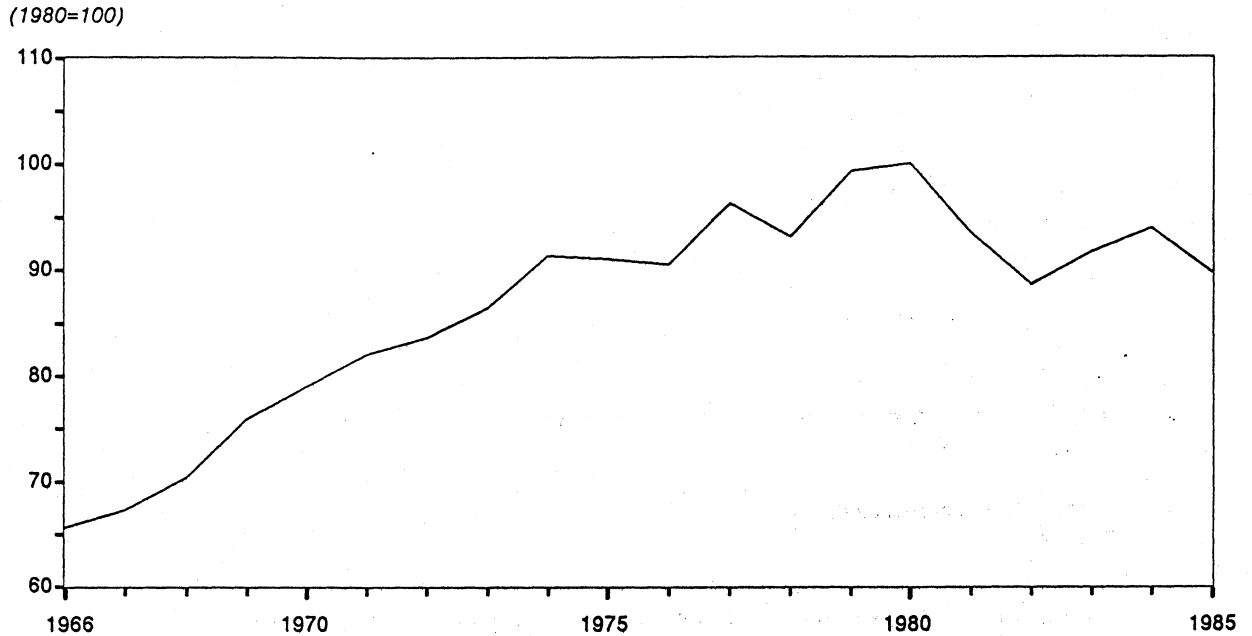
An analysis of the most significant factors affecting trade between Argentina and the United States over the period 1978-85 places emphasis on (a) changes in the relative rates of growth in demand, (b) changes in real exchange rate relationships, and (c) changes in commercial policies.

Relative rates of economic growth.--Since 1975, performance of the Argentine economy has been very erratic, as suggested in figure 6. Following 2 years of recession during 1975-76, the economy recovered in 1977 with growth of over 6 percent. The economy contracted during 1978, only to grow by nearly 7 percent in 1979 as economic liberalization got underway. In 1980, economic activity slowed to a standstill, and fell into a severe depression over the next 2 years as the GDP fell by nearly 12 percent in real terms. Two years of weak growth followed during 1983-84, but real GDP slumped again in 1985. Very weak growth returned in the fourth quarter of 1985 and continued through 1986.

^{1/} U.S. Department of Commerce, ITA, Latin American Trade Review: A U.S. Perspective, 1985.

Argentina's record of economic growth does not correspond closely to changes in imports. Argentine imports rose spectacularly from 1979 to 1981, even though Argentina experienced negligible or negative growth in 1980 and 1981. However, the precipitous decline in Argentine imports after 1982 may be

Figure 6.— Argentina: Real GDP growth, 1966–85



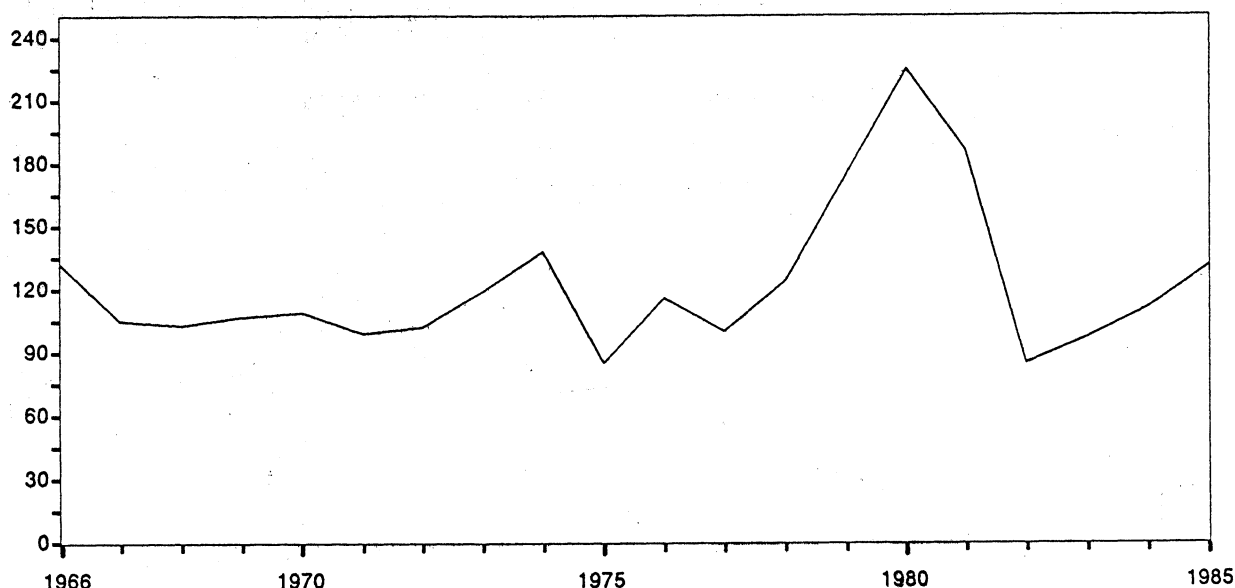
Source: Table 22.

attributable, in part, to the economy's inability to mount a strong recovery from the deep recession of 1981-82. Nevertheless, factors other than overall economic growth must be considered to adequately explain the level of Argentine imports.

Changes in real exchange rates--Movements in the real exchange rates appear to explain much of the variation in Argentine trade patterns. The real exchange rate appreciated by 125 percent from the end of 1977 through March 1981, as shown in figure 7. This coincided with the huge increase in Argentine imports from \$3.5 billion in 1978 to \$9.4 billion in 1980. Imports peaked in the fourth quarter of 1980 at about \$2.5 billion, and remained very high through the second quarter of 1981, before falling sharply throughout 1981. Quarterly imports were stable around \$1 billion during 1982-84. The peso's real exchange value fell sharply throughout the remainder of 1981 and 1982, returning to its 1977 level during the second half of 1982.

Figure 7.—Argentina: Real effective exchange rate¹, 1966-85

(1977=100)

¹ Increase denotes real appreciation.

Source: Table 22.

Throughout 1983 and much of 1984, the peso appreciated by 40 percent in real value. After September 1984, nominal devaluation was accelerated to a rate exceeding inflation. On June 11, 1985, the peso was devalued by 19 percent, several days prior to the announcement of the Austral Plan. These two policy events combined to restore the Argentine currency to roughly the real value it commanded prior to the two appreciation phases of 1978-81 and 1983-84.

Although the peso's decline from its peak value began in early 1981 and Argentine imports remained very high through the middle of 1982, the peso remained overvalued until sometime during the second half of 1982. Furthermore, the falling real value of the peso during 1981-82 probably spurred imports as anticipated declines in the peso accelerated import spending.

Changes in commercial policies.--These policies have afforded domestic industries high levels of protection, while imposing anti-export biases that restrained export performance. A notable divergence from this pattern occurred during 1977-81, when widespread liberalization of the economy took place. At this time quantitative import restrictions (QR's) were eliminated and major reductions in import tariffs were effected. In part because of these changes, imports increased dramatically. Imports of consumer items increased most dramatically, benefiting more from the removal of QR's and the tariff reductions than other product groups. However, the same program of reforms also precipitated a severe deterioration in Argentina's economy. By mid-1981 the liberalized trade regime was history.

By December 1983, when the constitutional government assumed control, a highly restrictive trade and payments apparatus was again in place. These restrictions included tariffs that ranged up to 200 percent ad valorem, a foreign exchange allocation procedure for imports, minimum financing terms for imports, export taxes and rebates, various multiple currency practices, and a variety of foreign exchange restrictions for current and capital account transactions.

In January 1984, the authorities lowered tariff rates to a mean rate of 23 percent, with an upper limit of 39 percent for most products. Mean rates for agriculture, mining, and manufacturing tended to be comparable, ranging from 20 to 25 percent. However, mean rates within subsectors were more widely dispersed. Tariffs on chemical imports averaged under 14 percent, whereas the average rates for wood products and textiles were 34 percent and 37 percent, respectively. Some tariff rates were increased in June 1985, as part of the budgetary restraint measures adopted under the Austral Plan.

The structure of Argentine nontariff import protection was also changed at this time. The foreign exchange allocation system for imports was replaced with a system of quantitative import controls. Imports were classified into one of the following three categories: imports qualifying for automatic licensing, imports that are prohibited, and imports that require approval from the Commerce Secretariat. The list of imports that were prohibited included most consumer goods and many industrial products that were produced in Argentina. Imports requiring prior approval included most capital goods and selected industrial imports. Items subject to prior clearance were also subject to an advanced import deposit in the amount of the duty. Finally, the requirement for import permits was extended to include the public sector. Subsequently, the authorities have frequently reclassified items from one category to another. In December 1985, for example, a wide assortment of electronic equipment, including computers, was moved to the category given automatic licensing.

In 1982, Argentina adopted a requirement that imports obtain foreign financing under specified terms. These terms have been amended frequently, but the minimum financing period for most imports is 180 days. This period is relaxed to 90 or 120 days for imports from other Latin American countries.

Argentina has traditionally imposed export taxes on its agricultural exports, and uses the proceeds to provide rebates for industrial exports selected for promotion. Export taxes were largely removed during the period of trade liberalization from 1979 to 1981, but were restored in March 1981 and increased thereafter. By December 1983, export taxes ranged from 15 to 25 percent for grains, beef, wool, leather, and tobacco. In June 1985, most export taxes were increased by an average of 10 percent, and some industrial exports that had been qualifying for small rebates were taxed instead. However, in August, taxes on these exports were reduced substantially, and by November 1985, export taxes on several agricultural products were also reduced.

Effects on U.S. industry

The market share methodology was used to determine which industries were most affected by the changes in bilateral trade that occurred as a result of Argentina's post-1982 adjustment. The results are shown in tables 25-27. The analysis that follows encompasses nonservice, merchandise trade for 61 industry sectors.

Net trade effects.--Table 25 analyzes changes in the pattern of net U.S.-Argentine trade using the market share methodology. Relative increases in net exports to Argentina resulted for 6 industries, whereas decreases occurred for 41 industries. The largest increases in net exports, or declines in net imports, were realized by industries producing food products (\$61 million), footwear (\$25 million), and apparel (\$14 million). The largest declines in net exports (or increases in net imports) were realized by producers of aircraft (\$297 million), crude petroleum (\$255 million), and motor vehicles (\$117 million).

When indirect effects of changing trade patterns with Argentina were considered for each industry, it was estimated that 7 industries were positively affected and 54 were negatively affected as a result of shifts in trade with Argentina. Among the seven industries where the net output effects were potentially beneficial to U.S. industry, most of the gains resulted from falling net imports from Argentina rather than increased U.S. net exports. The largest potentially beneficial effects were on the food products industry (estimated at \$85 million), followed by leather tanning (\$35 million), and livestock (\$29 million). The leather tanning industry was the only industry to gain significantly relative to domestic production; its increase in potential output was equivalent to slightly under 2 percent of domestic production. The next largest proportional effects were on producers of footwear (0.33 percent) and chemical and fertilizer minerals (0.08 percent).

Among the 54 industries where negative effects on output were estimated from shifts in U.S.-Argentine trade, losses in net exports exceeding \$100 million were estimated for numerous industries. Negative output effects greater than \$300 million were recorded by producers of crude petroleum (\$362 million), primary metal manufactures (\$340 million, combining ferrous and nonferrous), and aircraft (\$360 million). Industries producing assorted (nonelectrical) machinery and equipment lost potential output of \$287 million. Potential production declines exceeding \$100 million were also estimated for producers of chemical products (\$120 million); refined petroleum products (\$119 million); radios, televisions, and other communication equipment (\$120 million); various electronics products, including computers (\$275 million); and motor vehicles (\$170 million). The largest negative effects in relation to domestic output were estimated for producers of aircraft (0.50 percent), engines and turbines (0.46 percent), and iron ores (0.36 percent).

U.S. exports to Argentina.--Table 26 compares the actual level of U.S. exports to Argentina in 1985 with an estimate of its value in that year had Argentina retained its share of U.S. exports observed during 1978-81 for each of the 61 nonservice industrial sectors. Considering the changes in direct exports, only 1 industry's exports increased relative to the average level of

Table 25.--The estimated effects of Argentina's debt-related austerity on U.S. net exports to Argentina and U.S. output in 61 nonservice industry sectors

Industry sector	U.S. employ- ment 1/ (1)	U.S. industry output 1/ (2)	Actual 1985 net exports (3)	Net exports under market share 2/ (4)	Differ- ence 3/ (5)	Esti- mated change in out- put 4/ (6)	Esti- mated change of industry output 5/ (7)
Livestock and livestock products.....	944	87,147	-6	-14	8	29	0.033
Other agricultural products.....	2,014	110,356	-27	-6	-21	-9	-0.009
Forestry and fishery products.....	80	8,982	-1	2	-3	-5	-0.054
Iron and ferroalloy ores mining.....	15	3,102	6/	1/	1/	-11	-0.360
Nonferrous metal ores mining.....	44	3,436	-1	-1	6/	-10	-0.305
Coal mining.....	203	30,682	24	30	-6	-26	-0.083
Crude petroleum and natural gas.....	280	126,466	-298	-43	-255	-362	-0.286
Stone and clay mining and quarrying.....	94	7,844	3	6	-3	-7	-0.087
Chemical and fertilizer mineral mining.....	21	3,971	8	1/	1/	3	0.081
Ordinance and accessories.....	205	22,852	-1	13	-14	-15	-0.065
Food and kindred products.....	1,659	317,706	-339	-401	61	85	0.027
Tobacco manufactures.....	67	22,795	6/	5	-4	-5	-0.022
Broad and narrow fabrics, yarn and thread mills.....	438	40,867	-8	-7	-1	-9	-0.021
Miscellaneous textile goods and floor coverings.....	117	12,057	1	4	-3	-8	-0.066
Apparel.....	1,242	53,588	-15	-29	14	17	0.031
Miscellaneous fabricated textile products.....	190	9,936	-6	2	-8	-13	-0.132
Lumber and wood products, except containers.....	687	57,277	-3	1	-4	-21	-0.037
Wood containers.....	19	655	6/	1/	1/	-1	-0.085
Household furniture.....	288	17,384	-1	-2	1	-1	-0.006
Other furniture and fixtures.....	215	14,507	6/	1/	1/	-3	-0.020
Paper and allied products, except containers.....	487	81,352	2	22	-20	-41	-0.050
Paperboard containers and boxes.....	196	22,403	6/	1/	1/	-8	-0.034
Printing and publishing.....	1,452	107,316	2	-2	4	-2	-0.002
Chemicals and selected chemical products.....	175	80,929	67	103	-36	-120	-0.148
Plastics and synthetic materials.....	349	36,710	22	70	-48	-75	-0.204
Drugs, cleaning and toilet preparations.....	62	55,436	22	37	-16	-17	-0.031
Paints and allied products.....	188	9,567	6/	1/	1/	-6	-0.059
Petroleum refining and related industries.....	802	179,980	-51	24	-74	-119	-0.066
Rubber and miscellaneous plastic products.....	18	67,421	4	25	-21	-61	-0.090
Leather tanning and finishing.....	18	1,842	-122	1/	1/	35	1.891
Footwear and other leather products.....	187	7,710	-7	-32	25	26	0.337
Glass and glass products.....	170	12,824	1	8	-6	-12	-0.090
Stone and clay products.....	456	41,607	4	12	-8	-23	-0.054
Primary iron and steel manufacturing.....	555	85,014	-78	-30	-48	-190	-0.223
Primary nonferrous metals manufacturing.....	360	54,030	-53	-21	-31	-150	-0.278
Metal containers.....	61	11,422	-1	-1	6/	6/	0.002
Heating, plumbing, and structural metal products.....	530	17,391	2	17	-15	-28	-0.074
Screw machine products and stampings.....	315	28,326	6/	6/	6/	-32	-0.112
Other fabricated metal products.....	486	41,832	-7	-6	9/	-32	-0.077
Engines and turbines.....	114	13,268	11	-6	1/	-61	-0.459

Table 25. --The estimated effects of Argentina's debt-related austerity on U.S. net exports to Argentina and U.S. output in 61 nonservice industry sectors--Continued

Industry sector	U.S. employ- ment 1/ (1)	U.S. industry output 2/ (2)	Actual 1985 net exports (3)	Net exports under constant market share 2/ (4)	Differ- ence 3/ (5)	Esti- mated change in out- put 4/ (6)	Esti- mated change as share of industry output 5/ (7)
Farm and garden machinery.....	116	14,204	3	15	-12	-13	-0.093
Construction and mining machinery.....	194	27,369	33	94	-61	-71	-0.259
Materials handling machinery and equipment.....	83	6,028	3	14	-11	-12	-0.203
Metalworking machinery and equipment.....	317	23,711	14	37	-23	-39	-0.164
Special industry machinery and equipment.....	168	14,118	7	22	-15	-18	-0.126
General machinery and equipment.....	277	26,966	26	38	-12	-35	-0.132
Miscellaneous machinery, except electrical.....	298	18,462	5	Z/	Z/	-38	-0.207
Office, computing, and accounting machines.....	507	42,045	124	182	-58	-70	-0.167
Service industries machines.....	181	18,035	9	Z/	Z/	-20	-0.108
Electric industrial equipment and apparatus.....	434	28,817	14	55	-41	-65	-0.225
Household appliances.....	153	16,262	3	7	-4	-5	-0.031
Electric lighting and wiring equipment.....	204	18,151	2	9	-7	-11	-0.061
Radio, TV, and communication equipment.....	707	67,568	20	113	-93	-120	-0.178
Electronic components and accessories.....	685	47,268	7	26	-19	-69	-0.145
Misc. electrical machinery and supplies.....	167	14,397	8	35	-28	-35	-0.241
Motor vehicles and equipment.....	870	172,657	3	121	-117	-170	-0.099
Aircraft and parts.....	639	71,858	32	329	-297	-360	-0.501
Other transportation equipment.....	348	31,414	1	61	-60	-64	-0.202
Scientific and controlling instruments.....	417	24,425	33	86	-53	-61	-0.250
Optical, ophthalmic, and photographic equipment.....	201	20,315	6	29	-23	-28	-0.137
Miscellaneous manufacturing.....	431	26,576	-2	19	-20	-23	-0.087

1/ 1984 data. Output figures include the value of the industry's output plus the value of intermediate inputs.
 2/ Net exports under constant market share is the difference between exports and imports under constant market share.
 3/ The difference between actual net exports (col. 3) and net exports under constant market share (col. 4).
 4/ The estimated total change includes direct and indirect changes, and is calculated by multiplying the matrix of total requirements coefficients of the input-output table of the U.S. economy by the vector of estimated differences (col. 5) in trade.
 5/ The estimated change (col. 7) as a share of industry output (col. 2).
 6/ Absolute value less than \$500,000.
 7/ Not available.

Note. --Because of rounding, actual figures may not equal results shown.

Source: Employment and production statistics compiled from U.S. Bureau of Labor Statistics data, trade statistics compiled from official statistics of the U.S. Bureau of the Census.

Table 26. --The estimated effects of Argentina's debt-related austerity on U.S. exports to Argentina and U.S. output in 61 nonservice industry sectors

Industry sector	U.S. employ- ment 1/ (1)	U.S. industry output 1/ (2)	Ratio of		Exports under constant market share 2/ (5)	Differ- ence 3/ (6)	Esti- mated change in out- put 4/ (7)	Esti- mated change of industry output 5/ (8)
			1985 market share to 1978-81 average market share (3)	Actual 1985 exports (4)				
Livestock and livestock products.....	944	87,147	0.262	1	6	-4	-13	-0.015
Other agricultural products.....	2,014	110,356	0.866	8	9	-1	-13	-0.012
Forestry and fishery products.....	80	8,982	0.308	1	3	-2	-5	-0.055
Iron and ferroalloy ores mining.....	15	3,102	0.059	6/	1	-1	-9	-0.291
Nonferrous metal ores mining.....	44	3,436	0.291	6/	6/	6/	-10	-0.290
Coal mining.....	203	30,682	0.708	30	42	-12	-31	-0.100
Crude petroleum and natural gas.....	280	126,466	0.504	6/	6/	6/	-81	-0.064
Stone and clay mining and quarrying.....	94	7,844	0.631	4	6	-2	-6	-0.077
Chemical and fertilizer mineral mining.....	21	3,971	2.834	8	3	5	2	0.054
Ordnance and accessories.....	205	22,852	0.012	6/	13	-13	-14	-0.062
Food and kindred products.....	1,659	317,706	0.276	4	16	-12	-31	-0.010
Tobacco manufactures.....	67	22,795	0.137	1	5	-4	-5	-0.023
Broad and narrow fabrics, yarn and thread mills.	438	40,867	0.058	1	15	-14	-39	-0.096
Miscellaneous textile goods and floor coverings.	117	12,057	0.222	1	4	3	-10	-0.079
Apparel.....	1,242	53,588	0.025	6/	14	-14	-19	-0.035
Miscellaneous fabricated textile products.....	190	9,936	0.169	1	4	-3	-9	-0.086
Lumber and wood products, except containers.....	687	57,277	0.246	1	5	-4	-23	-0.039
Wood containers.....	19	655	1/	6/	1/	1/	-1	-0.092
Household furniture.....	288	17,384	0.358	9/	1	-1	-3	-0.015
Other furniture and fixtures.....	215	14,507	0.030	6/	2	-2	-3	-0.019
Paper and allied products, except containers.....	487	81,352	0.220	6	26	-20	-48	-0.059
Paperboard containers and boxes.....	196	22,403	1/	6/	1/	1/	-13	-0.056
Printing and publishing.....	1,452	107,316	0.759	4	5	-1	-9	-0.009
Chemicals and selected chemical products.....	1,475	80,929	0.566	108	191	-83	-185	-0.229
Plastics and synthetic materials.....	175	36,710	0.383	27	71	-44	-79	-0.215
Drugs, cleaning and toilet preparations.....	349	55,436	0.568	29	51	-22	-27	-0.048
Paints and allied products.....	62	9,567	0.333	6/	1	-1	-6	-0.061
Petroleum refining and related industries.....	188	179,980	0.077	3	45	-42	-87	-0.048
Rubber and miscellaneous plastic products.....	802	67,421	0.392	10	27	-16	-63	-0.094
Leather tanning and finishing.....	18	1,842	1/	6/	1/	1/	-1	-0.071
Footwear and other leather products.....	187	7,710	0.009	6/	5	5	-5	-0.069
Glass and glass products.....	170	12,824	0.263	2	8	-6	-13	-0.105
Stone and clay products.....	456	41,607	0.449	5	12	-7	-21	-0.050
Primary iron and steel manufacturing.....	555	85,014	0.230	3	15	-11	-147	-0.173
Primary nonferrous metals manufacturing.....	360	54,030	0.256	4	14	-11	-122	-0.226
Metal containers.....	61	11,422	0.095	6/	6/	6/	-5	-0.041
Heating, plumbing, and structural metal products	530	37,391	0.123	2	17	-15	-27	-0.071
Screw machine products and stampings.....	315	28,326	0.133	6/	1	-1	-35	-0.122
Other fabricated metal products.....	486	41,832	0.265	4	16	-12	-43	-0.104
Engines and turbines.....	114	13,268	0.196	11	55	-44	-60	-0.454

Table 26. --The estimated effects of Argentina's debt-related austerity on U.S. exports to Argentina and U.S. output in 61 nonservice industry sectors--Continued

Industry sector	U.S. employ- ment 1/ (1)	U.S. industry output 1/ (2)	Ratio of		Exports under constant market share 2/ (5)	Differ- ence 3/ (6)	Esti- mated change in out- put 4/ (7)	Esti- mated change as share of industry output 5/ (8)
			1,000 jobs	Million dollars				
Farm and garden machinery.....	116	14,204	0.202	3	17	-14	-15	-0.107
Construction and mining machinery.....	194	27,369	0.357	35	97	-62	-71	-0.260
Materials handling machinery and equipment.....	83	6,028	0.214	3	14	-11	-12	-0.207
Metalworking machinery and equipment.....	317	23,711	0.386	15	38	-24	-39	-0.165
Special industry machinery and equipment.....	168	14,118	0.411	9	23	-14	-17	-0.120
General machinery and equipment.....	277	26,966	0.634	27	43	-16	-38	-0.141
Miscellaneous machinery, except electrical.....	298	18,462	0.216	5	22	-17	-38	-0.205
Office, computing, and accounting machines.....	507	42,045	0.620	126	203	-77	-93	-0.221
Service industries machines.....	181	18,035	0.378	9	25	-15	-20	-0.108
Electric industrial equipment and apparatus.....	434	28,817	0.263	15	56	-41	-64	-0.223
Household appliances.....	153	16,262	0.236	3	12	-9	-10	-0.062
Electric lighting and wiring equipment.....	204	18,151	0.249	2	9	-7	-11	-0.062
Radio, TV, and communication equipment.....	707	67,568	0.178	20	113	-93	-121	-0.178
Electronic components and accessories.....	685	47,268	0.327	9	27	-18	-70	-0.149
Misc. electrical machinery and supplies.....	167	14,397	0.234	8	36	-28	-35	-0.243
Motor vehicles and equipment.....	870	172,657	0.091	12	130	-118	-172	-0.099
Aircraft and parts.....	639	71,858	0.098	32	329	-297	-360	-0.501
Other transportation equipment.....	348	31,414	0.040	2	61	-59	-62	-0.199
Scientific and controlling instruments.....	417	24,425	0.381	33	86	-53	-61	-0.251
Optical, ophthalmic, and photographic equipment.....	201	20,315	0.243	7	30	-23	-28	-0.136
Miscellaneous manufacturing.....	431	26,576	0.305	18	60	-42	-47	-0.176

1/ 1984 data. Output figures include the value of the industry's output plus the value of intermediate inputs.
 2/ Exports under constant market share is the quotient of actual exports (col. 4) and the market share ratio (col. 3).
 3/ The difference between actual exports (col. 4) and exports under constant market share (col. 5).
 4/ The estimated total change includes direct and indirect changes, and is calculated by multiplying the matrix of total requirements coefficients of the input-output table of the U.S. economy by the vector of differences in trade (col. 6).
 5/ The estimated change (col. 7) as a share of industry output (col. 2).
 6/ Absolute value less than \$500,000.
 7/ Not available.

Note. --Because of rounding, actual figures may not equal results shown.

Source: Employment and production statistics compiled from U.S. Bureau of Labor Statistics data, trade statistics compiled from official statistics of the U.S. Bureau of the Census.

1978-81, whereas 54 decreased and 6 were unchanged. The industry producing chemical and fertilizer minerals increased direct exports by \$5 million. The largest declines in direct exports were realized by industries producing aircraft (\$297 million), motor vehicles (\$118 million), and radio, TV, and communication equipment (\$93 million).

When indirect effects on output are incorporated, only the chemicals and fertilizer minerals mining industry experienced positive output effects because of increased exports to Argentina. This gain was only \$2 million, and was negligible in relation to domestic output.

Sixty industries registered adverse production because of decreased exports to Argentina. The largest (exceeding \$100 million) were registered by producers of aircraft (\$360 million); collected machinery and equipment (\$290 million); primary metal manufactures (\$269 million for ferrous and nonferrous combined); chemical products (\$185 million); motor vehicles (\$172 million); and radio, TV, and other communication equipment (\$121 million). However, the effects of these trade shifts on domestic output were below 0.50 percent of domestic production for each of the 60 industries. The largest proportional losses in domestic output attributable to declining exports were recorded by producers of aircraft (0.50 percent), engines and turbines (0.45 percent), and iron and nonferrous metallic ores (both 0.29 percent).

U.S. imports from Argentina. -- Table 27 compares the actual changes in U.S. imports from Argentina in 1985 to an estimate of what these imports would have been had the Argentine share of total U.S. imports remained at its level of 1978-81. The relative share of Argentine imports increased for 19 of the 61 industries examined (as shown by values greater than one in col. 3), and fell for 34 industries. The largest declines in U.S. imports from Argentina were registered by producers of food products (\$73 million), chemical products (\$47 million), and footwear (\$30 million). The largest increases in U.S. imports from Argentina were on industries producing crude petroleum (\$255 million), primary iron and steel manufactures (\$37 million), and refined petroleum products (\$33 million).

These estimates were then converted into total (direct and indirect) effects on imports using input-output techniques. It was estimated that for 43 industries potential domestic output effects increased in 1985 compared with 1978-81 because of falling U.S. imports from Argentina. For the remaining 18 industries, domestic output was estimated to have been adversely affected by increased U.S. imports from Argentina.

Among the 43 industries where a reduction in imports from Argentina was estimated (as shown by negative values in col. 8), rarely was the positive effect on domestic output large in absolute value or relative to domestic production. The largest estimated increase in potential output, \$115 million, occurred in the food products industry. The next largest increases were in of chemical products (\$66 million) and livestock (\$42 million). The largest relative increase in production was on leather tanning, which increased by almost 2 percent. The footwear industry followed, increasing by 0.40 percent. The proportional effects on the remaining 41 industries were all less than 0.10 percent.

Table 27.--The estimated effects of Argentina's debt-related austerity on U.S. imports from Argentina and U.S. output in 61 nonservice industry sectors

Industry sector	U.S. employ-ment 1/ (1)	U.S. industry output 1/ (2)	Ratio of		Actual 1985 imports (4)	Imports under constant market share 2/ (5)	Differ-ence 3/ (6)	Esti-mated change in out-put 4/ (7)	Esti-mated change as share of industry output 5/ (8)
			market share to 1978-81 average market share (3)	Million dollars					
Industry sector	1,000 jobs	Million dollars	Million dollars	Percent					
Livestock and livestock products.....	944	87,147	0.365		7	20	-13	-42	-0.048
Other agricultural products.....	2,014	110,356	2.361		34	15	20	-3	-0.003
Forestry and fishery products.....	80	8,982	2.798		2	1	1	6/	-0.001
Iron and ferroalloy ores mining.....	15	3,102		1/	6/	1/	1/	2/	0.069
Nonferrous metal ores mining.....	44	3,436	0.556		1	1	-1	6/	0.014
Coal mining.....	203	30,682	0.503		6	12	-6	-5	-0.017
Crude petroleum and natural gas.....	280	126,466	6.945		298	43	255	281	0.222
Stone and clay mining and quarrying.....	94	7,844	26.732		1	6/	1	1	0.010
Chemical and fertilizer mineral mining.....	21	3,971		1/	6/	1/	1/	-1	-0.027
Ordnance and accessories.....	205	22,852	2.156		1	6/	1	1	0.003
Food and kindred products.....	1,659	317,706	0.825		344	417	-73	-115	-0.036
Tobacco manufactures.....	67	22,795	0.600		6/	6/	6/	6/	-0.001
Bread and narrow fabrics, yarn and thread mills.	438	40,867	0.417		9	22	-13	-31	-0.075
Miscellaneous textile goods and floor coverings.	117	12,057	0.433		6/	6/	6/	-2	-0.013
Apparel.....	1,242	53,588	0.358		16	43	-28	-35	-0.066
Miscellaneous fabricated textile products.....	1,190	9,936	5.251		6	1	5	5	0.046
Lumber and wood products, except containers.....	687	57,277	1.066		4	4	6/	-1	-0.002
Wood containers.....	19	17,655	13.181		6/	6/	6/	6/	-0.007
Household furniture.....	288	17,384	0.498		2	3	-2	-2	-0.009
Other furniture and fixtures.....	215	14,507		1/	6/	1/	1/	6/	0.000
Paper and allied products, except containers.....	487	81,352	0.971		3	3	6/	-8	-0.009
Paperboard containers and boxes.....	196	22,403		1/	6/	1/	1/	-5	-0.022
Printing and publishing.....	1,452	107,316	0.321		2	8	-5	-7	-0.007
Chemicals and selected chemical products.....	475	80,929	0.463		41	87	-47	-66	-0.081
Plastics and synthetic materials.....	175	36,710	5.137		5	1	4	-4	-0.011
Drugs, cleaning and toilet preparations.....	349	55,436	0.521		7	14	-7	-9	-0.017
Paints and allied products.....	62	9,567		1/	6/	1/	1/	6/	-0.002
Petroleum refining and related industries.....	188	179,980	2.496		54	22	33	32	0.018
Rubber and miscellaneous plastic products.....	802	67,421	3.200		6	2	4	-2	-0.004
Leather tanning and finishing.....	18	1,842	0.811		122	150	-28	-36	-1.962
Footwear and other leather products.....	187	7,710	0.180		7	37	-30	-31	-0.406
Glass and glass products.....	170	12,824	1.888		1	6/	6/	-2	-0.015
Stone and clay products.....	456	41,607	3.067		2	6/	1	2	0.005
Primary iron and steel manufacturing.....	555	85,014	1.841		81	44	37	43	0.050
Primary nonferrous metals manufacturing.....	360	54,030	1.585		56	36	21	28	0.052
Metal containers.....	61	11,422	0.531		1	1	-1	-5	-0.043
Heating, plumbing, and structural metal products	530	37,391	0.970		6/	6/	6/	1	0.003
Screw machine products and stampings.....	315	28,326	0.045		6/	2	-2	-3	-0.010
Other fabricated metal products.....	486	41,832	0.485		11	22	-11	-11	-0.027
Engines and turbines.....	114	13,268		1/	6/	1/	1/	1	0.005

Table 27. --The estimated effects of Argentina's debt-related austerity on U.S. imports from Argentina and U.S. output in 61 nonservice industry sectors--Continued

Industry sector	U.S. employ- ment 1/ (1)	U.S. industry output 1/ (2)	U.S. industry output 1/ share (3)	Ratio of 1985 market share to 1978-81 average market share (4)	Actual 1985 imports (5)	Imports under constant market share 2/ (6)	Differ- ence 3/ (7)	Esti- mated change in out- put 4/ (8)	Esti- mated change as share of industry output 5/ (9)
Farm and garden machinery.....	116	14,204	0.145	6/	3	-2	-2	-0.014	
Construction and mining machinery.....	194	27,369	0.563	2	3	-1	6/	-0.001	
Materials handling machinery and equipment.....	83	6,028	0.275	6/	6/	6/	6/	-0.004	
Metalworking machinery and equipment.....	317	23,711	0.776	1	2	2	6/	-0.001	
Special industry machinery and equipment.....	168	14,118	3.596	2	1	2	1	0.006	
General machinery and equipment.....	277	26,966	0.298	1	5	-3	-2	-0.009	
Miscellaneous machinery, except electrical.....	298	18,462	0.085	7/	7/	7/	6/	0.002	
Office, computing, and accounting machines.....	507	42,045	0.085	2	21	-19	-23	-0.054	
Service industries machines.....	181	18,035	0.874	7/	7/	7/	6/	-0.000	
Electric industrial equipment and apparatus.....	434	28,817	0.874	1	1	1	1	0.002	
Household appliances.....	153	16,262	0.013	6/	5	-5	-5	-0.031	
Electric lighting and wiring equipment.....	204	18,151	0.173	6/	1	6/	6/	-0.002	
Radio, TV, and communication equipment.....	707	67,568	0.728	6/	6/	6/	6/	-0.000	
Electronic components and accessories.....	685	47,268	2.690	2	1	1	-2	-0.003	
Misc. electrical machinery and supplies.....	167	14,397	0.865	1	1	6/	6/	-0.002	
Motor vehicles and equipment.....	870	172,657	0.891	9	10	-1	-1	-0.001	
Aircraft and parts.....	639	71,858	0.812	1	1	6/	6/	-0.000	
Other transportation equipment.....	348	31,414	2.832	1	1	1	1	0.003	
Scientific and controlling instruments.....	417	24,425	0.603	6/	6/	6/	6/	-0.001	
Optical, ophthalmic, and photographic equipment.....	201	20,315	1.642	1	1	6/	6/	0.001	
Miscellaneous manufacturing.....	431	26,576	0.480	20	41	-22	-24	-0.090	

1/ 1984 data. Output figures include the value of the industry's output plus the value of intermediate inputs.
 2/ Imports under constant market share is the quotient of actual imports (col. 4) and the market share ratio (col. 3).
 3/ The difference between actual imports (col. 4) and imports under constant market share (col. 5).
 4/ The estimated total change includes direct and indirect changes, and is calculated by multiplying the matrix of total requirements coefficients of the input-output table of the U.S. economy by the vector of differences in trade (col. 6).
 5/ The estimated change (col. 7) as a share of industry output (col. 2).
 6/ Absolute value less than \$500,000.
 7/ Not available.

Note. --Because of rounding, actual figures may not equal results shown.

Source: Employment and production statistics compiled from U.S. Bureau of Labor Statistics data, trade statistics compiled from official statistics of the U.S. Bureau of the Census.

Among the 18 industries with negative production effects caused by relative increases in U.S. imports from Argentina, the only significant impact was on the crude petroleum industry. The estimated loss to this industry was \$281 million, or 0.22 percent of domestic output. The next largest losses were to producers of primary iron and steel manufactures (\$43 million) and refined petroleum products (\$32 million). The next largest proportional declines on domestic production were to iron ore mining (0.07 percent) and primary metal manufactures (0.05 percent for both ferrous and nonferrous).

VENEZUELA: A CASE STUDY

Historical Background

Venezuela is the largest exporter of oil in the Western Hemisphere and the fifth largest in the world. The prodigious increases in the price of oil in the 1970's and early 1980's greatly increased Venezuela's international purchasing power. Venezuela used this windfall to finance an ambitious program of internal growth and improved living standards. When oil revenues declined in the late 1970's and again in the 1980's, the Venezuelan Government found itself overextended. It first borrowed to finance its fiscal deficits and support its exchange rate and was later forced to adopt austerity policies, including substantial reductions in Government spending, devaluations of the bolivar, and controls on imports and foreign exchange. Venezuela has generally been successful at bringing its fiscal and external accounts into balance since 1983 and at meeting its debt obligations, but has suffered several years of low or negative growth of real GDP. Venezuela now faces the difficult task of adapting to the recent substantial decline in the price of oil. In 1986, Venezuela rescheduled over 80 percent of its outstanding external debt. The agreement stretches out repayments over a 12-year period and sets the interest rate at the LIBOR plus 1 1/8 percent. In 1986, Venezuela's external debt was estimated to be \$33.9 billion of which 81 percent is owed or guaranteed by the Venezuelan Government.

It is estimated that Venezuela's austerity program has had a negative effect on U.S. production in 42 of 61 nonservice industries studied, according to our estimates, and a positive effect on the remaining 19. These effects are generally small, rarely exceeding \$100 million or 0.5 percent of industry output.

Growth through oil

During most of its history, Venezuela's economy, has been based primarily on agriculture. Prior to independence in 1821, Venezuela's principal export was cacao. In the early 19th century coffee became the principal export and remained so until early in the 20th century. 1/

The exploration and development of Venezuela's oil resources began in the 1910's. This was done initially by European firms and later by U.S. oil companies. Exportation began during World War I and by the late 1920's Venezuela was the world's largest exporter of oil, a position it held until 1970. 2/ In 1984, Venezuela ranked fifth in the world in exports of oil and refined oil products, behind Saudi Arabia, the Soviet Union, the United Kingdom, and Iran. 3/ During much of this period, oil provided 90 percent or more of Venezuela's export revenue. 4/ Venezuela prospered on oil revenue and

1/ Republic of Venezuela, Ministry of International Affairs, The Political Decision in the Strategy of Regional Development, 1980.

2/ Stephen G. Rale, The Road to OPEC/United States Relations with Venezuela, 1919-76, University of Texas Press, Austin, 1982.

3/ U.S. Department of Energy, International Energy Annual, 1985, pp. 24-25.

4/ William Roseberry, Coffee and Capitalism in the Venezuelan Andes, University of Texas Press, Austin, 1983.

attained the highest per capita real GDP of any nation in Latin America before the first oil shock in 1973.

Following World War II, the Venezuelan Government tried to expand and diversify its economy. It made sizable investments in infrastructure and, like many developing countries at the time, encouraged industrialization through import substitution. In spite of these efforts, oil still accounted for over 90 percent of Venezuela's exports and 17 percent of Gross National Product in 1970.

The quadrupling of the world price for crude oil in 1973 greatly improved Venezuela's terms of trade and increased its international purchasing power. The Venezuelan Government used this windfall to embark on an ambitious program to promote growth and improve the living standards of its people. This program included nationalization of the oil and iron ore industries, increased public investments, and expansion of social programs.

The increase in demand for goods and services was far greater than the growth of Venezuela's nonpetroleum GDP and resulted in a substantial increase in imports. GDP data are reported in table 28. The greatest annual increase in real GDP between 1972 and 1985 was 8.6 percent in 1976.

The accumulation of debt and attempts at reform

In the late 1970's, oil revenues fell short of expectations and the Government found itself with sizable fiscal deficits. The Government's fiscal account, shown in table 29, was in deficit by over \$1 billion in 1976, and by over \$2 billion in 1977 and 1978, after having been in surplus from 1973 to 1975. In addition, Venezuela had significant deficits in its current account in 1977 and 1978.

In 1979, a newly elected government began trying to reduce expenditures and promote efficiency in the economy. These policies included a reduction in real public-sector expenditures and a liberalization of price controls. These policies were briefly successful at reversing the deficits in the fiscal and current accounts (table 30), both of which moved into surplus in 1979.

The Government's austerity program was interrupted by the second oil shock in 1979, which boosted oil prices again. With new oil revenues and considerable political pressure for wage increases and improved living standards, the Government resumed its expansionary policies in 1980. This included a doubling of the minimum wage and a mandatory wage increase for all workers. Venezuela's external debt totaled \$29.6 billion in 1980 or 50.2 percent of its GNP (table 31).

The price of oil began to decline again in 1982. As a result, the public sector account, which had moved back into deficit in 1980, recorded a deficit of \$3.6 billion in 1982, and the current account recorded a deficit of \$3.6 billion. There was considerable capital flight in anticipation of a devaluation and the Venezuelan Government drew down reserves and borrowed heavily to support the overpriced bolivar.

Table 28.--Venezuela: Gross domestic product (GDP), real GDP, and growth rate of real GDP, 1972-85

Year	GDP	Real GDP
	Billions of US\$, current prices	Billions of US\$, 1980 prices
1972.....	14.14	41.51
1973.....	17.09	44.78
1974.....	26.19	47.49
1975.....	27.56	50.38
1976.....	31.47	54.70
1977.....	36.27	58.38
1978.....	39.38	59.62
1979.....	48.40	60.42
1980.....	59.22	59.22
1981.....	66.44	59.04
1982.....	67.86	59.44
1983.....	67.56	56.01
1984.....	46.46	31.67
1985.....	49.84	31.76

Source: IMF, International Financial Statistics.

Table 29.--Venezuela: Central Government's fiscal deficit (-) or surplus, 1972-84

Year	Deficit (-) or surplus
	Millions of US\$
1972.....	-38
1973.....	270
1974.....	1,162
1975.....	252
1976.....	-1,064
1977.....	-2,026
1978.....	-2,140
1979.....	435
1980.....	-382
1981.....	-1,477
1982.....	-3,612
1983.....	-2,222
1984.....	1,636

Source: IMF, International Financial Statistics.

Table 30.--Venezuela: Summary balance of payments, 1979-85

(In millions of dollars)

Year	Merchandise (FOB)		Trade balance	Services (net)	Current account balance 1/	Capital account 2/	Use of reserves	
	Exports	Imports					3/	4/
1979.....	14,159	-10,004	4,155	-3,398	757	2,844	-4,098	
1980.....	19,051	-10,877	8,174	-3,007	5,167	-275	-3,763	
1981.....	19,963	-12,123	7,840	-3,431	4,409	-2,291	22	
1982.....	16,332	-13,584	2,748	-6,355	-3,607	-2,398	8,163	
1983.....	14,571	-6,409	8,162	-3,524	4,638	-4,310	-339	
1984.....	15,967	-7,262	8,705	-3,150	5,555	-5,044	-1,588	
1985.....	14,178	-7,388	6,790	-3,576	3,214	-1,577	-377	

1/ Current account excludes net transfers.

2/ Capital account includes net transfers and liabilities constituting foreign authorities' reserves.

3/ Settlements basis (not reflecting counterpart items).

4/ (-) denotes increase in reserves.

Source: IMF, International Financial Statistics.

Table 31.--Venezuela: Debt indicators, 1978-86

Year	Debt/	Debt/	Debt Service/	Gross Debt 2/
	GNP	Exports 1/	Exports	
	-----Percent-----			\$ billion
1978.....	42.4	154.4	6.9	16.8
1979.....	49.5	147.8	9.5	24.1
1980.....	50.2	133.1	13.3	29.6
1981.....	48.4	130.2	10.6	31.9
1982.....	48.0	158.2	16.0	31.8
1983.....	49.4	186.0	15.3	32.3
1984.....	76.0	181.5	13.4	34.2
1985.....	NA	NA	NA	34.5
1986.....	NA	NA	NA	33.9

1/ Exports refer to total goods and services.

2/ Gross debt figures for 1978-84 are from the World Bank debt tables, figures for 1985-86 are estimates of the U.S. Department of the Treasury.

Source: World Bank, World Debt Tables, 1986 and U.S Department of the Treasury.

The capacity of the Government of Venezuela to borrow externally diminished rapidly in 1982. There was alarm among international lenders about the creditworthiness of LDC's, especially after Mexico's balance of payments difficulties in the summer of that year. With Venezuela's large current account deficit and the declining price of oil worldwide, Venezuela was no

longer viewed as creditworthy and was no longer able to rollover existing debts at will, or to secure significant new loans.

By the end of the year, the Government was faced with the task of not only eliminating the deficits in its fiscal and external accounts, but also of generating a surplus in trade large enough to meet its debt obligations. The Government made a vigorous effort to achieve these objectives by adopting a number of new policies late in 1982 and 1983. It reduced wages and transfer payments, reduced public investment projects, imposed controls on prices and imports for many goods, raised tariffs, and devalued the bolivar under a three-tiered exchange-rate system with a floating rate and preferential fixed rates of 4.3 and 6.0 bolivars to the dollar. The preferential rates were allowed for existing foreign-currency debt, most export operations, some imports, and Government purchases. The free rate was available for all other purposes. The free market rate reached a high in 1983 of over 17 bolivars to the dollar, which helped discourage the outflow of capital.

These policies began to meet their objectives by the end of 1983. In that year, the current account moved back into surplus by over \$4 billion, and the Government fiscal deficit declined. However, real GDP declined in 1983 and unemployment rose.

In February 1984, another new government took office. It sought to strengthen the recent austerity policies with some reforms. The new government added a third controlled exchange rate of 7.5 bolivars to the dollar, reduced public expenditures further, eased some price restrictions, and entered into a pact with organized labor, eliciting wage restraint in exchange for increases in employment and fringe benefits. The fiscal account moved into surplus in 1984, and the current account surplus increased, but real GDP continued to decline and unemployment continued to rise. Real wages declined by over 10 percent during 1983-84. ^{1/}

In 1985, the Government of Venezuela increased spending, especially on public-sector investments, which helped stimulate a slight increase in real GDP in spite of lower earnings from oil exports. Both the fiscal account and the current account remained in surplus. Venezuela's international reserves increased in both 1984 and 1985. Venezuela's external debt totaled \$34.5 billion in 1985. At the end of 1985, Venezuela reduced the number of controlled exchange rates to two, largely by combining the higher two into a single controlled rate of the 7.5 bolivars to the dollar. This action represented a partial devaluation.

On February 26, 1986, Venezuela signed an agreement restructuring its external debt with foreign commercial banks. This agreement, which covers approximately 83 percent of its outstanding debt, allows Venezuela to delay repayment of the loans until 1987 and stretches out payments over 12 years. The interest rate is the LIBOR plus 1 1/8 percent. Venezuela agreed to make a down payment on its existing debt of \$750 million.

In July of 1986, the Government of Venezuela announced that it was unilaterally converting \$7 billion in private sector debt into public bonds with maturities of at least 15 years and a maximum interest rate of 5

^{1/}Inter-American Development Bank, op. cit., p. 378.

percent. Following strong opposition, the Government rescinded this action in September.

Also during 1986 the world price of oil declined substantially. If this is sustained it is expected to cost Venezuela several billions of dollars in export revenues annually. In spite of this, the Venezuelan government reported an increase of GDP of 3.3 percent in 1986, led by rapid growth in agriculture. In December the Government devalued the controlled bolivar exchange rates to 7.5 and 14.5 bolivars to the dollar. The free rate was about 21.0 bolivars to the dollar. ^{1/}

Recent Changes in U.S.-Venezuelan Trade and Effects on U.S. Industry

Venezuela has traditionally exported primarily oil and oil products to the United States and imported a wide variety of other goods. U.S. exports to Venezuela have been particularly large in food products, chemicals, motor vehicles, aircraft, and various machinery and equipment. Between 1978 and 1981, trade between Venezuela and the United States increased considerably. Data on this trade are shown in table 32. U.S. imports from Venezuela increased from \$3.8 billion in 1978 to \$5.8 billion in 1981. U.S. exports to Venezuela increased from \$3.7 billion to \$5.3 billion in the same period. The United States had a trade deficit with Venezuela in all 4 years. The effects of Venezuela's austerity program can be seen in the trade data for 1983-85. U.S. exports to and imports from Venezuela both declined in 1982. U.S. imports declined by a larger amount, causing net trade with Venezuela to move into surplus. U.S. exports continued to decline to \$2.7 billion in 1983, a decline of over 50 percent since 1981. U.S. exports were somewhat higher the following 2 years, attaining a value of \$3.1 billion in 1985. U.S. exports declined in most product categories during this period. U.S. imports from Venezuela rose in 1983 and 1984, reaching a value of \$6.8 billion in 1984 and 1985 and declining slightly in 1985. During this period, there were significant increases in U.S. imports from Venezuela of refined oil products, crude oil, and gas in 1984 and 1985, and some nontraditional exports.

The United States had a net trade deficit again in 1983 of \$2.5 billion. The deficit increased to \$3.5 billion in 1984 and \$3.7 billion in 1985.

Effects on U.S. industry

The market share methodology described in the methodology section was used to estimate the effects of Venezuela's post-1981 adjustment on imports, exports, and output in the United States in 61 nonservice industry sectors. The results are shown in tables 33-35.

Net trade effects.--According to these estimates, the United States incurred a net trade loss in 46 of the 61 industry sectors. This is indicated by a negative number in column 5 of table 33 which means that there was an estimated negative effect on the U.S. trade balance with Venezuela in the sector. The largest negative numbers are for crude petroleum and natural gas and petroleum refining and related industries. Because of the dramatic

^{1/} Latin America Weekly, January 8, 1987.

Table 32.--U.S. exports, imports, and net trade with Venezuela, 1978-85

Year	Exports	Imports	Net trade
	-----Million dollars-----		
1978.....	3,688	3,812	-561
1979.....	3,884	5,380	-1,943
1980.....	4,575	5,437	-912
1981.....	5,347	5,820	-478
1982.....	5,061	4,958	98
1983.....	2,668	5,190	-2,532
1984.....	3,307	6,782	-3,475
1985.....	3,082	6,764	-3,682

Source: Compiled from official statistics of the U.S. Bureau of the Census.

changes in the world oil market during the study period, changes in U.S. import market shares cannot be wholly attributed to debt-related austerity. Besides these two industries, the greatest estimated negative effects on net U.S. trade were for motor vehicles and equipment (\$401 million), aircraft and parts (\$189 million), and primary iron and steel manufacturing (\$101 million). A positive net trade effect is estimated for 7 industries. The greatest positive effect is estimated for agricultural products other than livestock (\$128 million). Insufficient data precluded estimates of net trade effects for 8 industries.

Multiplying the estimated net trade effects by the input-output matrix of the U.S. economy provides estimates of the effects on output in each industry, taking into account all secondary adjustments. The output effect, shown in column 6, is estimated to be negative for 59 industries and positive for 2. Besides the two oil industries, the industries most adversely affected are motor vehicles and equipment (\$565 million), primary iron and steel manufacturing (\$399 million), and primary nonferrous metals manufacturing (\$314 million). The estimated output effect in each industry is expressed as a percentage of total industry output in column 8. This percentage is an indicator of the relative size of the gain or loss to the industry. The greatest relative losses, besides the oil industries, are estimated for iron and ferroalloy ores mining (0.89 percent), engines and turbines (0.66 percent), and primary nonferrous metals manufacturing (0.58 percent). The largest gains are in agricultural products other than livestock (\$112 million and 0.10 percent of industry output).

U.S. exports to Venezuela.--The share of U.S. exports going to Venezuela decreased in 51 of the 61 industries during 1982-85 compared with 1978-81. This is indicated by a value of less than 1 in column 3 of table 34. The estimated loss of exports, shown in column 6, exceeds \$100 million for only 2 industries, motor vehicles and parts (\$408 million) and aircraft and parts (\$192 million). Exports to Venezuela gained market share in 9 industries. The greatest gain was \$133 million for agricultural products other than livestock. There was insufficient data to estimate a market share change for 1 industry.

Table 33. --The estimated effects of Venezuela's debt-related austerity on U.S. net exports to Venezuela and U.S. output in 61 nonservice industry sectors

Industry sector	U.S. employ-	U.S. industry	Actual	Net	Differ-	Esti-	Esti-
	ment 1/ (1)	output 1/ (2)	1985 net exports (3)	exports under constant market share 2/ (4)	ence 3/ (5)	ated change in out- put 4/ (6)	ated change as share of industry output 5/ (7)
	1,000 jobs	Million dollars	Million dollars	Million dollars	Million dollars	Percent	Percent
Livestock and livestock products.....	944	87,147	10	7	2	-23	-0.026
Other agricultural products.....	2,014	110,356	314	186	128	112	0.101
Forestry and fishery products.....	80	8,982	8	4	4	-3	-0.031
Iron and ferroalloy ores mining.....	15	3,102	-71	-66	-5	-28	-0.891
Nonferrous metal ores mining.....	44	3,436	6/	6/	6/	-23	-0.663
Coal mining.....	203	30,682	7	7/	7/	-45	-0.147
Crude petroleum and natural gas.....	280	126,466	-4,677	-3,254	-1,423	-2,007	-1.587
Stone and clay mining and quarrying.....	94	7,844	3	2	1	-13	-0.168
Chemical and fertilizer mineral mining.....	21	3,971	10	8	2	-2	-0.059
Ordnance and accessories.....	205	22,852	1	1/	1/	-30	-0.131
Food and kindred products.....	1,659	317,706	193	268	-75	-121	-0.038
Tobacco manufactures.....	67	22,795	6/	1/	1/	-1	-0.002
Broad and narrow fabrics, yarn and thread mills.	438	40,867	20	23	-2	-34	-0.084
Miscellaneous textile goods and floor coverings.	117	12,057	30	19	10	-1	-0.011
Apparel.....	1,242	53,588	5	29	-23	-33	-0.061
Miscellaneous fabricated textile products.....	190	9,936	2	6	-4	-18	-0.179
Lumber and wood products, except containers.....	687	57,277	4	15	-11	-52	-0.091
Wood containers.....	19	655	1	1/	1/	-6/	-0.064
Household furniture.....	288	17,384	2	6	-4	-6	-0.033
Other furniture and fixtures.....	215	14,507	6/	1/	1/	-8	-0.052
Paper and allied products, except containers.....	487	81,352	74	126	-52	-109	-0.134
Paperboard containers and boxes.....	196	22,403	6/	1/	1/	-25	-0.111
Printing and publishing.....	1,452	107,316	19	28	-9	-25	-0.023
Chemicals and selected chemical products.....	1,475	80,929	269	306	-37	-206	-0.255
Plastics and synthetic materials.....	175	36,710	73	100	-27	-90	-0.245
Drugs, cleaning and toilet preparations.....	349	55,436	52	76	-24	-33	-0.060
Paints and allied products.....	62	9,567	2	5	-3	-15	-0.156
Petroleum refining and related industries.....	188	179,980	-1,441	-812	-629	-771	-0.428
Rubber and miscellaneous plastic products.....	802	67,421	45	140	-95	-180	-0.268
Leather tanning and finishing.....	18	1,842	-2	6/	-2	-4	-0.230
Footwear and other leather products.....	187	7,710	1	8	-7	-8	-0.105
Glass and glass products.....	170	12,824	11	29	-18	-35	-0.276
Stone and clay products.....	456	41,607	-40	27	-67	-109	-0.261
Primary iron and steel manufacturing.....	555	85,014	-69	31	-101	-399	-0.470
Primary nonferrous metals manufacturing.....	360	54,030	-82	12	-94	-314	-0.582
Metal containers.....	61	11,422	-4	17	-12	-23	-0.200
Heating, plumbing, and structural metal products	530	37,391	5	35	-31	-54	-0.145
Screw machine products and stampings.....	315	28,326	2	8	-5	-74	-0.262
Other fabricated metal products.....	486	41,832	13	57	-44	-118	-0.282
Engines and turbines.....	114	13,268	53	110	-57	-88	-0.662

Table 33. --The estimated effects of Venezuela's debt-related austerity on U.S. net exports to Venezuela and U.S. output in 61 nonservice industry sectors--Continued

Industry sector	U.S. employ- ment 1/ (1)	U.S. industry output 1/ (2)	Actual 1985 net exports (3)	Net exports under constant market share 2/ (4)	Differ- ence 3/ (5)	Esti- mated change in out- put 4/ (6)	Esti- mated change as share of industry output 5/ (7)
Farm and garden machinery.....	116	14,204	35	1/	1/	-2	-0.013
Construction and mining machinery.....	194	27,369	228	299	-71	-94	-0.343
Materials handling machinery and equipment.....	83	6,028	14	40	-26	-29	-0.485
Metalworking machinery and equipment.....	317	23,711	64	110	-46	-72	-0.305
Special industry machinery and equipment.....	168	14,118	52	67	-14	-19	-0.136
General machinery and equipment.....	277	26,966	71	129	-58	-102	-0.380
Miscellaneous machinery, except electrical.....	298	18,462	29	1/	1/	-89	-0.481
Office, computing, and accounting machines.....	507	42,045	116	160	-44	-55	-0.130
Service industries machines.....	181	18,035	124	82	42	33	0.182
Electric industrial equipment and apparatus.....	434	28,817	55	139	-84	-128	-0.443
Household appliances.....	153	16,262	38	69	-31	-34	-0.207
Electric lighting and wiring equipment.....	204	18,151	3	30	-27	-37	-0.204
Radio, TV, and communication equipment.....	707	67,568	116	200	-83	-109	-0.161
Electronic components and accessories.....	685	47,268	8	17	-9	-57	-0.120
Misc. electrical machinery and supplies.....	167	14,397	34	91	-56	-72	-0.502
Motor vehicles and equipment.....	870	172,657	245	646	-401	-565	-0.327
Aircraft and parts.....	639	71,858	128	317	-189	-232	-0.323
Other transportation equipment.....	348	31,414	9	59	-50	-55	-0.174
Scientific and controlling instruments.....	417	24,425	62	121	-58	-69	-0.280
Optical, ophthalmic, and photographic equipment.....	201	20,315	23	40	-17	-23	-0.112
Miscellaneous manufacturing.....	431	26,576	16	58	-41	-49	-0.186

1/ 1984 data. Output figures include the value of the industry's output plus the value of intermediate inputs.
 2/ Net exports under constant market share is the difference between exports and imports under constant market share.
 3/ The difference between actual net exports (col. 3) and net exports under constant market share (col. 4).
 4/ The estimated total change includes direct and indirect changes, and is calculated by multiplying the matrix of total requirements coefficients of the input-output table of the U.S. economy by the vector of estimated differences (col. 5) in trade.
 5/ The estimated change (col. 7) as a share of industry output (col. 2).
 6/ Absolute value less than \$500,000.
 7/ Not available.

Note.--Because of rounding, actual figures may not equal results shown.

Source: Employment and production statistics compiled from U.S. Bureau of Labor Statistics data, trade statistics compiled from official statistics of the U.S. Bureau of the Census.

Table 34. --The estimated effects of Venezuela's debt-related austerity on U.S. exports to Venezuela and U.S. output in 61 nonservice industry sectors

Industry sector	U.S. employ- ment 1/ (1)		U.S. industry output 2/ (2)		Ratio of 1985 market to 1978-81 average market share (3)		Actual 1985 exports (4)		Exports under constant market share 2/ (5)		Differ- ence 3/ (6)		Esti- mated change in out- put 4/ (7)		Esti- mated change as share of industry output 5/ (8)	
	1,000 jobs	Million dollars	Million dollars	Million dollars			Million dollars	Million dollars	Million dollars	Percent	Percent	Percent	Percent			
Livestock and livestock products.....	944	87,147	1.295	10	8	2	-0.007									
Other agricultural products.....	2,014	110,356	1.606	352	219	133	0.117									
Forestry and fishery products.....	80	8,982	1.886	8	4	4	-0.010									
Iron and ferroalloy ores mining.....	15	3,102	0.250	6/	6/	6/	-0.423									
Nonferrous metal ores mining.....	44	3,436	1.628	1	6/	6/	-0.351									
Coal mining.....	203	30,682	0.711	7	10	-3	-0.084									
Crude petroleum and natural gas.....	280	126,466	3.801	4	1	3	-0.047									
Stone and clay mining and quarrying.....	94	7,844	0.583	8	14	-6	-0.134									
Chemical and fertilizer mineral mining.....	21	3,971	1.664	13	8	5	0.080									
Ordinance and accessories.....	205	22,852	0.021	1	28	-28	-0.130									
Food and kindred products.....	1,659	317,706	0.902	266	296	-29	-0.016									
Tobacco manufactures.....	67	22,795	0.436	6/	1	6/	-0.002									
Broad and narrow fabrics, yarn and thread mills.....	438	40,867	0.898	21	23	-2	-0.078									
Miscellaneous textile goods and floor coverings.....	117	12,057	1.541	30	19	11	0.004									
Apparel.....	1,242	53,588	0.185	5	29	-23	-0.059									
Miscellaneous fabricated textile products.....	190	9,936	0.422	3	6	-3	-0.171									
Lumber and wood products, except containers.....	687	57,277	0.283	4	15	-11	-0.070									
Wood containers.....	19	655	1.632	1	1	6/	-0.032									
Household furniture.....	288	17,384	0.370	2	6	-4	-0.032									
Other furniture and fixtures.....	215	14,507	0.057	6/	6	-6	-0.051									
Paper and allied products, except containers.....	487	81,352	0.680	86	126	-40	-0.100									
Paperboard containers and boxes.....	196	22,403	1/	6/	1/	1/	-0.082									
Printing and publishing.....	1,452	107,316	0.673	20	30	-10	-0.019									
Chemicals and selected chemical products.....	1,475	80,929	0.910	280	307	-28	-0.142									
Plastics and synthetic materials.....	175	36,710	0.749	75	100	-25	-0.219									
Drugs, cleaning and toilet preparations.....	349	55,436	0.730	56	76	-21	-0.045									
Paints and allied products.....	62	9,567	0.358	2	5	-3	-0.114									
Petroleum refining and related industries.....	188	179,980	0.709	49	69	-20	-0.036									
Rubber and miscellaneous plastic products.....	802	67,421	0.338	47	140	-93	-0.245									
Leather tanning and finishing.....	18	1,842	0.297	6/	6/	6/	-0.118									
Footwear and other leather products.....	187	7,710	0.119	1	8	-7	-0.099									
Glass and glass products.....	170	12,824	0.378	11	30	-19	-0.254									
Stone and clay products.....	456	41,607	0.711	21	30	-9	-0.068									
Primary iron and steel manufacturing.....	555	85,014	0.901	56	62	-6	-0.271									
Primary nonferrous metals manufacturing.....	360	54,030	0.610	31	51	-20	-0.321									
Metal containers.....	61	11,422	0.033	6/	7	-7	-0.103									
Heating, plumbing, and structural metal products.....	530	37,391	0.140	5	37	-31	-0.117									
Screw machine products and stampings.....	315	28,326	0.363	3	8	-5	-0.247									
Other fabricated metal products.....	486	41,832	0.329	19	58	-39	-0.208									
Engines and turbines.....	114	13,268	0.483	53	110	-57	-0.592									

Table 34.--The estimated effects of Venezuela's debt-related austerity on U.S. exports to Venezuela and U.S. output in 61 nonservice industry sectors--Continued

Industry sector	U.S. employ- ment 1/ (1)	U.S. industry output 2/ (2)	Ratio of		Exports under constant market share 2/ (5)	Differ- ence 3/ (6)	Esti- mated change in out- put 4/ (7)	Esti- mated change of industry output 5/ (8)
			1,000 jobs	Million dollars				
Farm and garden machinery.....	116	14,204	0.951	35	37	-2	-1	-0.010
Construction and mining machinery.....	194	27,369	0.765	229	299	-70	-80	-0.293
Materials handling machinery and equipment.....	83	6,028	0.329	14	43	-29	-31	-0.513
Metalworking machinery and equipment.....	317	23,711	0.582	64	110	-46	-67	-0.284
Special industry machinery and equipment.....	168	14,118	0.786	52	67	-14	-18	-0.125
General machinery and equipment.....	277	26,966	0.550	71	129	-58	-88	-0.328
Miscellaneous machinery, except electrical.....	298	18,462	0.369	29	78	-49	-79	-0.429
Office, computing, and accounting machines.....	507	42,045	0.721	117	162	-45	-56	-0.132
Service industries machines.....	181	18,035	1.379	125	90	34	28	0.154
Electric industrial equipment and apparatus.....	434	28,817	0.399	55	139	-84	-113	-0.391
Household appliances.....	153	16,262	0.564	39	70	-30	-32	-0.195
Electric lighting and wiring equipment.....	204	18,151	0.278	9	31	-22	-29	-0.159
Radio, TV, and communication equipment.....	707	67,568	0.589	118	200	-82	-107	-0.158
Electronic components and accessories.....	685	47,268	0.489	8	17	-9	-55	-0.117
Misc. electrical machinery and supplies.....	167	14,397	0.376	34	91	-57	-72	-0.498
Motor vehicles and equipment.....	870	172,657	0.381	251	659	-408	-568	-0.329
Aircraft and parts.....	639	71,858	0.401	128	320	-192	-235	-0.327
Other transportation equipment.....	348	31,414	0.149	9	59	-50	-54	-0.171
Scientific and controlling instruments.....	417	24,425	0.516	62	121	-58	-66	-0.272
Optical, ophthalmic, and photographic equipment.....	201	20,315	0.584	24	40	-17	-21	-0.105
Miscellaneous manufacturing.....	431	26,576	0.400	51	127	-76	-84	-0.318

1/ 1984 data. Output figures include the value of the industry's output plus the value of intermediate inputs.
 2/ Exports under constant market share is the quotient of actual exports (col. 4) and the market share ratio (col. 3).
 3/ The difference between actual exports (col. 4) and exports under constant market share (col. 5).
 4/ The estimated total change includes direct and indirect changes, and is calculated by multiplying the matrix of total requirements coefficients of the input-output table of the U.S. economy by the vector of differences in trade (col. 6).
 5/ The estimated change (col. 7) as a share of industry output (col. 2).
 6/ Absolute value less than \$500,000.
 7/ Not available.

Note.--Because of rounding, actual figures may not equal results shown.

Source: Employment and production statistics compiled from U.S. Bureau of Labor Statistics data, trade statistics compiled from official statistics of the U.S. Bureau of the Census.

Table 35.--The estimated effects of Venezuela's debt-related austerity on U.S. imports from Venezuela and U.S. output in 61 nonservice industry sectors--Continued

Industry sector	U.S. employment 1/ (1)	U.S. industry output 1/ (2)	Ratio of 1985 market share to 1978-81 average market share (3)		Actual imports 1985 (4)	Imports under constant market share 2/ (5)	Difference 3/ (6)	Estimated change in output 4/ (7)	Estimated change of industry output 5/ (8)
			Million dollars	Million dollars					
Farm and garden machinery.....	116	14,204	54.521	1/	6/	7/	1/	0.004	
Construction and mining machinery.....	194	27,369	0.104	1	1	6/	14	0.051	
Materials handling machinery and equipment.....	83	6,028	0.101	2	-3	3	-2	-0.029	
Metalworking machinery and equipment.....	317	23,711	0.869	6/	6/	6/	5	0.021	
Special industry machinery and equipment.....	168	14,118	1.843	6/	6/	6/	14	0.010	
General machinery and equipment.....	277	26,966	0.294	1/	6/	7/	10	0.052	
Miscellaneous machinery, except electrical.....	298	18,462	0.140	1	-1	2	-1	-0.002	
Office, computing, and accounting machines.....	507	42,045	0.229	6/	-7	8	-5	-0.029	
Service industries machines.....	181	18,035		6/			15	0.052	
Electric industrial equipment and apparatus.....	434	28,817							
Household appliances.....	153	16,262	33.599	1	1	6/	2	0.012	
Electric lighting and wiring equipment.....	204	18,151	6.573	6	5	1	8	0.045	
Radio, TV, and communication equipment.....	707	67,568	4.273	2	1	6/	2	0.003	
Electronic components and accessories.....	685	47,268	2.366	6/	6/	6/	2	0.003	
Misc. electrical machinery and supplies.....	167	14,397	0.165	6/	-1	1	1	0.004	
Motor vehicles and equipment.....	870	172,657	0.458	6	-7	13	-3	-0.002	
Aircraft and parts.....	639	71,858	0.078	6/	-3	3	-3	-0.004	
Other transportation equipment.....	348	31,414	11.802	6/	6/	6/	1	0.003	
Scientific and controlling instruments.....	417	24,425	0.259	6/	6/	6/	2	0.009	
Optical, ophthalmic, and photographic equipment.....	201	20,315	9.996	6/	6/	6/	1	0.007	
Miscellaneous manufacturing.....	431	26,576	0.497	35	-35	70	-35	-0.132	

1/ 1984 data. Output figures include the value of the industry's output plus the value of intermediate inputs.
 2/ Imports under constant market share is the quotient of actual imports (col. 4) and the market share ratio (col. 3).
 3/ The difference between actual imports (col. 4) and imports under constant market share (col. 5).
 4/ The estimated total change includes direct and indirect changes, and is calculated by multiplying the matrix of total requirements coefficients of the input-output table of the U.S. economy by the vector of differences in trade (col. 6).
 5/ The estimated change (col. 7) as a share of industry output (col. 2).
 6/ Absolute value less than \$500,000.
 7/ Not available.

Note.--Because of rounding, actual figures may not equal results shown.

Source: Employment and production statistics compiled from U.S. Bureau of Labor Statistics data, trade statistics compiled from official statistics of the U.S. Bureau of the Census.

THE REPUBLIC OF THE PHILIPPINES: A CASE STUDY

Historical Background

As announced by Philippine President Corazon Aquino in her address to the Joint Meeting of the U.S. Congress on September 18, 1986, one-half of Philippine annual export earnings (\$2 billion out of \$4 billion) went to pay just the interest of the Philippine external debt. The external debt amounted to \$26.3 billion at the end of 1985 and is a major economic problem for the country. In terms of commonly used indicators, the Philippines is one of the most heavily indebted countries in the world. It ranks seventh in size of the debt, sixth in debt-to-exports ratio, fourth in debt-to-gross-domestic-product (GDP) ratio, and ninth in debt-to-service ratio. ^{1/}

Overview of the Philippine economy

The Philippines has a typical island economy. The domestic market is limited and there is heavy reliance on the foreign sector. Agriculture is the predominant sector in the economy.

Geographically, the Philippines consists of about 7,100 islands, extending over 1,000 miles from north to south. Only about 700 of the islands are inhabited and only about 154 of them have an area larger than 5 square miles. ^{2/} The two largest islands, Luzon in the north and Mindanao in the south, comprise 65 percent of the total land area of the Philippine archipelago. Situated in a tropical zone, these islands have a year-round growing season. Most of the inhabited islands can supply their own agricultural needs, and agriculture has become the foundation of the economy.

The Philippines was first a colony of Spain (1596-1898) and then the United States (1898-1946) before it gained independence in 1946. As a colony, the Philippines was unable to develop a strong industrial sector. Instead, the colonial economy was devoted largely to production and export of precious metals and primary products. This colonial heritage left behind conditions that profoundly affected the course of Philippine development.

Capital is a primary need for economic development, especially in developing countries. In the early years of its independence, the Philippines depended mainly on the United States for restoring productive facilities and transportation systems that were damaged or destroyed during World War II. Through the Joint Philippine-American Finance Commission of 1947, the United States assisted the Philippines in formulating development plans and provided it with economic aid. As a result, high economic growth was achieved. The average annual growth rate of the Philippine gross national product (GNP) for

^{1/} Economic Recovery and Long-Run Growth: Agenda for Reforms, an unpublished policy study of the Philippine Institute for Development Studies, May 1, 1986, p. 38. The debt-to-service ratio refers to debt repayments as a percentage of foreign-currency earnings.

^{2/} Nena Vreeland, et al, Area Handbook for the Philippines, (Washington, DC, U.S. Government Printing Office, 1976), p. 9.

the period 1946-50 was 19.9 percent. 1/ The physical volume of goods and services produced in 1946 is estimated at about 85 percent of the 1938 production. 2/ With assistance from the United States and the United Nations Relief and Rehabilitation Administration, the Philippines was able to regain its prewar production level within a short time after the war. However, after farms and factories were restored to full capacity, the growth rate began to decline. It declined continuously from 8.1 percent during 1951-55 to 5.0 percent during 1956-60. 3/ The growth of the manufacturing sector declined from 12 percent annually during 1951-55 to 7.7 percent annually during 1956-60. 4/ Manufacturing growth in the early 1950's was encouraged by a policy of import substitution. The slowdown in the manufacturing sector resulted in a lower GNP growth rate during the last part of the 1950's. The GNP growth rate dropped to a record low of 1.4 percent in 1960, and the agricultural sector only grew at 1.0 percent.

After Diosdado Macapagal's inauguration in 1961, the Government adopted a number of new economic policies, including abandonment of import and exchange controls, in an attempt to stimulate the economy. The Government also tried to redirect the manufacturing sector away from its extreme import-substitution bias and toward exports. Partly as a result of these policies, economic growth rates improved slightly. The annual economic growth rate of the Philippines averaged 5.6 percent during 1961-65 and 6.0 percent during 1966-70. Real GNP per capita reached \$200 by 1970 compared with \$155 in 1960. 5/ The growth in output in the 1960's included an industrial expansion of about 5 percent yearly, a growth in agricultural exports, and a large increase in the service sector. However, the growth rate of manufacturing decreased from an average of 10 percent in the 1950's to 5 percent in the 1960's. The output of the mining and quarrying industry increased rapidly during the 1960's, from 4.0 percent during 1961-65 to 19.0 percent during 1966-70. The high growth rate of the industry in the late 1960's contributed significantly to the overall economic growth. Nevertheless, slowdowns in other industries and agriculture caused the GNP growth rate to decline from 5.2 percent in 1969 to 3.9 percent in 1970.

Beginning in 1970, the Government initiated a number of economic and social reforms designed to provide the institutional and policy environment to achieve economic and social goals. The reforms included an agrarian reform program, reorganization of Government, tax and tariff reforms, banking and financing reforms, relaxation of exchange control, and liberalization of

1/ National Economic Council, Statistical Reporter, January-March, 1969, pp. 12 and 13. As the Philippine Government has continuously adjusted its economic statistics, the GNP figures as well as GNP growth rates released in 1960's could differ from those released in the 1970's or in the 1980's. Throughout this section, the economic growth rate or the growth rate in general refers to the GNP growth rate unless otherwise stated.

2/ Government Printing Office, Report and Recommendations of the Joint Philippine-American Finance Commission, Washington, DC, 1947.

3/ Robert E. Baldwin, Foreign Trade Regimes and Economic Development: The Philippines, National Bureau of Economic Research, New York, 1975, p. 3.

4/ Ibid, p. 2.

5/ Nena Vreeland, et al., p. 257.

regulations on foreign investment. ^{1/} In September 1972, the Government declared martial law. A major focus during martial law was to strengthen the Government's development planning capabilities. To accomplish this, a single planning agency, the National Economic Development Authority (NEDA), was established. The agency was designed to link policymaking and planning to program and project implementation. The reforms implemented in 1972 resulted in an economic growth of 9.3 percent in 1973. The growth rate dropped sharply to 5.6 percent in 1974 because of the worldwide oil crisis. During 1971-80, the annual growth rate of the Philippine GNP averaged 6.4 percent. The lowest growth rate during the decade (5.0 percent) was recorded in 1980. As shown in table 36, the economy grew more rapidly in the 1970's than in the 1960's.

The Philippines entered the 1980's facing serious economic challenges. The disappointing economic performance of the early 1980's was accompanied by political disenchantment. The real GNP growth slowed from 3.4 percent in 1981 to 1.9 percent in 1982. Real wages peaked in 1981 and began declining in 1982. Different monetary and fiscal policies were applied to deal with the downward trend of the economy. At first, the Government adopted a tight monetary policy at the start of 1981, and shifted to a more relaxed one thereafter until 1983. Initially, the large budget deficits were interpreted as a countercyclical policy. Later on, the huge deficits both in the domestic budget and the current account of the balance of payments forced the Government to tighten spending. These policies failed to revive the economy.

The economic growth rate dropped to 1.3 percent in 1983, and then fell to a record low of -5.5 percent in 1984. It was the first time since the founding of the Republic that the country experienced a negative growth rate. The negative growth continued in 1985, though the magnitude was reduced to -4.0 percent. The annual growth rate in the second quarter of 1986 was -5.2 percent, and it is likely that the growth rate for the entire year was negative. Real wages continued to decline through 1985.

The large trade deficit and the huge repayment for external debt contributed to the negative growth since 1984, because the Philippines relies heavily on foreign trade and foreign capital for its economic growth. Since World War II, the trade and balance-of-payments developments have been important determinants of Philippine economic growth and foreign trade.

The Philippine foreign trade and commercial policies

Since 1950, the Philippine Government has adopted a variety of trade policies to cope with its balance-of-payments problems. The Philippine trade policies can be divided into the following three periods: import substitution in the 1950's and 1960's, export promotion in the 1970's, and trade liberalization in the 1980's.

The import substitution period, 1950-69.-- Like most developing countries, the Republic of the Philippines used import and exchange-rate controls to protect its domestic industries. In response to severe balance-of-payments problems, controls on imports and foreign exchange were

^{1/} For details on these reforms, see Nena Vreeland, et al., pp. 259-267.

Table 36.--Philippine nominal and real GNP, growth rates of real GNP, and exchange rates, 1950-86

Year	GNP		Real GNP growth rate	Exchange rate
	At current prices	At 1972 constant prices		
	-----Billion pesos-----		Percent	Pesos per dollar
1950.....	6.95	16.3	9.6	2.00
1951.....	-	17.9	10.1	2.00
1952.....	-	19.3	7.5	2.00
1953.....	-	20.6	7.0	2.00
1954.....	-	22.1	7.7	2.00
1955.....	9.40	23.5	6.4	2.00
1956.....	-	25.3	7.9	2.00
1957.....	-	26.9	5.3	2.00
1958.....	-	28.0	4.0	2.00
1959.....	-	29.7	6.2	2.00
1960.....	13.83	30.2	1.4	2.02
1961.....	-	32.2	6.9	2.02
1962.....	-	34.0	5.5	3.83
1963.....	-	36.4	6.9	3.91
1964.....	-	37.6	3.4	3.91
1965.....	23.38	39.5	5.0	3.90
1966.....	-	41.2	4.4	3.90
1967.....	-	43.2	4.8	3.90
1968.....	-	45.6	5.5	3.90
1969.....	-	47.9	5.2	3.90
1970.....	41.75	49.8	3.9	5.90
1971.....	49.60	53.0	6.5	6.43
1972.....	55.4	55.9	5.4	6.67
1973.....	73.2	61.2	9.3	6.76
1974.....	100.0	64.6	5.6	6.78
1975.....	114.4	68.4	6.0	7.25
1976.....	132.2	73.3	7.2	7.44
1977.....	153.2	78.0	6.3	7.40
1978.....	177.0	82.5	5.8	7.36
1979.....	218.0	88.2	6.9	7.38
1980.....	264.6	92.6	5.0	7.51
1981.....	303.6	95.7	3.4	7.90
1982.....	335.4	97.5	1.9	8.50
1983.....	379.5	98.8	1.3	11.10
1984.....	537.2	93.5	-5.5	16.70
1985.....	607.6	89.8	-4.0	18.61

Continued on following page.

Table 36.--Philippine nominal and real GNP, growth rates of real GNP, and exchange rates, 1950-86--Continued

Year	GNP		Real GNP growth rate	Exchange rate
	At current prices	At 1972 constant prices		
	-----Billion pesos-----		Percent	Pesos per dollar
1986:				
January-March.....	-	1/ 90.6	0.9	2/ 20.40
April-June.....	-	1/ 85.9	-5.2	-

1/ The 2 figures are projected annual values based on the real GNP growth rates reported by the Far Eastern Economic Review, Nov. 6, 1986, p. 78.

2/ As of October 1986.

Source: National Economic and Development Authority (NEDA), Statistical Yearbook of the Philippines (various editions) for 1950-82; and "The National Income Accounts of the Philippines, 1983-85" (December 1985) for 1983-85. The real GNP for 1950-71 was calculated by the staff of this investigation based on the growth rates of these years issued by the National Economic and Development Authority. Exchange rates are from the IMF, International Financial Statistics.

instituted during 1949-50. Together with an overvalued domestic currency (which retained the prewar rate of 2 pesos per U.S. dollar), the criterion of "essentiality" governing the system of trade controls created a strong bias toward the domestic production of substitutes for finished industrial consumer goods, imports of which were considered less essential, whereas imported raw materials, intermediate products, and capital goods were obtained at artificially low prices. 1/ The other policies implemented during this decade, such as the highly protective tariff reform, which generally raised tariffs, could not eliminate the trade deficit. The chronic trade deficits witnessed in the 1950's, particularly during the second half of the decade, were a reflection of the increasing import dependence of domestic industries and the inability to stimulate new exports. In the 1950's, agricultural commodities accounted for nearly 90 percent of the total Philippine export revenue.

Toward the end of the 1950's there was little room left for "nonessential" imports since producer goods already accounted for nearly 90 percent of the annual import bill. The worsening trade deficit prompted the Philippine authorities to gradually dismantle the control system and rationalize the foreign-exchange rate. Formal decontrol over exchange rates began in April 1960, when the Central Bank of the Philippines introduced multiple exchange rates. The Central Bank set the following two exchange

1/ Romeo M. Bautista, Trade Liberalization in the Philippines, Washington, DC, International Food Policy Research Institute, January 1985, p. 8.

rates: an official rate (later called the "preferred" rate), which equaled the existing rate of 2 pesos per dollar, and a market rate, which was initially set at 3.2 pesos per dollar. 1/ In January 1962, the Central Bank eliminated most exchange controls. In mid-1962, the peso was under a floating system managed by the Central Bank. The easing import and foreign-exchange controls and the currency devaluations in the early 1960's were the first steps toward trade liberalization. These policy reforms, however, did not substantially alter the incentive structure favoring import-substituting consumer-goods industries. 2/

In the mid-1960's, newly elected President Ferdinand Marcos adopted expansionary monetary and fiscal policies. The new administration also launched a large-scale development program stressing rural area development. The program raised import demand, especially for capital goods and raw materials. To finance the program, the administration took a number of actions, including providing easier credit conditions, encouraging traditional exports, 3/ reducing food imports, and increasing borrowing. As a result, both internal and external debts rose substantially. The internal debt increased from 3.1 billion pesos (\$795 million) at the end of 1965, or 14.7 percent of the GNP, to 5.8 billion pesos (\$1.5 billion) by the end of 1969, or 18.4 percent of the GNP; the external debt rose from \$491 million to \$828 million during the same period. 4/ It was the first time the Philippines borrowed heavily from foreign countries. By the end of 1969, the amount of external debt far exceeded total foreign reserves (\$121 million) of the Philippine Government.

The import substitution policies implemented during the 1950's and 1960's did not work as successfully as expected. The huge trade deficit accumulated from 1967 to 1969 sparked a foreign exchange crisis in late 1969 and caused the administration to seriously reconsider its import substitution policies.

The export promotion period, 1970-79.--To deal with the foreign exchange crisis, the Government relaxed some of the exchange controls in effect since 1967 and in February 1970 permitted the Philippine peso to float in foreign exchange markets. By the end of that year, the exchange rate rose to 6.4 pesos per dollar, representing an effective devaluation of 61.4 percent during the year. The peso devaluation was followed by the enactment of the Export Incentive Act of 1970, through which the Government offered a number of incentives for nontraditional exports. 5/ The incentives included subsidies

1/ Baldwin, op. cit., p. 50.

2/ Bautista, op. cit., p. 9.

3/ According to the Philippine National Census and Statistics Office (NCSO), traditional exports consist of two parts--traditional primary and traditional manufactured. The traditional primary exports includes logs, copra, tobacco, abaca (unmanufactured), fresh fruit and vegetables (excluding bananas); the traditional manufactured exports includes sugar, coconut and food products, wood products (except furniture), and mineral products (excluding nickel).

4/ Baldwin, op. cit., p. 67.

5/ Nontraditional exports consist of the following two groups: nontraditional primary and nontraditional manufactured. The nontraditional primary includes bananas, nickel, fish, coffee, oilseeds; and the nontraditional manufactured includes garments, electronic equipment, furniture, chemicals, cement, travel goods, and handbags.

through tax exemptions or credits, and encouraging foreign investment in the nontraditional export industries. The new legislation signaled a policy shift towards a more outward-looking strategy of industrialization, away from the heavy import-substitution drive of the previous two decades. In addition, in August 1971, the Central Bank imposed a 15-percent reserve requirement for a letter of credit to import. The reserve requirement was raised to 50 percent in November 1971.

Initially, the commercial policies implemented in the early 1970's seemed to be working. Imports decreased from \$1,132 million in 1969 to \$1,090 million in 1970 and then increased moderately to \$1,186 million in 1971. The trade deficit declined from \$277 million in 1969 to \$28 million in 1970 and then increased to \$50 million in 1971 (table 37). During 1973-75, the Government implemented a set of new policies, including creation of the first Export Processing Zone, further improvements to incentives for nontraditional exports, and revisions of the tariff structure. The export promotion policies produced some instant results. The volume of Philippine exports increased rapidly during the oil crisis in 1973-74. Exports rose from \$1,106 million in 1972 to \$1,886 million in 1973 and to \$2,725 million in 1974. The remarkable export performance in 1973 created a record high surplus in the Philippines' balance of trade. However, imports increased rapidly, from \$1,597 million in 1973 to \$3,143 million in 1974 and to \$3,459 million in 1975. Consequently, the trade balance worsened.

During the second half of the 1970's, no significant changes in trade policy were made. A minor tariff reform was implemented in 1978 and some marginal measures to strengthen nontraditional exports were adopted in 1979. The trade deficit continued to grow and reached the highest level in the decade (\$1,601 million) in 1976. By 1979, exports reached \$4,601 million and imports amounted to \$6,142 million.

The changing trade policy from import substitution to export promotion affected the composition of Philippine exports. In 1960, for instance, traditional goods (mainly agricultural commodities) accounted for 97.7 percent of total exports. ^{1/} By 1978, the share of traditional goods dropped to 60.5 percent. The share of nontraditional goods increased from 2.3 percent to 39.5 percent during the 18-year period. The newly established electronics and garment industries contributed substantially to the export share increase.

By the end of the 1970's, the administration realized that inappropriate trade and industrial, financial, and exchange rate policies provided high protection for domestic manufactures, which had a negative effect not only on manufacturing but also on agricultural production and exports. ^{2/} The inappropriate policies were one important factor that caused deficits in the

^{1/} The Philippines: Industrial and Development Strategy and Policies, a World Bank country study, 2nd ed., Washington, DC, 1983, Statistical app., table 1.13, p. 20.

^{2/} I. Guerrero, Philippine Trade Liberalization Policy Management, and Microeconomic Adjustment, a research paper of the Philippines Division of the World Bank, Washington, DC, January 1986, p. 2.

Table 37.--The Philippines: Summary balance of payments, 1950-86

Year	Merchandise (FOB)		Trade balance	Services (net)	Current account balance	Capital account	Use of re- serves 1/
	Exports	Imports					
-----Million dollars-----							
1950....	331	342	-11	-	-	-	-
1951....	427	489	-62	-	-	-	51
1952....	346	421	-75	-	-	-	8
1953....	398	452	-54	-	-	-	-4
1954....	401	479	-78	-	-	-	33
1955....	401	548	-147	-	-	-	56
1956....	453	506	-53	-	-	-	-6
1957....	431	613	-182	-	-	-	90
1958....	493	559	-66	-	-	-	-
1959....	530	524	6	-	-	-	-21
1960....	560	604	-44	-	-	-	-2
1961....	500	611	-111	-	-	-	-33
1962....	556	587	-31	-	-	-	73
1963....	727	618	109	-	-	-	-21
1964....	742	780	-38	-	-	-	-34
1965....	769	808	-39	-	-	-	-14
1966....	828	853	-25	-	-	-	-1
1967....	822	1,062	-240	-	-	-	14
1968....	857	1,150	-293	-	-	-	19
1969....	855	1,132	-277	-	-	-	40
1970....	1,062	1,090	-28	-	-	-	-130
1971....	1,136	1,186	-50	-55	-	-	-125
1972....	1,106	1,230	-124	0	9	155	-175
1973....	1,886	1,597	289	1,038	535	71	487
1974....	2,725	3,143	-418	-34	-176	252	-466
1975....	2,295	3,459	-1,164	-45	-892	552	144
1976....	2,573	3,634	-1,061	-259	-1,050	852	-282
1977....	3,151	3,915	-764	-248	-752	706	118
1978....	3,425	4,732	-1,307	-107	-1,102	901	-357
1979....	4,601	6,142	-1,541	-311	-1,496	676	-535
1980....	5,788	7,727	-1,939	-399	-1,904	54	-724
1981....	5,720	7,946	-2,226	-309	-2,061	1,479	566
1982....	5,021	7,667	-2,646	-1,040	-3,200	673	863
1983....	5,005	7,487	-2,482	-740	-2,750	886	847
1984....	5,391	6,070	-679	-1,241	-1,497	1,044	-226
1985....	4,583	5,019	-436	26	-77	1,047	-26
1986. 2/	3,560	3,630	-70	NA	NA	NA	NA

1/ The (-) denotes increase in reserves.

2/ The 1986 trade figures cover only January to September.

Source: Reserves and the 1985 exports and imports are from the International Financial Statistics (IMF); trade figures for 1950-1984 from the Philippine Statistical Yearbook 1985; the 1986 (January-September) trade figures from the Hong Kong Economic Journal (Daily), Nov. 13, 1986, p. 7.

current account as well as in the trade balance. The persistent trade deficit pressed the administration to shift from its longstanding protective policy toward a more liberal trade policy.

The trade liberalization period (1980-85).--The Philippine Trade Liberalization Program was scheduled to be implemented during 1980-85. The program aimed at reducing tariffs, revising tax systems, eliminating import quotas, expanding export incentives, and relaxing foreign-exchange control.

A major part of the trade liberalization program was tariff reductions. The average tariff rate was scheduled to decline from 43 percent in 1980 to 28 percent by 1985, representing a 35-percent reduction in overall tariffs. To complement the tariff reduction scheme, import licensing and other quantitative restrictions were also to be gradually relaxed. From the original list of 1,304 import items banned or requiring "prior approval" by the Central Bank and other Government agencies, 264 items were removed in 1981. Another 610 were taken off the list in early 1982, and the plan was to abolish the whole list by end of 1985. 1/

The liberalization program was not completely executed as scheduled, even though it started on time. The program started in early 1980 when a more flexible exchange-rate policy was introduced. Government intervention was reduced to a minimum, and the peso was allowed to float freely in the international monetary market. The first stage of tariff reform was implemented in January 1981, by attempting to reduce peak tariffs to the 70 percent level. The removal of licensing requirements for 264 import items also started in the same year. The second stage of tariff reform began in January 1982 and was aimed at reducing the peak tariffs to the 50 percent level. The relaxation of licensing requirements also continued in early 1982 when 610 other items were taken off the restricted import list. The liberalization program seemed to be going smoothly. However, the Government subsequently took a contradictory policy and reimposed import controls on many of the 610 items that were just released from the import control list. In addition, the Government imposed a surcharge of 3 percent on all import transactions in December 1982. However, there was no policy change towards exports. The new investment code designed to increase export incentives was enacted in April 1983 as planned.

The Government abandoned its liberalization program and continued its protective policy during 1983 and 1984. The import surcharge rose to 5 percent in April 1983, to 8 percent in March 1984, and to 10 percent in June 1984. An additional 10 percent excise tax on foreign exchange sales and an export stabilization tax were introduced in mid-1984. During the first half of the 1980's, the peso was repeatedly devalued. The exchange rate declined from 7.4 pesos per dollar in early 1980, to around 9.0 at yearend 1982, to 11 in June 1983, and to 18 in June 1984. The devaluations worsened the Philippine terms of trade substantially.

1/ Bautista, op. cit., p. 23.

The huge trade deficit of \$2,226 million in 1981 was one of the factors that pressed the Government to change its liberal trade policy in 1982. The trade deficit increased to \$2,646 million in 1982 and caused the Government to take more restrictive measures in 1983. According to a World Bank study, about one-half of the deterioration in the current account between 1980 and 1983 can be explained by terms of trade losses. ^{1/} Some international shocks, such as the international recession during 1981-83 and the declining prices of world sugar and coconut products further deteriorated the terms of trade.

The restrictive policies that took place during 1982-83 affected the inflow of goods. Imports dropped to \$6,070 million in 1984 and further declined to \$5,019 million in 1985. Meanwhile, the restrictive trade policies together with other contractive fiscal policies and an unstable political environment slowed investments and economic development projects. The burden of foreign-debt repayment further cut down Government spending. The GNP growth rate was negative in both 1984 and 1985 and in the first half of 1986 (table 36).

One liberal trade action that merits mention is the abolition of export taxes. For the past two decades, the Government imposed export taxes on 10 traditional export products (all of which were agricultural commodities) with rates ranging from 2 to 20 percent. In July 1986, the Government eliminated these taxes. The taxes were originally imposed in order to encourage domestic processing of manufactured exports and to generate revenue. The elimination of the taxes helped increase the competitiveness of Philippine products in world markets.

The Philippine external debt problems

As of December 31, 1985, the Philippine total external debt amounted to \$26.3 billion. Like that of other developing countries, the Philippine debt has accumulated over a period of time. Prior to 1969, the Philippine external debt was small. Following the balance-of-payments crisis of 1968-69, the external debt grew at fairly modest rates during 1970-74. The pace of growth of total debt quickened after the first oil crisis of 1973-74. By 1982, foreign borrowing reached a record 8.5 percent of the GNP, and the Government

^{1/} I. Guerraro, op. cit., p. 8.

deficit was an unprecedented 4.3 percent of the GNP. ^{1/} The public sector's share in total external debt rose from 40 percent in 1971 to 56 percent by 1982. As of December 31, 1985, the share was 80 percent. The persistent trade deficits contributed substantially to the huge external debt.

External debt, trade deficits, and industrialization.--A considerable amount of the debt was used to finance Philippine trade deficits. In most years since 1950, the Philippine trade balance, as well as its current account, has been in deficit. The comprehensive system of import and foreign exchange controls during the 1950's apparently did not prevent these deficits. In the three years preceding the 1970 peso devaluation, there was a resurgence of large deficits, averaging \$270 million or close to one-third of the country's total export earnings. Financing of the trade deficits in the 1950's and 1960's was mostly done through reserve drawdowns, leading to a drastic reduction in the level of international reserves toward the end of each of these decades. Total foreign reserves dropped from \$299 million in 1950 to \$121 million in 1969. In addition, a portion of the trade deficit was financed by foreign borrowing.

By 1970, the Philippine external debt amounted to \$2,087 million and total foreign reserves amounted to only \$251 million. In the early 1970's, export performance was not too bad and only relatively small deficits appeared in the trade balance. In 1973, a \$289-million trade surplus was reported. However, after 1973, the trade deficit increased rapidly and reached \$1,939 million in 1980. Most of the trade deficits in the 1970's were financed by foreign loans that accumulated to \$12.23 billion in 1980. A portion of foreign loans acquired during the decade were used for export-oriented industrialization.

In the early 1980's, the debt situation deteriorated further. After 1980, the trade and current account deficits could no longer be financed from foreign loans, necessitating a significant drawing down of Central Bank reserves. This occurred in part because it became increasingly difficult to obtain long-term foreign loans. However, short-term capital inflows continued to increase and pushed up the external debt to \$17.0 billion in 1982.

The external debt problem worsened in 1983. Owing to the political instability since August 1983, most foreign banks have discontinued their lending service. To compound the problem, there was a large capital flight following the Aquino assassination--an estimated \$200 million. ^{2/} The \$2.8 billion current account deficit incurred in 1983 had to be financed substantially from international reserves, which slumped to a level equivalent to less than a single month's imports by mid-October. This represented a foreign-exchange crisis.

Under pressure from the low level of foreign reserves, the Philippine Government terminated its trade liberalization program and resumed foreign exchange and import controls. In addition, the Central Bank required all commercial banks to turn in their foreign exchange receipts so that essential imports could be purchased and other payments could be made. The total

^{1/} Bautista, op. cit., p. 31.

^{2/} Bautista, op. cit., p. 32.

external debt amounted to \$24.1 billion in 1983 and increased to \$25.4 billion in 1984 (table 38). The current account deficit declined to \$77 million in 1985 and the total external debt increased slightly to \$26.3 billion in the same year. Of the total debt, \$17.7 billion, or 67 percent, was composed of medium- and long-term loans.

Structure of external debts.--The severity of the burden of external debt depends mainly on the types of creditors and the maturity structure of the debt. International loans are usually divided into three maturity categories--short, medium, and long term. 1/ The Philippine external debt consists mainly of medium- and long-term loans. However, the share of short-term loans in the total debt increased over time, from 14.8 percent in 1970 to 32.7 percent in 1985 as continuous trade deficits increased demand for these loans.

Philippine loans were mainly provided by foreign commercial banks. For instance, by yearend 1985, 55 percent of the \$26.3 billion foreign debt was borrowed from commercial banks. International organizations, such as the World Bank and IMF, were the second largest creditors, accounting for 17.1 percent of the total debt. Loans provided directly by export credit agencies accounted only for 3 percent of the total debt.

The Philippine external debt is owed mainly by the public sector, 2/ which held 69.6 percent of the total debt by yearend 1985. The Central Bank of the Philippines alone accounted for 22.6 percent of the total debts. During the past decade, the share of the public sector increased rapidly. Publicly owed debt was only 43.8 percent in 1974, increasing to 64.7 percent in 1984. The high share of the publicly owed debt increases risk to lenders from political instability.

Debt service payments.--The Philippine debt problem has grown more serious during the past several years and is now a substantial burden to the Philippine Government. The large buildup of external debt in the early 1980's and the relatively high level of world interest rates during that period caused a substantial increase in debt-service payments, from \$1.26 billion in 1979 to \$3.47 billion in 1982. Debt service payments decreased to \$2.49 billion in 1985. Most of the debt service payments made during the 1980's were for interest rather than principal.

1/ Loans that have the maturity up to 1 year are short term; between 1 and 5 years, medium term; more than 5 years, long term. In practice, most international financial institutions group their loans into two categories--medium and long term, and short term.

2/ The public sector refers to the Republic of Philippines, Government corporations, and Government financial institutions. The private sector refers to all private financial institutions and nonfinancial organizations. Loans made by outfits of the private sector and guaranteed by the Government are included in the private sector.

Table 38.--The Philippine total external debt,
for specified periods, 1976-85

(In millions of U.S. dollars)				
Item	Dec. 31, 1976	Sept. 20, 1983	Dec. 31, 1984	Dec. 31, 1985
By type of debt.....	6,768	24,095	25,418	26,252
Medium and long-term..	3,932	15,085	15,926	17,679
IMF.....	450	1,013	973	1,252
Others.....	3,482	14,072	14,953	16,447
Short term.....	2,363	9,015	9,492	8,573
Trade.....	-	-	5,274	4,854
Nontrade.....	-	-	4,218	3,719
By borrower.....	<u>1/</u> 3,932	24,095	25,418	26,252
Nonbanking system.....	2,120	16,077	17,188	17,376
Public.....	-	11,606	12,341	12,358
Private.....	-	4,474	4,847	5,018
Banking system.....	1,812	8,018	8,230	8,876
Central Bank.....	350	3,962	4,113	5,923
Commercial Banks....	1,462	4,056	4,117	2,953
By creditor.....	<u>1/</u> 3,932	24,095	25,418	26,252
Commercial banks....	1,082	14,472	14,721	14,474
Other financial institutions.....	566	1,013	1,089	795
Suppliers.....	-	2,682	3,103	3,264
Multilateral.....	410	3,795	4,090	4,486
Bilateral.....		2,058	2,276	2,860
Export credit agencies.....	1,249	567	656	786
Others.....		1,491	1,620	2,074
Others.....	-	139	139	373

1/ This figure included MLT loans only. The disaggregated data were provided by Julieta L. Legaspi, Acting Director of NEDA, on Aug. 10, 1986.

Source: Central Bank of the Philippines.

The seriousness of the Philippine debt problem and the burden of debt-service payments is suggested by several indicators. The Philippine external debt increased from 49.4 percent of the GNP in 1980 to 82.3 percent in 1985 (table 39). In 1985, the debt equaled 570 percent of the value of exports and debt service payments equaled 46.3 percent of the value of exports. Interest payments alone accounted for 41.0 percent of exports earnings in 1985. With a negative economic growth rate, the Philippine Government has difficulty making these payments.

Table 39.--The Philippines: Debt indicators, 1978-85

Year	Debt/ GNP	Debt/ Exports 1/	Debt Service/ Exports	Gross debt
1980.....	49.4	NA	NA	12.2
1981.....	54.0	NA	NA	NA
1982.....	61.5	480	69.1	17.0
1983.....	70.0	480	60.2	24.1
1984.....	77.5	470	51.4	25.4
1985.....	82.3	570	46.3	26.3

1/ Exports refer to total goods and services.

Source: World Bank, World Debt Tables, 1986, and from data issued by the Central Bank of the Philippines.

Recent negotiations on debt problems.--Default by the Philippines appears to be unlikely, and President Aquino has repeatedly stated that her Government would honor foreign debt. Since March 1986, Government has taken a number of actions to ease and stabilize the external debt problem.

As indicated previously, the Philippine debt has three features that lead to concern.

1. Interest payments are large relative to exports of goods and services. In 1985, for example, interest payments alone used up nearly 27 percent of total current receipts and over 40 percent of exports earnings.

2. A large part (69.6 percent in 1985) of the external debt is public debt incurred by the Government or Central Bank.

3. Short-term debt (\$3.7 billion in 1985, excluding trade facilities) and amortizations on medium- and long-term debt (\$0.7 billion in 1986 and \$1.8 billion in 1987 and 1988) are large relative to expected current receipts. 1/

Because of feature (3) the Philippines, unlike other countries in the region, has undertaken several reschedulings, covering \$6.3 billion owed to commercial banks. These include payments postponed since the moratorium of October 1983 and debt amortizations through the end of 1986. The rescheduled debt has a 10-year overall maturity and a 5-year grace period with an interest rate equal to LIBOR plus 1.625 percent. 2/

1/ Economic Recovery and Long-Run Growth: Agenda for Reforms, vol. I, Main Report, prepared by The Philippine Institute for Development Studies (PIDS), Manila, May 1986, p. 39.

2/ "LIBOR" stands for the London Interbank Offer Rate. The rate is relatively high for development loans in international monetary markets. For instance, LIBOR was 9.3 percent in 1978, and 16 percent in 1981.

The reschedulings, however, would provide debt relief only until the end of 1986. Because the reschedulings so far do not cover amortizations due after 1986, the interest on the rescheduled debt will result in larger debt service after 1986. ^{1/} Moreover, amortizations will increase when the 5-year grace period ends in 1989. It is clear that there will be a need for more debt reschedulings in the future. Current receipts cannot cover both interest payments and imports of goods and nonfinancial services. The recent economic aid of \$200 million passed by the U.S. Congress on September 18, 1986, will ease the debt problem, but not by much.

It has been difficult for the Philippines to repay its \$26.3 billion outstanding debt. The interest payment alone requires nearly one-half of export earnings. The debt-service burden is severe and depends mainly on (1) the extent to which foreign lenders offer concessions to the Philippines to make repayment terms easier, (2) the behavior of interest rates in international financial markets, and (3) the level of political stability that foreign creditors and investors would require to make loans and investments, and the rate of interest they charge, if they decided to lend. Since its establishment in February 1986, the Aquino government has tried to negotiate with its creditors for reschedulings of outstanding debts and for securing new loans.

On October 24, the IMF board approved, after negotiations, a new 18-month standby credit to the Philippine Government. This package offers 422 million special drawing rights (SDR's), which include a compensatory financing facility of 224 million SDR's. ^{2/}

On October 27, 1986, the Philippine delegation started negotiations in New York with foreign creditor banks on the rescheduling of about \$3.6 billion in loans maturing from 1987 to 1991. ^{3/} Although no agreement was reached between the borrower and lenders, the two sides clarified their positions during the negotiations. On November 16, 1986, Philippine Minister Onping indicated that the Philippines would have to stop repaying the \$3.6 billion debt to the foreign commercial banks if no agreement with the creditor banks could be reached by the end of 1986. According to Minister Onping, the Philippine Government tried to obtain a 20-year rescheduling agreement with treatment similar to that granted to Mexico. This suggests that the Philippine Government is willing to pay the interest to the creditor banks at the rate paid to Euro-dollars plus 0.8 percent. ^{4/} It was the first time that the Philippine Government used the threat of default to press the creditor banks back to the negotiation table.

^{1/} Economic Recovery and Long-Run Growth: Agenda for Reforms, op. cit., May 1986, p. 41.

^{2/} James Clad, "To the Aid of the Party," Far Eastern Economic Review, Nov. 6, 1986, p. 78. At the prevailing rate, the value of 422 million SDR's was \$506.8 million.

^{3/} Journal of Commerce (Daily), New York, p. 1.

^{4/} Hong Kong Economic Journal (Daily), Nov. 16, 1986, p. 8.

On November 10, 1986, Japan agreed to provide the Philippine Government with a special loan of 40 billion yen for economic development. ^{1/} The new loan will increase the total of Japanese loans to the Philippines in 1986 to 100 billion yen (or \$630 million according to the July 1986 exchange rate). The Aquino government previously requested a \$11 billion loan from Japan.

The burden of foreign debt has affected Government spending and policymaking. By the end of October 1986, the annual budget deficit already reached 28 billion pesos, or \$1.4 billion. ^{2/} The trade balance was also in deficit in 1986. Even though the Government has promised to implement tax changes and to continue removing tariffs on imports, the huge deficits in both the domestic budget and foreign trade would put pressure on the Government to spend less and to import less. The expected contractive policies will probably cause the Philippines' foreign trade to contract, including bilateral trade between the United States and the Philippines.

Recent Changes in U.S.-Philippine Trade and Effects on U.S. Industry

Payments by the Philippines on their external debt services have adversely affected domestic public spending and private investment. They have also impeded Philippine economic growth and contracted the volume of its exports and imports.

Trade between the United States and the Philippines is quite important for the Philippines. For the past decade, the United States has been the largest trading partner of the Philippines. However, the Philippines has never appeared on the list of the 10 largest U.S. trading partners. In 1985, for instance, Philippine exports to the United States amounted to \$1.65 billion, accounting for 35.7 percent of the Philippine's total exports; Philippine imports, valued at \$1.28 billion, accounted for 25.1 percent of the Philippine's total imports. Viewed from the other side, U.S. imports from the Philippines for that year amounted to only about 0.5 percent of the total imports, and exports to the Philippines accounted for only 0.6 percent of total U.S. exports.

Effects on U.S. industry

The market share methodology was used to determine which U.S. industries have been most affected by the changes in trade that took place as a result of the Philippine adjustment to its foreign exchange and external debt service crisis in 1983. The results are shown in tables 40-42.

Net trade effects.--Table 40 shows estimated changes in net exports to the Philippines resulting from debt-related austerity. It was found that 34 of the 61 industries studied had negative effects on net exports (col. 5). The negative effects were less than \$5 million for 14 industries, and \$1 million or less for 6 industries. The three industries that experienced the largest adverse effects on exports were aircraft and parts (\$163 million), chemical and selected chemical products (\$65 million), and motor vehicles and

^{1/} Ibid., Nov. 11, 1986, p. 7.

^{2/} James Clad, op. cit., p. 78

Table 40. --The estimated effects of Philippine debt-related austerity on U. S. net exports to The Philippines and U. S. output in 61 nonservice industry sectors

Industry sector	U. S. employ- ment 1/ (1)	U. S. industry output 1/ (2)	U. S. industry net exports (3)	Actual 1985 net exports under constant market share 2/ (4)	Differ- ence 3/ (5)	Esti- mated change in out- put 4/ (6)	Esti- mated change as share of industry output 5/ (7)
Livestock and livestock products.....	944	87,147	1	2	-1	76	0.087
Other agricultural products.....	2,014	110,356	129	98	32	84	0.076
Forestry and fishery products.....	80	8,982	-9	-6	-3	15	0.168
Iron and ferroalloy ores mining.....	15	3,102	-3	Z/	Z/	5	0.170
Nonferrous metal ores mining.....	44	3,436	6/	-18	18	17	0.503
Coal mining.....	203	30,682	3	Z/	Z/	1	0.003
Crude petroleum and natural gas.....	280	126,466	-6	6/	-6	-16	-0.012
Stone and clay mining and quarrying.....	94	7,844	2	3	-1	-1	-0.014
Chemical and fertilizer mineral mining.....	21	3,971	8	Z/	Z/	2	0.055
Ordinance and accessories.....	205	22,852	-2	7	-8	-9	-0.039
Food and kindred products.....	1,659	317,706	-521	-768	247	323	0.102
Tobacco manufactures.....	67	22,795	6/	2	-2	-2	-0.010
Broad and narrow fabrics, yarn and thread mills.	438	40,867	6	1	5	33	0.080
Miscellaneous textile goods and floor coverings.	1,117	12,057	-10	-19	9	16	0.136
Apparel.....	1,242	53,588	-390	-415	25	33	0.061
Miscellaneous fabricated textile products.....	1,190	9,936	-3	-3	6/	-1	-0.012
Lumber and wood products, except containers.....	687	57,277	-104	-201	97	155	0.271
Wood containers.....	19	655	-1	6/	6/	6/	0.023
Household furniture.....	288	17,384	-89	-172	83	83	0.477
Other furniture and fixtures.....	215	14,507	6/	Z/	Z/	-1	-0.005
Paper and allied products, except containers.....	487	81,352	35	39	-4	3	0.003
Paperboard containers and boxes.....	196	22,403	6/	Z/	Z/	9	0.038
Printing and publishing.....	1,452	107,316	4	8	-4	-3	-0.003
Chemicals and selected chemical products.....	1,475	80,929	44	108	-65	-71	-0.087
Plastics and synthetic materials.....	175	36,710	40	72	-32	-21	-0.056
Drugs, cleaning and toilet preparations.....	349	55,436	1	23	-22	-22	-0.040
Paints and allied products.....	62	9,567	2	2	6/	1	0.008
Petroleum refining and related industries.....	188	179,980	10	21	-11	-4	-0.002
Rubber and miscellaneous plastic products.....	802	67,421	1	-8	9	18	0.027
Leather tanning and finishing.....	18	1,842	6	13	-7	12	0.649
Footwear and other leather products.....	187	7,710	-74	-170	96	100	1.297
Glass and glass products.....	170	12,824	1	3	-2	3	0.026
Stone and clay products.....	456	41,607	1	-1	2	3	0.006
Primary iron and steel manufacturing.....	555	85,014	-9	-52	43	9	0.010
Primary nonferrous metals manufacturing.....	360	54,030	1	4	-3	-29	-0.053
Metal containers.....	61	11,422	6/	1	-1	8	0.074
Heating, plumbing, and structural metal products	530	37,391	4	10	-6	-8	-0.020
Screw machine products and stampings.....	315	28,326	6/	1	-1	-9	-0.032
Other fabricated metal products.....	486	41,832	4	16	-11	-7	-0.017
Engines and turbines.....	114	13,268	7	Z/	Z/	-39	-0.294

equipment (\$65 million). Among the 27 industries with positive effects on exports, 9 had gains less than \$1 million. The three industries with the greatest positive effects were food and kindred products (\$247 million), lumber and wood products (\$97 million), and footwear and other leather products (\$96 million).

These estimated losses and gains in net exports can be converted by use of the input-output table into total estimated effects on U.S. production (col. 6). According to this analysis, the changes in net exports to the Philippines caused by the debt crises resulted in lost potential production in 32 industries and potential gains in 29 industries. Eight industries had losses less than \$5 million. The three industries with the heaviest losses were aircraft and parts (\$198 million), motor vehicles and equipment (\$90 million), and chemicals and selected chemical products (\$71 million). These total negative production effects were compared with total U.S. domestic production (col. 7). None of these 32 industries had a loss of more than 0.3 percent of that production. The three industries that had the largest share losses were engines and turbines (0.3 percent), aircraft and parts (0.3 percent), and construction and mining machinery (0.2 percent). Among the 29 industries that had positive effects on production, the three with the largest gains were food and kindred products (\$323 million), lumber and wood products (155 million), and footwear and other leather products (\$100 million). The three industries that gained the largest shares in production were footwear and other leather products (1.3 percent), leather tanning and finishing (0.6 percent), and nonferrous metal ores mining (0.5 percent). Thus, the effects on U.S. production were relatively small, particularly compared with net trade effects resulting from the foreign debts of Mexico and Brazil.

Effects on U.S. exports to the Philippines.--Table 41 shows estimated changes in U.S. exports resulting from debt-related austerity. Of the 61 industries studied, 44 could have exported more had the Philippines not taken the debt-related austerity (col. 6). Among the losing industries, 15 lost less than \$5 million in exports. The three industries with the heaviest export losses were aircraft and parts (\$163 million), motor vehicles and equipment (\$66 million), and chemicals and selected chemical products (\$57 million). Seventeen of the sixty-one industries examined increased their exports to the Philippines. The three industries that had the largest export gains were electronic components and accessories (\$58 million), other agricultural products (\$44 million), and food and kindred products (\$22 million). Nine of the other export gains were less than \$5 million.

After converting these estimated changes in exports into changes in total demand, it was found that 50 of the 61 industries experienced negative effects. Of these 50 industries, 14 of them lost less than \$5 million (col. 7). The three industries with the largest total losses were aircraft and parts (\$197 million), chemical and selected chemical products (\$99 million), and motor vehicle and equipment (\$94 million). Among the 11 gaining industries, six had estimated total increases in demand exceeding \$5 million. The three industries with the largest increases were electronic components and accessories (\$56 million), other agricultural products (\$44 million), and food and kindred products (\$22 million). These losses and gains were small relative to total U.S. production in these industries. Of the 50 industries showing a negative effect on industry production, only the following 3 were

Table 41. --The estimated effects of Philippine debt-related austerity on U.S. exports to The Philippines and U.S. output in 61 nonservice industry sectors--Continued

Industry sector	U.S. employment 1/ (1)	U.S. industry output 1/ (2)	Ratio of		Actual exports 1985 (4)	Exports under constant market share 2/ (5)	Difference 3/ (6)	Estimated change in output 4/ (7)	Estimated change as share of industry output 5/ (8)
			U.S. industry output 1/ (2)	market share to average market share (3)					
Farm and garden machinery.....	116	14,204	0.060	6/	13	6	-6	-0.041	
Construction and mining machinery.....	194	27,369	0.234	4	4	56	-48	-0.175	
Materials handling machinery and equipment.....	83	6,028	0.432	35	35	9	-5	-0.088	
Metalworking machinery and equipment.....	317	23,711	1.447	38	38	24	5	0.022	
Special industry machinery and equipment.....	168	14,118	1.497	14	14	25	12	0.083	
General machinery and equipment.....	277	26,966	0.381	22	22	38	-34	-0.127	
Miscellaneous machinery, except electrical.....	298	18,462	0.730	24	24	30	-17	-0.090	
Office, computing, and accounting machines.....	507	42,045	0.840	34	34	40	-8	-0.019	
Service industries machines.....	181	18,035	0.316	5	5	16	-13	-0.072	
Electric industrial equipment and apparatus.....	434	28,817	0.465	16	16	35	-27	-0.093	
Household appliances.....	153	16,262	0.478	5	5	10	-6	-0.034	
Electric lighting and wiring equipment.....	204	18,151	0.360	4	4	10	-8	-0.043	
Radio, TV, and communication equipment.....	707	67,568	0.978	45	45	46	-13	-0.019	
Electronic components and accessories.....	685	47,268	1.155	429	429	372	56	0.118	
Misc. electrical machinery and supplies.....	167	14,397	0.748	20	20	26	-10	-0.067	
Motor vehicles and equipment.....	870	172,657	0.119	9	9	75	-66	-0.054	
Aircraft and parts.....	639	71,858	0.129	24	24	187	-197	-0.275	
Other transportation equipment.....	348	31,414	0.111	1	1	13	-12	-0.039	
Scientific and controlling instruments.....	417	24,425	0.613	32	32	52	-24	-0.097	
Optical, ophthalmic, and photographic equipment.....	201	20,315	0.247	3	3	10	-10	-0.047	
Miscellaneous manufacturing.....	431	26,576	0.619	21	21	34	-14	-0.054	

1/ 1984 data. Output figures include the value of the industry's output plus the value of intermediate inputs.
 2/ Exports under constant market share is the quotient of actual exports (col. 4) and the market share ratio (col. 3).
 3/ The difference between actual exports (col. 4) and exports under constant market share (col. 5).
 4/ The estimated total change includes direct and indirect changes, and is calculated by multiplying the matrix of total requirements coefficients of the input-output table of the U.S. economy by the vector of differences in trade (col. 6).
 5/ The estimated change (col. 7) as a share of industry output (col. 2).
 6/ Absolute value less than \$500,000.
 7/ Not available.

Note. --Because of rounding, actual figures may not equal results shown.

Source: Employment and production statistics compiled from U.S. Bureau of Labor Statistics data, trade statistics compiled from official statistics of the U.S. Bureau of the Census.

greater than 0.2 percent: leather tanning and finishing (0.4 percent), engines and turbines (0.3 percent), and aircraft and parts (0.3 percent). None of these 50 industries had negative effects of more than 0.4 percent of their production. Of the 10 industries with positive production effects, the greatest effect relative to domestic output was in electronic components and accessories (0.1 percent).

Effects on U.S. imports from the Philippines.--Table 42 shows estimated changes in U.S. imports from the Philippines resulting from debt-related austerity. If the Philippines had not taken the debt-related austerity, the United States would have imported more from the Philippines in 54 out of the 61 industries and would have imported less in the remaining 7 industries (col. 7). The three industries showing the largest decreases in imports were food and kindred products (\$303 million), lumber and wood products (\$144 million), and footwear and other leather products (\$99 million). The three industries showing the largest increases in production as a result of these changes in imports were electric lighting and wiring equipment (\$8 million), radio, television, and communication equipment (\$8 million), and scientific and controlling instruments (\$7 million).

When the total estimated changes in production are compared with U.S. industry production, the resulting shares are very small. Only two of them exceeded 1 percent of industry output (col 8). The three industries showing the largest increases in shares were electric lighting and wiring equipment (0.04 percent), scientific and controlling instruments (0.03 percent), and household appliances (0.02 percent). The three commodity groups showing the largest decreases in shares were footwear and other leather products (1.3 percent), leather tanning and finishing (1.0 percent), and nonferrous metal ores mining (0.6 percent).

Table 42. --The estimated effects of Philippine debt-related austerity on U.S. imports from The Philippines and U.S. output in 61 nonservice industry sectors

Industry sector	U.S. employ- ment 1/ (1)	U.S. industry output 1/ (2)	Ratio of		Actual 1985 imports (4)	Imports under constant market share 2/ (5)	Differ- ence 3/ (6)	Esti- mated change in out- put 4/ (7)	Esti- mated change of industry output 5/ (8)
			1985 market share to 1978-81 average market share (3)	Million dollars (2)					
Livestock and livestock products.....	944	87,147	1.205	1	6/	6/	-71	-0.081	
Other agricultural products.....	2,014	110,356	1.179	84	13	6/	-36	-0.032	
Forestry and fishery products.....	80	8,982	1.106	10	1	6/	-16	-0.175	
Iron and ferroalloy ores mining.....	15	3,102	0.430	3	-5	6/	-9	-0.304	
Nonferrous metal ores mining.....	44	3,436	0.022	6/	-18	6/	-21	-0.611	
Coal mining.....	203	30,682	1/	6/	1/	6/	-8	-0.026	
Crude petroleum and natural gas.....	280	126,466	84.471	6	6	6/	-16	-0.013	
Stone and clay mining and quarrying.....	94	7,844	2.362	6/	6/	6/	-2	-0.021	
Chemical and fertilizer mineral mining.....	21	3,971	1/	6/	1/	6/	-1	-0.017	
Ordinance and accessories.....	205	22,852	0.698	2	-1	6/	-1	-0.004	
Food and kindred products.....	1,659	317,706	0.726	594	-225	6/	-303	-0.095	
Tobacco manufactures.....	67	22,795	0.978	6/	6/	6/	6/	-0.000	
Broad and narrow fabrics, yarn and thread mills.	438	40,867	0.714	14	-4	6/	-32	-0.078	
Miscellaneous textile goods and floor coverings.	117	12,057	0.592	14	-9	6/	-18	-0.148	
Apparel.....	1,242	53,588	0.961	402	-16	6/	-22	-0.041	
Miscellaneous fabricated textile products.....	190	9,936	1.159	7	1	6/	6/	-0.000	
Lumber and wood products, except containers.....	687	57,277	0.575	117	-86	6/	-144	-0.252	
Wood containers.....	19	655	1.133	1	6/	6/	6/	-0.049	
Household furniture.....	288	17,384	0.520	90	-83	6/	-83	-0.478	
Other furniture and fixtures.....	215	14,507	1/	6/	1/	6/	6/	-0.000	
Paper and allied products, except containers.....	487	81,352	0.238	1	-2	6/	-19	-0.023	
Paperboard containers and boxes.....	196	22,403	0.078	6/	6/	6/	-12	-0.054	
Printing and publishing.....	1,452	107,316	0.941	1	7	6/	-4	-0.004	
Chemicals and selected chemical products.....	1,475	80,929	2.968	11	7	6/	-28	-0.035	
Plastics and synthetic materials.....	175	36,710	1.188	6/	6/	6/	-21	-0.057	
Drugs, cleaning and toilet preparations.....	349	55,436	232.257	9	9	6/	6	0.012	
Paints and allied products.....	62	9,567	3.446	6/	6/	6/	-3	-0.027	
Petroleum refining and related industries.....	188	179,980	0.441	3	-4	6/	-25	-0.014	
Rubber and miscellaneous plastic products.....	802	67,421	0.381	10	-17	6/	-40	-0.059	
Leather tanning and finishing.....	18	1,842	3.257	6/	6/	6/	-19	-1.032	
Footwear and other leather products.....	187	7,710	0.450	78	-95	6/	-99	-1.284	
Glass and glass products.....	170	12,824	0.421	1	-1	6/	-7	-0.055	
Stone and clay products.....	456	41,607	0.523	5	-5	6/	-10	-0.024	
Primary iron and steel manufacturing.....	555	85,014	0.175	11	-52	6/	-81	-0.096	
Primary nonferrous metals manufacturing.....	360	54,030	1.380	3	1	6/	-13	-0.025	
Metal containers.....	61	11,422	0.168	6/	6/	6/	-10	-0.091	
Heating, plumbing, and structural metal products	530	37,391	0.118	6/	6/	6/	-2	-0.006	
Screw machine products and stampings.....	315	28,326	0.414	6/	6/	6/	-5	-0.019	
Other fabricated metal products.....	486	41,832	3.937	2	1	6/	-13	-0.031	
Engines and turbines.....	114	13,268	1/	6/	1/	6/	-1	-0.009	

Table 42. --The estimated effects of Philippine debt-related austerity on U.S. imports from The Philippines and U.S. output in 61 nonservice industry sectors--Continued

Industry sector	U.S. employment (1)	U.S. industry output (2)	Ratio of				Differ- ence (6)	Esti- mated change in out- put (7)	Esti- mated change as share of industry output (8)
			1,000 jobs	Million dollars	1985 market share to 1978-81 average market share (3)	Actual imports 1985 (4)			
Farm and garden machinery.....	116	14,204	3.901	1	6/	6/	6/	-0.003	
Construction and mining machinery.....	194	27,369	0.530	1	6/	6/	-2	-0.008	
Materials handling machinery and equipment.....	83	6,028	0.325	6/	6/	-1	-1	-0.017	
Metalworking machinery and equipment.....	317	23,711	1.676	6/	6/	2	-2	-0.009	
Special industry machinery and equipment.....	168	14,118	0.097	6/	6/	2	-2	-0.013	
General machinery and equipment.....	277	26,966	9.801	2	6/	6/	-1	-0.003	
Miscellaneous machinery, except electrical.....	298	18,462	0.244	6/	6/	2	-3	-0.016	
Office, computing, and accounting machines.....	507	42,045	1.832	10	6/	-31	-37	-0.088	
Service industries machines.....	181	18,035	1.832	6/	6/	2	-1	-0.003	
Electric industrial equipment and apparatus.....	434	28,817	1.832	5	6/	2	6/	-0.001	
Household appliances.....	153	16,262	4.835	5	1	4	4	0.024	
Electric lighting and wiring equipment.....	204	18,151	2.969	13	4	9	8	0.045	
Radio, TV, and communication equipment.....	707	67,568	1.303	36	28	8	8	0.012	
Electronic components and accessories.....	685	47,268	0.971	610	628	-18	-24	-0.051	
Misc. electrical machinery and supplies.....	167	14,397	0.307	3	9	-6	-7	-0.047	
Motor vehicles and equipment.....	870	172,657	0.362	1	2	-1	-4	-0.003	
Aircraft and parts.....	639	71,858	3.972	1	6/	1	6/	0.000	
Other transportation equipment.....	348	31,414	1.214	1	6/	6/	-1	-0.003	
Scientific and controlling instruments.....	417	24,425	1.125	67	60	7	7	0.030	
Optical, ophthalmic, and photographic equipment.....	201	20,315	6.054	2	6/	1	1	0.004	
Miscellaneous manufacturing.....	431	26,576	0.883	106	120	-14	-17	-0.065	

1/ 1984 data. Output figures include the value of the industry's output plus the value of intermediate inputs.
 2/ Imports under constant market share is the quotient of actual imports (col. 4) and the market share ratio (col. 3).
 3/ The difference between actual imports (col. 4) and imports under constant market share (col. 5).
 4/ The estimated total change includes direct and indirect changes, and is calculated by multiplying the matrix of total requirements coefficients of the input-output table of the U.S. economy by the vector of differences in trade (col. 6).
 5/ The estimated change (col. 7) as a share of industry output (col. 2).
 6/ Absolute value less than \$500,000.
 7/ Not available.

Note. --Because of rounding, actual figures may not equal results shown.

Source: Employment and production statistics compiled from U.S. Bureau of Labor Statistics data, trade statistics compiled from official statistics of the U.S. Bureau of the Census.

COMBINED EFFECTS OF ALL FIVE COUNTRIES' DEBT SERVICE ON THE UNITED STATES

Trade and production

The effects on U.S. exports and imports of debt-related austerity in the five countries combined were estimated by summing up columns 6 and 7 in tables 44 and 45. These results show that in 1985 the United States exported approximately \$5 billion less to the five countries than if these countries had maintained their collective share of U.S. exports. When effects on intermediate factors are included, this fall in exports would have caused production to decline by \$9.5 billion. U.S. imports from these five countries were about \$8.7 billion greater in 1985 than if these countries had maintained their collective share of all U.S. imports. If effects on intermediate factors are counted, the growth in these imports would have caused U.S. production to fall by \$12.4 billion.

Employment

It is estimated that employment in the 61 manufacturing industries engaged in merchandise trade declined by 219,800 full-time jobs because of the effects of debt-related austerity in the five countries. This estimate is obtained in the following manner. The estimated effects on imports and exports contained in the individual country studies were summed up, and then deflated to 1977 dollars by the appropriate trade deflator. ^{1/} These values were then multiplied by the 1984 labor content of trade with each of the five countries. ^{2/}

General equilibrium adjustments

The estimates constructed in this report do not account for general equilibrium price adjustments that would reasonably be expected to occur. As discussed in more detail in the methodology section, the effects of these price adjustments are probably substantial. Thus, the methodology used in this study is more reliable in identifying the most adversely affected industries than in estimating overall effects on U.S. trade, production, or employment. Estimates of the effects in specific industries are provided in the next section.

The results indicate what would happen to industry size and the number of jobs in the absence of induced price changes that generally tend to restore full employment over time. If these adjustments are included, there might well be no net change in the number of available jobs. The total effect depends on the longrun supply of labor as well as on changes in demand for specific products. The wage rate can change to ensure work for all those who had a job before the onset of the LDC debt crisis.

^{1/} These deflators are reported in table B-3 of the 1986 Economic Report of the President.

^{2/} Data on the labor content of trade are reported in table 38 of U.S. Trade-Related Employment: 1978-84, USITC Publication 1855, May, 1986. Labor content estimates for 1985 are unavailable.

It is likely, for instance, that any contraction in employment in U.S. traded goods industries caused by the debt crisis would result in expansion in nontraded goods industries, largely the domestic service sector that was not examined in this study. This is because nontraded goods become relatively more profitable to produce. U.S. residents, who have more disposable income during LDC debt repayment, are willing to increase expenditures on services and other nontraded goods.

Combined effects of all five countries' debt service on industry sectors in the United States

The analysis of the combined effects of debt-related austerity in all five countries is similar to the analyses in the country case studies. Export and import market shares for the five countries combined were calculated for the periods 1978-81 and 1985. Changes in market shares between these periods are attributed to efforts by debtor countries to generate trade surpluses in order to make debt repayments. Using these changes in market shares and the Commerce Department's input-output model of the U.S. economy estimates were made of the effects on exports, imports, net trade, and output in the United States in 61 nonservice industry sectors. The results are reported in tables 43 through 45.

Net trade effects.--According to these estimates, debt-related austerity in the five countries had a negative effect on U.S. net trade in 40 of the 61 industry sectors. This is indicated by a negative number in column 5 of table 43. Two of the industries with the greatest estimated net trade losses are crude petroleum and natural gas and petroleum refining and related industries. Trade in these industries was greatly affected by the volatile oil market during the study period, especially for Mexico and Venezuela who are major oil exporters. Changes in shares of export and import values for these industries cannot be wholly attributed to debt-related austerity. Besides them, the industries suffering the greatest estimated losses are motor vehicles and equipment (\$2.2 billion), chemicals and selected chemical products (\$0.9 billion), and aircraft and parts (\$0.8 billion). Positive effects on net trade are estimated for 20 industries. The greatest increases are estimated in food and kindred products (\$0.9 billion), radio, TV, and communication equipment (\$0.6 billion), and agricultural products other than livestock (\$0.3 billion). Insufficient data precluded an estimate of the net trade effect for 1 industry.

Multiplying the estimated net trade changes by the input-output matrix of the U.S. economy provides estimates of the effects on output in each industry taking into account all secondary adjustments. The net change in output, shown in column 6, is estimated to be negative for 46 industries and positive for 15. Besides the two oil industries, the greatest estimated negative effects on U.S. output are in motor vehicles and equipment (\$3.0 billion), primary iron and steel manufacturing (\$1.8 billion), and chemicals and selected chemical products (\$1.6 billion). The greatest estimated positive effects on U.S. production are in food and kindred products (\$1.1 billion), radio, TV, and communication equipment (\$0.6 billion), and agricultural products other than livestock (\$0.5 billion).

Table 43.--The estimated effects of LDC's debt-related austerity on U.S. net exports to LDCs and U.S. output in 61 nonservice industry sectors

Industry sector	U.S. employ- ment 1/ (1)	U.S. industry output 1/ (2)	Actual 1985 net exports (3)	Net exports under constant market share 2/ (4)	Differ- ence 3/ (5)	Esti- mated change in out- put 4/ (6)	Esti- mated change of industry output 5/ (7)
Livestock and livestock products.....	944	87,147	5	-85	91	371	0.426
Other agricultural products.....	2,014	110,356	-414	-732	318	525	0.475
Forestry and fishery products.....	80	8,982	-4	-1	-3	1	0.012
Iron and ferroalloy ores mining.....	15	3,102	-149	-119	-30	-135	-4.364
Nonferrous metal ores mining.....	44	3,436	-32	-39	7	-72	-2.101
Coal mining.....	203	30,682	374	278	96	-60	-0.196
Crude petroleum and natural gas.....	280	126,466	-13,065	-6,314	-6,751	-8,414	-6.653
Stone and clay mining and quarrying.....	94	7,844	-169	32	-200	-255	-3.253
Chemical and fertilizer mineral mining.....	21	3,971	-47	-76	29	1	0.021
Ordnance and accessories.....	205	22,852	-19	45	-64	-69	-0.302
Food and kindred products.....	1,659	317,706	-1,491	-2,356	865	1,084	0.341
Tobacco manufactures.....	67	22,795	-4	1	-5	-6	-0.025
Broad and narrow fabrics, yarn and thread mills.....	438	40,867	-8	-42	34	80	0.196
Miscellaneous textile goods and floor coverings.....	117	12,057	-16	-99	83	53	0.443
Apparel.....	1,242	53,588	-594	-790	196	239	0.447
Miscellaneous fabricated textile products.....	190	9,936	-26	-4	-22	-87	-0.871
Lumber and wood products, except containers.....	687	57,277	-273	-316	44	-31	-0.054
Wood containers.....	19	655	4	6	4	2	0.319
Household furniture.....	288	17,384	-156	-266	111	116	0.665
Other furniture and fixtures.....	215	14,507	-34	-14	-21	-29	-0.203
Paper and allied products, except containers.....	487	81,352	322	421	-99	-224	-0.275
Paperboard containers and boxes.....	196	22,403	-1	1	1	-36	-0.160
Printing and publishing.....	1,452	107,316	32	51	-19	-53	-0.049
Chemicals and selected chemical products.....	1,475	80,929	778	1,661	-883	-1,596	-1.973
Plastics and synthetic materials.....	175	36,710	407	614	-207	-336	-0.914
Drugs, cleaning and toilet preparations.....	349	55,436	165	271	-106	-128	-0.232
Paints and allied products.....	62	9,567	25	16	9	-32	-0.336
Petroleum refining and related industries.....	188	179,980	-1,496	-140	-1,355	-1,786	-0.992
Rubber and miscellaneous plastic products.....	802	67,421	124	363	-239	-482	-0.715
Leather tanning and finishing.....	18	1,842	-123	-148	25	41	2.221
Footwear and other leather products.....	187	7,710	-1,265	-1,338	73	75	0.970
Glass and glass products.....	170	12,824	-102	27	-129	-162	-1.263
Stone and clay products.....	456	41,607	-215	-74	-141	-276	-0.664
Primary iron and steel manufacturing.....	555	85,014	-631	-37	-594	-1,830	-2.152
Primary nonferrous metals manufacturing.....	360	54,030	-456	-141	-315	-1,001	-1.852
Metal containers.....	61	11,422	-18	-1	-17	-11	-0.101
Heating, plumbing, and structural metal products.....	530	37,391	64	154	-89	-185	-0.495
Screw machine products and stampings.....	315	28,326	22	13	9	-282	-0.994
Other fabricated metal products.....	486	41,832	-45	10	-55	-305	-0.729
Engines and turbines.....	114	13,268	410	714	-304	-455	-3.431

Table 43. --The estimated effects of LDC's debt-related austerity on U.S. net exports to LDCs and U.S. output in 61 nonservice industry sectors--Continued

Industry sector	U.S. employment 1/ (1)	U.S. industry output 1/ (2)	Actual 1985 net exports (3)	Net exports under constant market share 2/ (4)	Difference 3/ (5)	Estimated change in output 4/ (6)	Estimated change as share of industry output 5/ (7)
	1,000 jobs	Million dollars	Million dollars	Million dollars	Million dollars	Percent	Percent
Farm and garden machinery.....	116	14,204	169	186	-17	-14	-0.100
Construction and mining machinery.....	194	27,369	625	1,082	-456	-565	-2.064
Materials handling machinery and equipment.....	83	6,028	43	116	-73	-84	-1.389
Metalworking machinery and equipment.....	317	23,711	426	455	-29	-118	-0.496
Special industry machinery and equipment.....	168	14,118	166	295	-128	-150	-1.061
General machinery and equipment.....	277	26,966	268	490	-221	-417	-1.546
Miscellaneous machinery, except electrical.....	298	18,462	196	319	-123	-275	-1.492
Office, computing, and accounting machines.....	507	42,045	646	705	-60	-74	-0.175
Service industries machines.....	181	18,035	244	219	24	-25	-0.136
Electric industrial equipment and apparatus.....	434	28,817	38	133	-95	-247	-0.858
Household appliances.....	153	16,262	6	88	-81	-90	-0.556
Electric lighting and wiring equipment.....	204	18,151	-195	-229	35	5	0.026
Radio, TV, and communication equipment.....	707	67,568	409	-203	612	563	0.833
Electronic components and accessories.....	685	47,268	-99	-414	315	391	0.827
Misc. electrical machinery and supplies.....	167	14,397	79	91	-12	-74	-0.513
Motor vehicles and equipment.....	870	172,657	-830	1,331	-2,161	-3,022	-1.751
Aircraft and parts.....	639	71,858	953	1,791	-838	-1,023	-1.424
Other transportation equipment.....	348	31,414	109	487	-378	-400	-1.273
Scientific and controlling instruments.....	417	24,425	184	422	-238	-279	-1.143
Optical, ophthalmic, and photographic equipment.....	201	20,315	-20	152	-173	-194	-0.955
Miscellaneous manufacturing.....	431	26,576	-403	-400	-3	-15	-0.055

1/ 1984 data. Output figures include the value of the industry's output plus the value of intermediate inputs.
 2/ Net exports under constant market share is the difference between exports and imports under constant market share.
 3/ The difference between actual net exports (col. 3) and net exports under constant market share (col. 4).
 4/ The estimated total change includes direct and indirect changes, and is calculated by multiplying the matrix of total requirements coefficients of the input-output table of the U.S. economy by the vector of estimated differences (col. 5) in trade.
 5/ The estimated change (col. 7) as a share of industry output (col. 2).
 6/ Absolute value less than \$500,000.
 7/ Not available.

Note. --Because of rounding, actual figures may not equal results shown.

Source: Employment and production statistics compiled from U.S. Bureau of Labor Statistics data, trade statistics compiled from official statistics of the U.S. Bureau of the Census.

The estimated change in output in each industry is expressed as a percentage of total industry output in column 7. This percentage is an indicator of the relative size of the gain or loss to the industry. The estimated change in production is less than 1 percent of industry output in 42 of the 61 industries. Aside from crude petroleum and natural gas, the greatest percentage reductions are in iron and ferroalloy ores mining (4.4 percent), engines and turbines (3.4 percent), and stone and clay mining equipment (3.3 percent). The greatest estimated percentage increases are in leather tanning and finishing (2.2 percent), footwear and leather products (1.0 percent), and radio, TV, and communications equipment (0.8 percent).

U.S. exports.--The share of U.S. exports going to the five countries decreased in 41 of the 61 industries during 1985 compared with 1978-81. This is indicated by a value of less than 1 in column 3 of table 44. Exports gained market share in 14 industries and there were insufficient data to estimate a market share change for 1 industry. Estimated gains and losses in exports are shown in column 6. After making the input-output adjustment, 50 of the 61 industries are estimated to have lost output because of reduced exports to the five countries, and 11 industries are estimated to have gained output. Estimated changes in output are shown in column 7. The industries most adversely affected are motor vehicles and equipment (\$1.2 billion), chemicals and selected chemical products (\$1.0 billion), and aircraft and parts (\$1.0 billion). The greatest estimated relative losses in output, shown in column 8, are for engines and turbines (2.9 percent), iron and ferroalloy mining (1.8 percent), and construction and mining equipment (1.7 percent). The greatest estimated increases in output are in agricultural products other than livestock (\$378 million), electric lighting and wiring equipment (\$185 million), and livestock and livestock products (\$86 million). The greatest estimated relative increases are in electric lighting and wiring equipment (1.0 percent), chemicals and fertilizer mineral mining (0.4 percent), and agricultural products other than livestock (0.3 percent).

U.S. imports.--The share of U.S. imports coming from the five countries increased in 32 of the 61 industries. This is indicated by a value greater than 1 in column 3 of table 45. The share of U.S. imports increased in 29 industries. The estimated changes in imports are shown in column 6. After the input-output adjustment, 37 domestic industries are estimated to have lost output because of debt-related austerity. Decreases in U.S. output are indicated by a positive number in column 7. Besides the two oil industries, the greatest decreases are estimated for motor vehicles and equipment (\$1.8 billion), primary iron and steel manufacturing (\$1.0 billion), and primary nonferrous metals manufacturing (\$0.6 billion). These decreases in output are expressed as a percentage of industry output in column 8. The largest is for stone and clay mining and quarrying (3.1 percent), iron and ferroalloy ores mining (2.6 percent), and primary iron and steel manufacturing (1.2 percent). An increase in output, indicated by a negative number in column 7, is estimated in 24 industries. The greatest of these are in food and kindred products (\$1.1 billion), radio, TV, and communications equipment (\$0.9 billion), and electronic components and accessories (\$0.4 billion). As a percentage of industry output, the greatest estimated increase in U.S. domestic production resulting from changes in imports from the five countries were for leather tanning and finishing (3.0 percent), radio, TV, and communication equipment (1.3 percent), and miscellaneous manufacturing (1.2 percent).

Table 44. --The estimated effects of LDC's debt-related austerity on U.S. exports to LDCs and U.S. output in 61 nonservice industry sectors--Continued

Industry sector	U.S. employment 1/ (1)	U.S. industry output 1/ (2)	Ratio of		Exports under constant market share 2/ (5)	Difference 3/ (6)	Estimated change in output 4/ (7)	Estimated change as share of industry output 5/ (8)
			U.S. market share to 1978-81 average market share (3)	Actual 1985 exports (4)				
	1,000 jobs	Million dollars		Million dollars	Million dollars			Percent
Farm and garden machinery.....	116	14,204	0.967	192	198	-7	-5	-0.036
Construction and mining machinery.....	194	27,369	0.619	701	1,132	-431	-474	-1.732
Materials handling machinery and equipment.....	83	6,028	0.757	107	142	-34	-38	-0.634
Metalworking machinery and equipment.....	317	23,711	0.920	459	499	-40	-99	-0.416
Special industry machinery and equipment.....	168	14,118	0.765	233	305	-72	-85	-0.606
General machinery and equipment.....	277	26,966	0.710	400	564	-164	-274	-1.018
Miscellaneous machinery, except electrical.....	298	18,462	0.614	196	319	-123	-213	-1.152
Office, computing, and accounting machines.....	507	42,045	0.853	1,016	1,191	-175	-213	-0.506
Service industries machines.....	181	18,035	1.075	284	264	20	6/	0.002
Electric industrial equipment and apparatus.....	434	28,817	0.783	440	562	-122	-203	-0.704
Household appliances.....	153	16,262	0.776	150	193	-43	-49	-0.304
Electric lighting and wiring equipment.....	204	18,151	2.067	383	185	198	185	1.017
Radio, TV, and communication equipment.....	707	67,568	0.823	992	1,206	-213	-296	-0.439
Electronic components and accessories.....	685	47,268	1.060	981	925	55	-67	-0.142
Misc. electrical machinery and supplies.....	167	14,397	0.915	531	581	-50	-78	-0.539
Motor vehicles and equipment.....	870	172,657	0.656	1,577	2,406	-829	-1,180	-0.683
Aircraft and parts.....	639	71,858	0.558	1,036	1,856	-820	-1,001	-1.392
Other transportation equipment.....	348	31,414	0.237	132	558	-426	-447	-1.422
Scientific and controlling instruments.....	417	24,425	0.660	418	633	-215	-243	-0.995
Optical, ophthalmic, and photographic equipment.....	201	20,315	0.572	114	199	-85	-101	-0.498
Miscellaneous manufacturing.....	431	26,576	0.667	591	885	-294	-321	-1.207

1/ 1984 data. Output figures include the value of the industry's output plus the value of intermediate inputs.
 2/ Exports under constant market share is the quotient of actual exports (col. 4) and the market share ratio (col. 3).
 3/ The difference between actual exports (col. 4) and exports under constant market share (col. 5).
 4/ The estimated total change includes direct and indirect changes, and is calculated by multiplying the matrix of total requirements coefficients of the input-output table of the U.S. economy by the vector of differences in trade (col. 6).
 5/ The estimated change (col. 7) as a share of industry output (col. 2).
 6/ Absolute value less than \$500,000.
 7/ Not available.

Note. --Because of rounding, actual figures may not equal results shown.

Source: Employment and production statistics compiled from U.S. Bureau of Labor Statistics data, trade statistics compiled from official statistics of the U.S. Bureau of the Census.

Table 45.--The estimated effects of LDC's debt-related austerity on U.S. imports from LDCs and U.S. output in 61 nonservice industry sectors

Industry sector	U.S. employ- ment 1/ (1)		U.S. industry output 1/ (2)		Ratio of 1985 market share to 1978-81 average market share (3)		Actual 1985 imports (4)		Imports under constant share 2/ (5)		Differ- ence 3/ (6)		Esti- mated change in out- put 4/ (7)		Esti- mated change of industry output 5/ (8)	
	1,000 jobs	Million dollars	1,000 jobs	Million dollars	Percent	Percent	Million dollars	Percent	Million dollars	Percent	Million dollars	Percent	Percent	Percent	Percent	Percent
Livestock and livestock products.....	944	87,147	0.818	138	169	-31	-285	-0.328								
Other agricultural products.....	2,014	110,356	1.011	2,478	2,451	27	-146	-0.133								
Forestry and fishery products.....	80	8,982	0.929	26	28	-2	-17	-0.194								
Iron and ferroalloy ores mining.....	15	3,102	1.183	153	129	24	80	2.585								
Nonferrous metal ores mining.....	44	3,436	0.796	43	54	-11	30	0.874								
Coal mining.....	203	30,682	0.940	12	13	-1	94	0.307								
Crude petroleum and natural gas.....	280	126,466	2.062	13,169	6,387	6,782	8,135	6.433								
Stone and clay mining and quarrying.....	94	7,844	7.134	235	33	202	242	3.084								
Chemical and fertilizer mineral mining.....	21	3,971	1.018	154	151	3	14	0.347								
Ordnance and accessories.....	205	22,852	0.931	21	23	-2	-1	-0.006								
Food and kindred products.....	1,659	317,706	0.740	2,352	3,180	-827	-1,067	-0.336								
Tobacco manufactures.....	67	22,795	0.495	7	14	-7	-9	-0.038								
Broad and narrow fabrics, yarn and thread mills.....	438	40,867	1.189	153	128	24	-42	-0.103								
Miscellaneous textile goods and floor coverings.....	117	12,057	0.580	89	153	-64	-54	-0.451								
Apparel.....	1,242	53,588	0.785	747	951	-204	-256	-0.477								
Miscellaneous fabricated textile products.....	190	9,936	1.150	68	59	9	42	0.424								
Lumber and wood products, except containers.....	687	57,277	0.835	372	445	-74	-69	-0.121								
Wood containers.....	19	655	0.381	1	3	-2	-1	-0.226								
Household furniture.....	288	17,384	0.661	193	292	-99	-109	-0.627								
Other furniture and fixtures.....	215	14,507	2.176	98	45	53	58	0.397								
Paper and allied products, except containers.....	487	81,352	2.040	292	143	149	195	0.240								
Paperboard containers and boxes.....	196	22,403	0.579	1	1	-	-2	-0.010								
Printing and publishing.....	1,452	107,316	0.659	31	47	-16	-14	-0.013								
Chemicals and selected chemical products.....	1,475	80,929	1.380	761	551	210	551	0.681								
Plastics and synthetic materials.....	175	36,710	4.593	105	23	82	133	0.363								
Drugs, cleaning and toilet preparations.....	349	55,436	0.877	56	64	-8	-5	-0.009								
Paints and allied products.....	62	9,567	0.940	6	6	-	20	0.212								
Petroleum refining and related industries.....	188	179,980	2.282	2,167	949	1,217	1,500	0.833								
Rubber and miscellaneous plastic products.....	802	67,421	3.799	330	87	243	320	0.474								
Leather tanning and finishing.....	18	1,842	0.806	141	176	-34	-54	-2.947								
Footwear and other leather products.....	170	7,710	0.940	1,294	1,377	-83	-87	-1.129								
Glass and glass products.....	170	12,824	2.132	160	75	85	96	0.750								
Stone and clay products.....	456	41,607	1.590	350	220	130	210	0.506								
Primary iron and steel manufacturing.....	555	85,014	1.821	932	512	420	984	1.157								
Primary nonferrous metals manufacturing.....	360	54,030	1.520	832	547	285	567	1.049								
Metal containers.....	61	11,422	1.036	32	30	1	-20	-0.176								
Heating, plumbing, and structural metal products.....	530	37,391	1.897	24	13	11	53	0.142								
Screw machine products and stampings.....	315	28,326	0.547	8	15	-7	131	0.464								
Other fabricated metal products.....	486	41,832	1.149	248	216	32	160	0.382								
Engines and turbines.....	114	13,268	39.779	6	6	-	65	0.493								

Table 45. --The estimated effects of LDC's debt-related austerity on U.S. imports from LDCs and U.S. output in 61 nonservice industry sectors--Continued

	U.S. employment 1/ (1)	U.S. industry output 1/ (2)	Ratio of		Imports under constant market share 2/ (5)	Difference 3/ (6)	Estimated change in output 4/ (7)	Estimated change as share of industry output 5/ (8)
			1985 market share to 1978-81 average market share (3)	Actual 1985 imports (4)				
Industry sector	1,000 jobs	Million dollars	Million dollars		Percent			
Farm and garden machinery.....	116	14,204	1.792	23	13	10	9	0.063
Construction and mining machinery.....	194	27,369	1.502	76	50	25	91	0.332
Materials handling machinery and equipment.....	83	6,028	2.482	64	26	38	46	0.755
Metalworking machinery and equipment.....	317	23,711	0.756	33	44	-11	19	0.080
Special industry machinery and equipment.....	168	14,118	6.565	67	10	57	64	0.456
General machinery and equipment.....	277	26,966	1.784	132	74	58	142	0.528
Miscellaneous machinery, except electrical.....	298	18,462	0.693	6/	6/	6/	63	0.340
Office, computing, and accounting machines.....	507	42,045	0.762	371	486	-116	-139	-0.331
Service industries machines.....	181	18,035	0.902	40	45	-4	25	0.138
Electric industrial equipment and apparatus.....	434	28,817	0.937	402	429	-27	44	0.154
Household appliances.....	153	16,262	1.361	144	105	38	41	0.252
Electric lighting and wiring equipment.....	204	18,151	1.393	578	415	163	180	0.991
Radio, TV, and communication equipment.....	707	67,568	0.414	583	1,409	-826	-859	-1.272
Electronic components and accessories.....	685	47,268	0.806	1,080	1,339	-259	-458	-0.969
Misc. electrical machinery and supplies.....	167	14,397	0.923	1,452	1,490	-38	-4	-0.027
Motor vehicles and equipment.....	870	172,657	2.240	2,407	1,075	1,332	1,843	1.067
Aircraft and parts.....	639	71,858	1.266	83	65	17	23	0.032
Other transportation equipment.....	348	31,414	0.332	24	71	-47	-47	-0.149
Scientific and controlling instruments.....	417	24,425	1.106	233	211	22	36	0.148
Optical, ophthalmic, and photographic equipment.....	201	20,315	2.888	134	46	88	93	0.456
Miscellaneous manufacturing.....	431	26,576	0.773	993	1,285	-292	-306	-1.152

1/ 1984 data. Output figures include the value of the industry's output plus the value of intermediate inputs.
 2/ Imports under constant market share is the quotient of actual imports (col. 4) and the market share ratio (col. 3).
 3/ The difference between actual imports (col. 4) and imports under constant market share (col. 5).
 4/ The estimated total change includes direct and indirect changes, and is calculated by multiplying the matrix of total requirements coefficients of the input-output table of the U.S. economy by the vector of differences in trade (col. 6).
 5/ The estimated change (col. 7) as a share of industry output (col. 2).
 6/ Absolute value less than \$500,000.
 7/ Not available.

Note. --Because of rounding, actual figures may not equal results shown.

Source: Employment and production statistics compiled from U.S. Bureau of Labor Statistics data, trade statistics compiled from official statistics of the U.S. Bureau of the Census.

