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To: Members of the Executive Board

From: The Acting Secretary

Subject: World Economic Outlook: Staff Studies - Export Diversification in Developing Countries - Recent Trends and the Impact of Policy

There is attached for the information of the Executive Directors a staff study on recent trends and the impact of policy in achieving export diversification in developing countries. Staff studies are prepared in connection with the ongoing work on the world economic outlook and are intended for eventual publication in the "World Economic and Financial Surveys" series.

If Executive Directors wish to make comments prior to publication, comments should be addressed to Mr. Crockett (ext. 8982) or Mr. Lanyi (ext. 7401) by the close of business on Thursday, May 21, 1987.

Ms. Bond (ext. 7412) or Ms. Milne (ext. 7408) is available to answer technical or factual questions relating to this paper.

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INTERNATIONAL MONETARY FUND

World Economic Outlook: Staff Studies

Export Diversification in Developing Countries: Recent Trends and the Impact of Policy

Prepared by the Research Department
(In consultation with other Departments)

Approved by Jacob A. Frenkel

April 21, 1987

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I. Introduction

Export diversification by developing countries into manufactures is one of the more important developments of the past two decades. A fundamental question is why this change has occurred in some developing countries and not in others. In approaching this question, the present study examines the impact of both the internal and external economic environments on the process of export diversification. The study is based on a review and an extension of recent developments in the economic literature on diversification of a developing country's export base.

For many years, there has been considerable interest in the role that export diversification can play in reducing the variability of export earnings. More recently, with the emergence of the debt crisis in the early 1980s, the focus of discussion has shifted to the contribution of export diversification to raising the growth rates of both exports and domestic output. The renewed interest in export diversification also stems from the erratic swings and secular decline in primary commodity prices in evidence since the early 1970s.

The paper is divided into five main sections and three annexes. Section II shows how export diversification is related to the pattern of a country's domestic production and to changes in its comparative advantage. Section III examines, in three subsections, the role of export diversification in the growth of export earnings, the stability of these earnings, and growth of domestic output. The role of diversification--particularly into manufactures--in raising the trend path of export earnings is reviewed in the first subsection and the validity of the underlying demand and supply assumptions is investigated. The second subsection, focusing on diversification as a means of reducing earnings instability, provides a review of the recent empirical literature, insights into the underlying causes of instability, and country experience. The final subsection investigates the interdependence among export diversification, export growth and domestic growth, and the relationship between export diversification and the efficiency of resource allocation. Section IV examines the effect of the macroeconomic policy setting and supply-side incentives on export diversification, as well as on the growth of exports

1/ It should be noted that the term "country" used in this report does not in all cases refer to a territorial entity that is a state as understood by international law and practice. The term also covers some territorial entities that are not states but for which statistical data are maintained and provided internationally on a separate and independent basis.

and output. The discussion draws upon selected macroeconomic indicators for groups of developing countries and on case studies of the experience of four countries (Malaysia, Côte d'Ivoire, Ghana, and Argentina). Finally, Section V presents the paper's main conclusions. The three annexes provide supporting information.

II. Patterns of Export Diversification

Export diversification can be described as an increase in the number of distinct products in the export base, combined with a reduction in dependence on any one product as a source of foreign exchange earnings. The process of diversification can be thought of as a three-stage process which may coincide with the stages through which economic development itself proceeds. 1/ First, production for export is diversified from a few primary commodities into a wider range of such commodities. This process is typical of a country that does not have a well developed manufacturing sector. For example, Guyana--traditionally heavily dependent upon exports of sugar, rice and bauxite for its foreign exchange receipts--has diversified into fish, shellfish, and timber.

Second, production is diversified from primary products into a wider range of goods that includes the production of manufactures for export. This process generally takes considerable time, and has two distinct phases. In the first phase, processing of primary commodities and light assembly or rudimentary manufacturing industries takes place and then, in the second phase, production shifts, on a larger scale, to more sophisticated manufactured goods. Côte d'Ivoire provides an example of a country that by the mid-1970s achieved the first phase of this stage of diversification and that is now beginning to move into the second phase. In addition to achieving high growth rates of exports of coffee, cocoa and logs, it has successfully moved into processing these products as well as into new natural-resource based exports, including palm products, cotton, and fruit; it has also initiated production of manufactured exports such as chemicals, plastics and textiles. As the development process continues into this second phase, diversification is accompanied by improved technology, economies of scale, and surpluses for reinvestment.

In the third stage, exports are diversified into a still wider range that includes services such as financial services, insurance, commission and agency fees, construction services, communications services, and royalties and management fees. While this third stage of diversification is more relevant to economically developed countries than to developing

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1/ A more detailed discussion of these three stages is given in Clark, (1940).

countries, a few developing countries--such as Brazil, India, Korea, and Singapore--have begun to move into this stage. Foreign exchange earnings from services such as tourism and workers remittances are recorded by countries at all three stages of export diversification and are thus uncorrelated with the degree of economic development. Freight and passenger transportation services are also not necessarily correlated with the stages of export diversification, especially for countries who earn foreign exchange from port services or flags of convenience, such as Panama and Liberia.

The process of export diversification may seem, at first, to contradict the Ricardian concept of comparative advantage, where maximum gains from trade can be attained by specialization. However, when the theory of comparative advantage is set in the context of a dynamic world economy--where erratic swings in world market prices, trade barriers in foreign markets, and lack of perfect foresight are present--producing and exporting a variety of products may well maximize domestic growth and foreign exchange earnings. Moreover, the comparative advantage of countries has rarely remained the same over time. Changes in world prices, in relative domestic prices and costs, and in technology can affect both the structure of the domestic economy and the competitive position of domestic producers. For example, comparative advantage in natural rubber production shifted from Brazil to Asian countries in the early 1900s as new seed varieties and plantation cropping evolved. Similarly, the development of synthetic rubber has again altered the comparative advantage previously enjoyed by Asian natural rubber producers.

Over the past 25 years, a major shift in developing countries' production has taken place; the share of primary products in total output has declined, while that of manufactures, particularly manufactures for export, has expanded. The shift into manufactures has been much greater for the medium-income and newly industrialized developing countries, although in some of the least developed countries, the share of manufactured goods in total output also has increased (Table 1). 1/ In virtually all of the countries for which data are available there has been an increase in the share of manufactures in total output between 1965 and 1984. 2/

1/ Generally, as export diversification takes place it is accompanied by some diversification of export markets; information on foreign markets, foreign demand for different products, quality control, and the relevant competition becomes increasingly crucial as a country's productive base becomes more diversified and as its manufactured exports begin to grow.

2/ The exceptions are the group of oil exporters whose earnings have become increasingly dependent upon a narrower range of products in the last two decades, and the group of newly industrialized countries that have begun to diversify into services. These results may overstate the contribution of manufactured exports in total output to the extent that exports include re-exports and gross exports from free trade areas.

Table 1. Selected Developing Countries: Manufactures, Exports, Output, Manufacturing Output, and Growth in Real Exports and GDP 1/

(In percent)

Country	Share of Manufacturing Exports in Total Exports		Share of Manufacturing Output in Total Output		Share of Manufacturing Exports in Manufacturing Output		Average Annual Rate of Growth			
							Real Exports		Real GDP	
	1965	1981	1965	1984	1965	1981	1967-71	1972-81	1967-71	1972-81
Africa	28.4	31.8	11.2	12.1	33.2	34.2	5.1	-1.4	5.9	2.5
Ethiopia	1.5	1.7	7.0	11.0	2.0	1.4	3.1	3.9	4.3	2.6
Ghana	13.3	7.1	10.0	5.0	34.0	26.7	-3.1	-1.1	4.3	0.1
Côte d'Ivoire	34.4	29.9	10.0	17.0	93.6	66.6	4.1	5.7	5.7	5.0
Kenya	17.2	15.8	11.0	12.0	22.0	29.5	2.3	1.1	5.9	5.7
Liberia	3.4	10.2	3.0	7.0	1.4	77.7	6.2	0.1	4.5	-0.1
Mauritius	0.4	38.3	14.0	17.0	0.0	82.7	0.2	3.1	1.1	5.5
Morocco	18.1	37.2	16.0	17.0	20.9	38.1	3.6	5.0	5.1	4.6
Nigeria	14.1	0.8	7.0	4.0	32.3	4.7	15.1	-4.6	8.6	1.5
Senegal	50.5	32.2	12.0	18.0	63.3	42.0	-2.7	0.9	2.9	1.9
Togo	5.2	15.7	10.0	6.0	8.5	75.0	9.6	3.3	6.2	1.8
Tunisia	50.9	38.7	9.0	14.0	85.7	99.7	6.0	4.1	8.5	6.9
Zambia	0.6	0.7	6.0	21.0	7.8	1.8	2.4	1.2	4.4	1.9
Asia	58.1	77.0	16.0	21.2	25.2	79.0	8.4	13.3	5.5	5.5
Hong Kong 2/ 3/	97.2	98.2	24.0	14.0	144.8	327.9	13.4	16.9	6.7	9.4
India	50.9	60.5	15.0	15.0	12.1	18.7	2.4	6.4	5.1	3.5
Korea 3/	61.2	91.8	18.0	28.0	10.6	83.5	33.8	21.4	12.0	7.4
Malaysia	22.0	47.5	10.0	19.0	73.4	100.1	9.0	5.7	5.7	8.0
Pakistan	36.4	53.5	14.0	20.0	20.4	26.4	1.7	1.8	0.7	5.4
Philippines	37.7	61.3	20.0	25.0	21.8	42.7	6.1	8.2	5.2	5.9
Singapore	43.4	55.8	15.0	25.0	265.7	256.9	10.1	12.1	9.9	8.9
Sri Lanka	8.4	21.9	17.0	14.0	12.3	29.0	0.3	3.4	6.7	5.3
Western Hemisphere	17.8	41.6	25.3	25.6	4.7	15.2	4.7	8.1	5.7	6.0
Argentina 3/	16.9	28.0	33.0	30.0	5.3	11.2	4.1	0.6	3.0	1.5
Brazil 3/	17.6	52.1	26.0	27.0	3.9	24.0	13.0	11.2	8.0	7.1
Chile 3/	5.5	19.0	24.0	21.0	2.3	17.1	3.1	5.0	3.8	2.2
Colombia	7.5	29.7	18.0	18.0	3.3	14.2	-1.0	3.1	6.4	5.2
Dominican Republic	4.9	20.9	14.0	19.0	7.1	22.2	8.1	2.8	7.0	6.3
Ecuador	5.7	7.4	18.0	19.0	2.8	8.6	3.1	7.8	5.2	8.7
El Salvador	19.2	38.9	18.0	16.0	19.1	29.3	2.9	0.8	4.0	1.9
Honduras	13.2	18.4	12.0	15.0	27.7	30.9	3.7	3.4	4.4	4.3
Jamaica	38.1	71.3	17.0	18.0	55.7	162.4	2.2	-2.2	5.1	-0.7
Mexico	19.3	14.8	21.0	24.0	4.3	5.5	-1.2	12.1	6.4	6.9
Nicaragua	8.1	11.5	18.0	25.0	5.9	7.7	4.4	1.1	4.1	0.6
Panama 3/	3.2	15.6	12.0	9.0	2.3	12.2	5.1	-0.6	7.5	4.9
Peru	5.3	21.5	20.0	25.0	2.7	10.7	3.9	2.2	4.0	3.2

Source: U.N. SITC Data, World Bank Development Report (1986), IMF World Economic Outlook (1986). Regional aggregates are weighted averages where the weights used are the country share in the relevant variables.

1/ Data limitations prevent strict comparability of data; manufacturing includes semi-processed primary products; manufactures exports include re-exports and gross exports from free-trade zones.

2/ Estimated.

3/ During the period 1965 to 1984 these countries diversified out of manufactures into services.

All countries have exhibited a structural change in the source of their export earnings, albeit to varying degrees, as diversification from primary products into manufactures--as well as diversification among different types of manufactures--has taken place over the last two decades. Export volume growth, however, has been the fastest in regions and countries for which manufactures constitute a high proportion of exports. Asian countries, which have been the most successful in exporting manufactures, have also had the fastest growth of export volume, while low export volume growth has been characteristic of African countries, which tend to be highly dependent on primary commodities. Outside the oil exporting countries, diversification has also occurred within primary product exports, with the proportion of countries dependent upon a single commodity for more than half of their primary export earnings falling. Despite this, the increase in the volume of primary product exports has been much slower than that for manufactured exports particularly for African countries, whose experiences can be characterized, to varying degrees, by: (i) increased concentration in products such as coffee, cocoa, and tea, where world demand expanded slowly; (ii) policies that effectively transferred resources from the agricultural sector to the rest of the economy; (iii) lack of investment, research and agricultural extension services; (iv) limitations on essential imported intermediate inputs precipitated by foreign exchange constraints; and (v) loss of traditional European markets as agricultural output expanded in those countries. There are, of course, some individual countries whose experience has differed from this pattern in one or more respects.

III. The Effects of Export Diversification on Export Earnings, Earnings Stability and Economic Growth

1. The growth of export earnings

While export diversification contributes to the growth of export earnings, the reduction of earnings instability and the increase in domestic economic activity, the causal linkages are both more complex and less certain than might initially be supposed.

a. Trends in developing country export earnings

Trade in primary commodity exports, especially agricultural commodities, declined in relative importance for developing countries from 1965 to 1980 as market shares were lost to industrial countries, reflecting both increased price and non-price competition (such as trade credits). The shift from food importer to exporter by selected industrial countries

paralleled the mounting agricultural surpluses that have arisen as a result of domestic pricing policies. However, the failure of developing countries to diversify both agricultural products and markets has contributed, in part, to their shrinking share of world trade. Demand for world foodstuffs and beverages has increased significantly since 1973 reflecting the rapid increase in demand for food from OPEC, newly industrializing countries, and nonmarket economies. This higher demand, however, has been increasingly satisfied by industrial countries. Moreover, the rising demand for high-value products such as meat, poultry, dairy produce, fruit and vegetables has been met mainly by industrial countries, with the biggest relative increase coming from the European Community. The performance of developing countries in these growing agricultural export markets has been quite mixed and has varied widely across regions and countries. The successes that were recorded by developing countries took place in exports of non-traditional crops, such as soybeans.

Manufactured exports from developing countries grew faster than such exports from the industrial countries (Table 2). This shift in trade partly reflected the growing trend in developing countries to export processed food and raw materials that were formerly exported without processing. Nevertheless, despite this gain by developing countries, total exports of the industrial countries grew faster than those from developing countries, reflecting the relatively slower growth of primary products exports of developing countries. These aggregate results, however, conceal substantial regional differences. Asia has experienced the fastest average rate of growth of primary commodity export earnings, while the slowest rates of growth took place in Africa and Western Hemisphere. Furthermore, the growth of Asian earnings from manufactured goods exports outpaced even that of industrial countries.

b. The role of diversification in the growth of export earnings

A country in the process of diversification will find its export growth affected not only by the growth of activity in the industrial countries but also by other exogenous variables, such as changes in commodity prices relative to manufactures prices, the composition of its exports, the elasticity of demand for its products, its geographical location, and the export prices of its competitors. Fundamentally, the degree of success in realizing export growth depends upon the types of commodity exported and how world demand for each type evolves over time. For example, manufactures prices have exhibited a higher trend-path than prices for food and raw materials; minerals and metals tend to have an income elasticity of demand greater than that for foodstuffs.

In addition, the growth of exports also depends upon the location of the exporter. For example, the European Community is the principal market for most of Africa's commodity exports because of Africa's location and

Table 2. Exports from Developing Country Regions, Industrial Countries, and OPEC to the World, 1965 and 1980

Region	(In Billions of U.S. dollars)						As proportion of world exports 1/ (in percent)					
	Primary Commodities		Manufactures		Total		Primary Commodities		Manufactures		Total	
	1965	1980	1965	1980	1965	1980	1965	1980	1965	1980	1965	1980
Africa	3.7	17.1	2.2	23.5	5.9	40.6	6.8	3.3	2.0	2.0	3.6	2.4
(Annual average percent growth)	(10.7)		(17.0)		(13.7)							
Asia	4.9	32.9	2.9	60.3	7.9	93.2	9.1	6.4	2.7	5.2	4.8	5.6
(Annual average percent growth)	(13.5)		(22.3)		(17.9)							
Europe	1.3	6.4	2.7	25.1	4.0	31.5	2.4	1.3	2.5	2.2	2.5	1.9
(Annual average percent growth)	(11.1)		(15.9)		(14.6)							
Middle East	0.8	4.1	0.7	8.7	1.5	12.8	1.5	0.8	0.6	0.8	0.9	0.8
(Annual average percent growth)	(11.4)		(18.4)		(15.4)							
Western Hemisphere	6.8	32.4	2.0	19.9	8.9	52.3	12.6	6.3	1.9	1.7	5.4	3.2
(Annual average percent growth)	(10.9)		(16.4)		(12.5)							
Developing countries	17.6	92.9	10.6	137.6	28.2	230.5	32.4	18.1	9.7	11.9	17.2	13.9
(Annual average percent growth)	(11.7)		(18.6)		(15.0)							
Industrial countries	27.8	225.8	96.2	995.6	124.0	122.4	51.2	44.1	88.1	86.5	75.8	73.4
(Annual average percent growth)	(15.0)		(16.9)		(16.5)							
OPEC	8.9	193.4	2.4	18.6	11.4	212.0	16.4	37.8	2.2	1.6	7.0	12.7
(Annual average percent growth)	(22.7)		(14.6)		(21.5)							
Average world 1/	54.3	512.1	109.5	1151.8	163.6	1663.6	100.0	100.0	100.0	100.0	100.0	100.0
(Annual average percent growth)	(16.1)		(17.0)		(16.7)							

Source: Bond (1987).

1/ Excluding trade by non-market oriented countries that are not members of the International Monetary Fund.

historical trade links. Partly because of the expansion of European agriculture in the last decade, Africa's exports to this region declined. By comparison, most of the markets for Asian exports have been rapidly growing, reflecting both increased regional trade with rising per capita incomes as well as the diversification of Asian exports into manufactured goods for which demand has increased faster than for primary products.

Finally, trade and agricultural policies of industrial countries influence the options for exporting that are open to developing countries. In certain products, developing countries have either lost market shares or have been prevented from expanding into traditional industrial country markets. For example, the U.S. and EEC sugar quotas have sharply limited market access, and the Multifiber Agreement has limited the expansion of trade in textiles. The incidence of such policies varies among products and policies differ among importing countries. For this reason, also, the composition and direction of export trade both exert a crucial influence on the potential growth rate of exports.

(1) Long-run trends in the net barter terms of trade

It has been argued, based on an observed decline in the prices of primary products relative to those of manufactures, that diversification from primary product exports into manufactured exports can raise the long-term trend of export earnings. A consistent trend in the net barter terms of trade, however, depends upon three assumptions: (i) that the supply elasticity for primary products is lower than that for manufactured goods; 1/ (ii) that the income elasticity of demand is higher for manufactured goods; and (iii) that each developing country is a price taker for its main exports. (It is important to distinguish between such a country and countries with dominant market positions, such as Chile in copper or Zaire in cobalt, where increased earnings arise from higher volume and the terms of trade decline as a consequence.) 2/

The empirical question of whether primary commodity prices, in fact, are declining over the long term remains a subject of controversy. The early findings of Prebisch (1950) 3/ and Singer (1950), that primary

1/ This, in turn is dependent upon the relative productivity of factor inputs--adjusted for technical change--between primary and manufactured goods. This suggests that the increase in total output would be greater for a unit increase in capital employed in manufacturing than for that employed in production of primary products.

2/ Bhagwati (1984).

3/ Prebisch's findings were limited to the terms of trade between the United Kingdom's exports and imports from 1876-80 to 1946-47 as a proxy for the net barter terms of trade since the United Kingdom was the most important exporter of manufactures and importer of primary products, at

product prices were falling secularly relative to manufactured goods prices, were attributed to different market structures in developing countries (primary product exporters) and developed countries (manufactured goods exporters). The observed long-term deterioration in the net barter terms of trade thus implied a deterioration in the purchasing power of developing countries' exports and suggested--together with the trade pessimism arising from the experiences of the Depression--the adoption of development strategies based on import substitution. Lewis (1969), however, found no such long-term deterioration in primary product prices. For tropical products, which constituted the bulk of developing countries' exports, he found no discernible trend for the period 1871-1965. Lewis was, nonetheless, concerned about the poor prospects for tropical product prices in the 1960s. Significant technological advance in food production in industrial countries had raised agricultural productivity and supply, thus depressing prices. The pessimistic prognosis for developing countries' tropical exports reflected the widening gap in factor productivity between developed and developing countries. 1/ Diversification of a country's production and export base from tropical products to manufactured goods was proposed as a means by which developing countries could raise the average productivity of their factors of production.

Although efforts have been made to refine the price series on manufactured and primary products, the results have not been conclusive in respect of the secular decline in the net barter terms of trade. Kravis and Lipsey (1971, 1981) demonstrated an upward bias in the United Nations' manufactured price series since the index did not adequately reflect changes in product quality or shifts to lighter products. Spraos (1980) pointed out that quality changes in primary products are also not taken into account when goods exported shift from low quality coffee beans,

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3/ (Cont'd. from p. 8) that time. A great deal of criticism has been levied against his findings on the basis of: the composition of trade (that not all imports were from developing countries); the inclusion of freight costs (imports were usually c.i.f. so that a reduction in freight costs would be measured as a reduction in primary prices); and the representativeness of United Kingdom trade for trade between developing and developed countries. An example of such criticism is contained in Meier and Baldwin (1957).

1/ The net barter terms of trade can be a misleading measure if changes in productivity are not taken into account. If the price of wheat has fallen 10 percent relative to manufactures but the cost of producing wheat has fallen by 20 percent relative to manufactures, the country exporting wheat is better off (single factoral terms of trade). In Lewis' sample, the drop in relative factor productivity would have implied a worsening in the net barter terms of trade against tropical products, not apparent from his data.

tobacco, or short-staple cotton to varieties that command a higher price. If quality adjustments are made to both primary and manufactured goods, the bias in the net barter terms of trade was shown to be indeterminate. More recently, Sapsford (1985) found significant statistical evidence of a long-term declining trend in the net barter terms of trade using the IMF's aggregate price index, based on 39 market transaction prices for 34 non-fuel primary commodities. Once account was taken of the disruptions to trade during the First and Second World Wars, primary commodity prices were shown to exhibit a declining trend relative to those of manufactures between 1900 and 1982, thus providing strong support for the Prebisch-Singer hypothesis. Since 1982, the net barter terms of trade between non-oil primary commodities and manufactured goods have continued to fluctuate around a declining trend (Chart 1) (Annex III, Tables 17 and 18).

Focusing on the long-term trend of relative prices between primary products, as a group, and manufactured goods suggests that countries seeking to raise the long-term growth of export earnings should shift out of primary products and into manufactured goods. In fact, there is no statistically significant evidence to support the premise that all primary product prices have declined secularly relative to manufactured goods prices. Based on disaggregate data for selected commodities, only prices of food products and metals showed a significant secular decline relative to manufactured goods prices; the trend path of the real prices of beverages and agricultural raw materials was not significantly different from zero at the 5 percent level of confidence (see Annex III, Table 18 for regression results).

Policy decisions to encourage diversification, however, must take account not just of past trends but even more so of prospects for future changes in underlying supply and demand conditions. The volume demanded of developing country exports will be directly related to the level of real income in importing countries; however, income growth differs across export markets. Growth in the export market also depends on the income elasticities of demand for the product. Earnings growth, consequently, depends upon the country the export is going to and on the product being exported.

(2) Differential income demand elasticities 1/

There is extensive literature on the income elasticity of demand for imports by the industrial countries. 2/ Consensus estimates for the industrial countries are that income elasticities of demand for total

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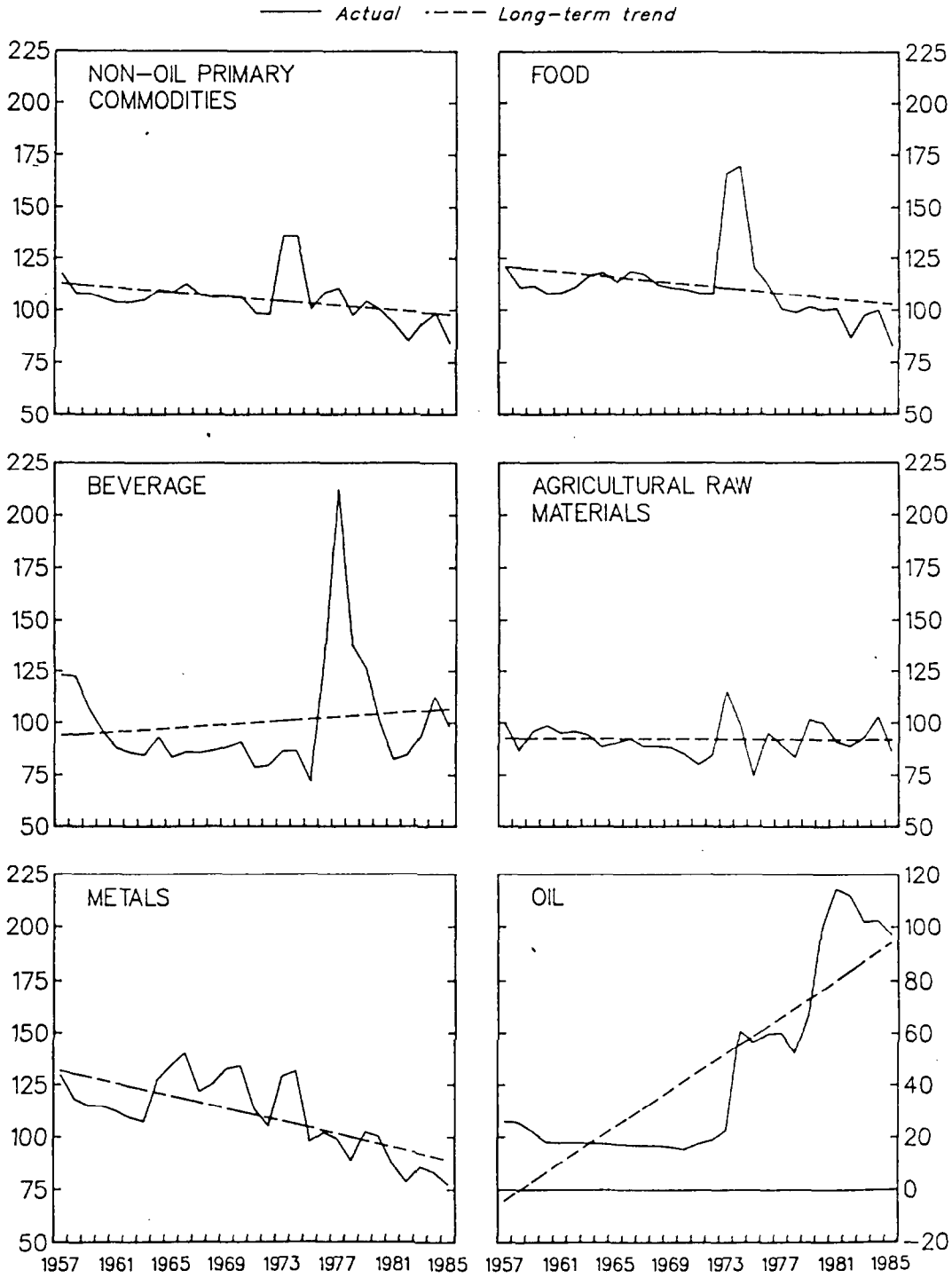
1/ These estimates need to be treated with caution because: (i) there is a wide variation in the quality of studies from which the estimates are taken; (ii) some of the equations in the individual studies may be incorrectly specified; and (iii) there is a wide range of quantitative estimates among the studies for single commodities because of differences in the measurement of the income variable.

2/ Magee (1975), Stern et al (1976), Goldstein and Khan (1983).

CHART 1

REAL PRICES OF PRIMARY COMMODITIES, 1957–1985

(1980=100)



imports are greater than one, ranging between 1.25 and 2.25 (Goldstein and Khan, 1983). Estimates of income elasticities of demand for total imports from developing countries range between 1.5 and 2.0. and thus are consistent with those for the industrial countries (for example, see: Hamilton and Kreinin (1980), Cline (1984), and Bond (1986, 1987)).

In growing markets, diversification of the export base can change the long-term trend of export earnings of a developing country because income elasticities of demand depend upon the commodity composition as well as the country composition of import demand (Table 3). Preliminary econometric results for manufactured goods suggest that the income elasticity of demand is higher for exports of manufactured goods than for exports of non-oil primary products. Thus, an increase in the rate of growth of world income will result in a proportionately greater increase in the volume of exports of manufactures than of non-oil primary products. The preliminary estimates of income elasticities for exports of manufactures, however, are not consistently larger than the income elasticities for primary products for developing country regions. For example, African and Middle Eastern countries are estimated to face an income elasticity of demand for manufactured exports that is lower than that for food; manufactures exports from these regions are generally concentrated in selected semi-processed primary products that, in aggregate, seem to face an income elasticity of demand that is lower than that for their unprocessed counterparts.

There is also a considerable literature estimating the income elasticities of products within the manufactures and primary product groups (Table 4). These income elasticities are higher for products such as engineering equipment, sophisticated machinery and luxury goods than they are for products such as textiles and leather goods. This supports the view that, in general, income elasticities have been higher for relatively capital-intensive products than for relatively labor-intensive products. Moreover, the income elasticity for manufactures from developing to industrial countries appears to be growing over time, as developing country manufactures become more capital intensive. Income elasticities have also been estimated for selected primary products (Bond (1987), Table 11.) The evidence suggests that the demand for selected products in the food and beverages and tobacco groups from developing countries is more income elastic than the demand for the group of non-oil primary products as a whole.

These findings support the hypothesis that when the proportion of manufactured goods in total exports increases (cet. par.), the trend path of export earnings is raised. However, the income elasticities for some manufactured goods, particularly processed raw material products, do not necessarily differ significantly from those of some primary products.

Table 3. Developing Countries: Estimated Income Elasticities of Demand, by Commodity and Region

Region	Food	Beverages and Tobacco	Agricultural Raw Materials	Minerals	Manufactures
		Income elasticities: exports of developing country regions to the world			
Africa	1.01	1.34	0.54	3.85	0.99
Asia	1.14	--	0.46	1.19	1.35
Europe	1.12	--	1.15	2.91	2.32
Middle East	1.54	0.51	--	0.26	0.33
Western Hemisphere	1.32	0.68	--	1.74	4.54
Total	1.20	0.68	0.56	2.16	2.03
		Income elasticities: imports to industrial countries			
Total	0.98	0.98	0.85	2.80	1.70

Source: Goldstein and Khan (1980), Bond (1986, 1987).

Table 4. Selected Industrial Countries: Import Demand Elasticities

United States (Kreinin)			Federal Republic of Germany (non-EC imports) (Glismann)		
Commodity	Price Elasticity	Income Elasticity	Commodity	Price Elasticity	Income Elasticity
Cotton products	-1.17	1.37	Clothing	-0.75*	3.50
Man-made fibre textile products	-0.99	6.86	Textiles	-0.44*	1.49
Leather	-0.74	1.69*	Leather goods	-1.55	1.04
Footwear	-0.79*	3.98	Shoes	-1.71	3.31
Plywood	-0.51*	2.39	Plastic goods	-1.19	5.01
Electronics machinery and equipment	-0.92	3.39	Music, sporting goods and toys	1.04*	5.36
House electronic equipment	-0.71*	7.74	Electronics	-0.85	3.48
Photographic equipment	-1.08	2.86			

Source: Donges, J.B. and J. Riedel.

* Indicates the elasticity is not significantly different from zero at the 10 percent level of significance.

(3) The rate of growth of market demand

The market orientation and the composition of exports have been of central importance in determining a developing country's export performance and in determining its diversification policy. There are disparities in the evolution of demand for developing country exports both among major importing areas and among major categories of exports, and the demand for traded goods has been unevenly distributed among the developing countries. Europe's main sources of imports are developing countries in Africa and developing and industrial European countries; almost half of African exports and two fifths of European exports are imported into Europe. The United States and Japan are the principal industrial country markets for Asian developing countries, and the United States is also the main export market for Western Hemisphere countries. Thus, because of differences in the growth of demand, during the three-year period 1983-85, developing countries in the Western Hemisphere faced an average industrial country import market that grew by some 3-6 percentage points per annum faster than did the average industrial country import market faced by African, European or Middle Eastern developing countries (Table 5).

Rapid expansion has occurred in intra-regional trade among developing countries and has also played a role in a developing countries' diversification policies. However, such intra-regional trade has been very unevenly distributed, partly as a result of differences in the rates of economic growth among regions. For example, during the recent economic recovery, intra-regional trade in South and East Asia grew by 5 percent and 10 percent respectively in 1983 and 1984, while intra-regional trade in Latin America fell more than 10 percent during 1983 and remained stagnant in 1984, partly as a consequence of the sharp curtailment in expenditures that had to be carried out in many of these countries.

The pattern of growth in the composition of developing country exports has also been quite uneven. Industries such as plastic products, chemicals, machinery and petroleum products achieved high growth rates from 1977 to 1984, compared with the slower rates of growth realized by industries such as farm equipment, construction and mining equipment, railroad equipment, metal mining, primary metals and leather products. Furthermore, volumes of manufactured exports have grown much faster than those of primary products, particularly recently. During the recent expansion of imports into the United States, most of the increase consisted of manufactured products, in particular machinery, petroleum-based products, and paper and allied products, although the U.S. is also an important market for primary products. Therefore, the magnitude of the trade effects for developing countries has depended during the latest business cycle upturn on both the weight of manufactures and the weight of the United States in developing country trade. These results, consequently, would suggest the need

Table 5. Industrial and Developing Countries: Real GNP and Total Domestic Demand: 1966-1986

(Percentage change)

	Annual Average 1966-71	Annual Average 1972-81	1982	1983	1984	1985	Prel. 1986
Industrial countries: real GNP							
Canada	4.8	4.4	-3.3	3.1	5.5	4.0	3.4
United States	2.9	2.7	-2.5	3.6	6.4	2.7	2.5
Japan	9.8	4.6	3.1	3.2	5.1	4.7	2.3
Europe	4.4	2.5	0.4	1.6	2.6	2.5	2.3
All industrial countries	4.2	2.9	-0.4	2.7	4.7	3.0	2.4
Industrial countries: real total domestic demand							
Canada	4.5	4.7	-6.4	3.7	4.2	4.6	4.1
United States	3.2	2.4	-1.9	5.1	8.3	3.4	3.6
Japan	9.9	4.0	2.8	1.8	3.8	3.8	4.1
Europe	4.2	2.3	0.7	1.3	1.9	2.3	3.6
All industrial countries	4.3	2.6	0.2	2.9	5.0	3.1	3.6
Developing countries: real GDP							
Africa	5.3	3.2	0.8	-1.9	1.7	2.0	1.7
Asia	5.7	5.7	5.0	7.6	7.9	5.9	5.7
Europe	6.6	4.6	2.4	1.1	3.6	2.1	3.2
Middle East	5.8	5.0	3.4	4.4	2.2	3.0	2.4
Western Hemisphere	5.8	5.2	-0.8	-3.2	3.2	3.7	3.9
All developing countries	6.1	5.0	1.6	1.4	4.1	3.2	3.5

Source: World Economic Outlook, 1987.

to diversify not only into products for which the market is growing but also to diversify export trade into those markets which are growing the most rapidly.

(4) Changes in competitiveness

As developing countries continue to diversify their export base and to increase the shares of products facing high-income elasticity of demand and of high-growth markets in their exports, much of their success in export expansion still depends on the knowledge of price competitiveness of their goods. Price elasticities of demand for primary product exports from developing countries as a group are quite inelastic and have been estimated to be less than one (Goldstein and Khan (1983), and Bond (1986) (1987). Thus, if all developing countries exported sharply higher volumes of primary commodities, a large price fall would be necessary before the market would clear. It is only when one developing country that is a small exporter changes its exports independently of other developing countries that the market remains unaffected.

The demand for manufactured exports from developing countries, however, has been shown to be more price elastic in aggregate than the demand for their primary commodity exports; the evidence suggests that both domestic producers of manufactures in the industrial countries and suppliers of manufactured goods in other developing countries compete with developing country exporters of manufactures. Both Khan (1974) and Grossman (1981) provide evidence of how developing countries' export price performance affects industrial country imports from them. Khan estimates an average value of the price elasticity for manufactures of 0.94 for 9 non-oil developing countries over the period 1951-1969. Grossman estimates a mean price elasticity of 1.7 for U.S. imports of manufactures from the non-oil developing countries over the period 1968-78; his estimates for individual commodity groups range from 0.52 for chinaware and earthenware to 3.38 for television receivers and leather goods. While, as a group, developing countries may not have much scope for increasing primary goods exports without adversely affecting prices, the volume of selected manufactures exports may be raised without a compensating fall in prices.

(5) *Changes in supply*

The rapid growth in the volume of manufactured exports from developing countries also reflects supply changes in these countries themselves. Four relevant supply-side explanations have been identified; 1/ (i) the industrial capabilities of the leading developing country exporters of manufactures have increased, contributing to their ability to move into related export products; (ii) developing country

1/ Chenery (1979).

policies have shifted significantly away from inward-looking industrialization based on import-substituting production; (iii) improvements in transport and communications have facilitated growth of trade and an international division of labor even over long distances; and (iv) the rapid growth in manufactured exports has been most successful in countries that have macroeconomic policies consistent with their efforts to promote manufactured exports.

The much slower growth in the volume of primary product exports of developing countries also has supply-side explanations, reflecting increased food production by large food-importing developing countries, such as India and China, as well as by industrial countries. While, in the short run, the supply response to price changes for primary products for both developed and developing countries has been found to be quite small, there is a marked increase in the price elasticity of supply if a longer period is considered. Regional and product differences in supply responses, however, have been observed.

Short-run changes in relative prices often result in cobweb-type swings in the production of primary commodities, especially where the cost of shifting resources is small or the products are close substitutes in production. Among developing countries, African and Asian food producers have exhibited relatively less sensitivity to short-run changes in relative world market prices. This reflects, to a large degree, producer pricing policies that, in Africa, have kept producer prices low in order to yield positive government revenues--as increases in world market prices are absorbed by marketing boards 1/--or to subsidize urban consumption. Asian countries, by contrast, have generally maintained domestic producer prices above world market prices to guarantee adequate domestic staple food supplies.

While the exportable supply of some primary products can be quickly adjusted to changing external factors, such is not the case where increases in production can only be realized with significant capital investment (e.g., sugar to rice which would require extensive irrigation) or with long gestation periods (e.g., tree crops). In these cases, an assessment of the long-term outlook (as discussed above) would be required. There have been instances where producers have perceived a strong upward trend in demand, have invested to expand production in excess of the actual increase in demand, and thereby have depressed prices over the long term. A recent example of this phenomenon was the expansion in bauxite mining capacity based on a favorable outlook for aluminum demand. As a result, raw material output outpaced refining capacity, and, in the event, demand for the final product did not prove as buoyant as had been

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1/ See Bond (1983) which focuses on pricing policies in sub-Saharan Africa.

expected. Thus, the raw material price fell much more sharply than the semi-processed price, adversely affecting bauxite producers that were not vertically integrated with a major aluminum refiner.

The successful adoption of policies to promote diversification, particularly in primary products, requires awareness of what others are doing--if all countries are shifting resources into the same commodities, a global oversupply can result. There is, therefore, a need to increase the information on global demand and supply availabilities to countries making decisions on stimulating particular exports.

(6) Trade barriers

The role of protectionism in limiting the potential growth of manufactured exports cannot be ignored. The very developing countries that successfully diversified their export base in the 1970s--the newly industrialized developing countries--are those confronting the greatest pressure to limit the inroads they are making into the markets of the industrial countries. Indeed, some of these countries have recently lost preferential access to the U.S. market under that country's Generalized System of Preferences. It is the perceived threat of increased barriers to trade that underlies the new "trade pessimism" (Bhagwati, 1986).

It is beyond the scope of this paper to fully explore the adverse consequences of protectionism. 1/ It is sufficient to note that barriers to trade are generally "porous"; that is, slight shifts in the product (specialty steel products), new technologies (development of a new fiber, such as ramie) or improved quality can ameliorate the negative impact on earnings. 2/ To this extent, diversification can be an important tool in maintaining or increasing export earnings. Furthermore, the lack of trade barriers in itself does not guarantee that diversification and export growth will take place. For example, while Korea's export expansion has been partly ascribed to its initial preferential market access, the absence of trade barriers alone cannot fully account for its success. 3/ To take another example, preferential access to the United States market for certain products was granted three years ago, under the Caribbean Basin Initiative, to selected Caribbean and Central American countries; however, trade in the specified products has not yet increased appreciably. This suggests that other factors, such as the overall bias of the incentive structure for or against exports--as measured by the real effective exchange rate and the rate of effective protection--may be more important.

1/ See Corden (1987) for a detailed discussion of the costs of protection.
2/ As discussed by Baldwin (1982) and Cline (1984).
3/ Westphal (1979).

While trade barriers imposed by industrial countries distort the pattern of their imports, they may also create over time new opportunities for developing countries. For example, the bilaterally agreed limitations on the number of Japanese cars exported to the United States stimulated a shift in their exports from relatively cheap, small-sized "basic" transportation to larger, higher-priced, automobiles. This shift left a void at the lower end of the automobile spectrum in the United States market that has been quickly filled by Korea and Yugoslavia. Similarly, Korea, with the impetus provided by the limitations on volume growth under the Multifiber Agreement, has been switching from low-priced textiles and clothing to higher-valued items, thus, leaving room for other developing countries at the lower end of the market.

Finally, it may be noted that developing countries themselves maintain relatively high levels of domestic protection. 1/ Barriers to trade imposed by these countries include high tariffs, whose levels vary across product groups, and quotas, as well as restrictions arising from balance of payments difficulties. Such trade barriers contribute to distortions and reduce the efficient allocation of resources by raising the rate of return on production for home sales relative to production for export; in highly protected domestic markets increased production costs can be passed on to the consumer and producers become less able to compete abroad. Highly cascaded tariff structures, where final goods are granted greater protection than intermediate inputs and raw materials, can prevent the development of backward linkages and, in fact, over the long term may hinder the development of products that may be eventually exported. Such barriers limit the scope for regional trade and prevent the realization of economies of scale that access to larger markets would provide. Where regional trade areas have been developed (The East African Common Market, The Caribbean Common Market, the Andean Common Market, etc.), regional exports have expanded. Regional trade areas may thus provide a stepping stone for countries to diversify their export base and to develop products that can eventually find markets in the industrial countries.

2. The instability of export earnings

It has been suggested 2/ that producing and exporting a variety of products can ameliorate the adverse consequences for domestic output of

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1/ It has been suggested, moreover, that developing countries could achieve some liberalization of restrictions imposed by developed countries on their exports if they were willing, as a group, to negotiate a reduction in their own level of protection (Hamilton and Whalley, 1986).

2/ See Brainard and Cooper (1970) who extended portfolio theory to the Ricardian concept of comparative advantage. While the macroeconomic impact of earnings instability could be reduced by the maintenance of foreign exchange reserves or net foreign borrowing, it has been argued that even

short-run exogenous changes in supply of or demand for individual products. By reducing the variability of export receipts on producer incomes, uncertainty could be reduced directly. Indirectly, uncertainty could be reduced by curtailing the stop-go implementation of monetary and fiscal policies, in cases where commodity boom years are associated with an expansionary domestic policy stance and export downturns precipitate adjustment programs. The decline in uncertainty would encourage the shift from subsistence farming, reduce the need for large inventory holdings, increase investment and, consequently, raise the trend path of economic growth.

a. Trends in instability of export earnings

Instability of both developing and developed countries' export earnings has varied over time, with the greatest earnings instability measured in the period following World War II, when normal trade flows were not yet re-established and commodity prices were rising rapidly. The average instability of earnings, as measured for each period by the mean annual variance of export earnings, fell for both developed and developing countries between 1946-58 and 1965-70 but increased thereafter (Table 6). Such fluctuations suggest that underlying global factors loom large in the determination of instability. Economic developments in the period between the late 1950s and 1971 contrast sharply with those of the subsequent years (Chu and Morrison, 1984): (i) growth in industrial countries slowed substantially in 1972-82; (ii) inflation was sharply higher in the later period; and (iii) fluctuations in commodity prices and exchange rates were greater after 1971. 1/

Global factors alone are not sufficient to explain the shifting differential of export earnings instability between developed and developing countries. Recent evidence suggests that countries having a higher

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2/ (Cont'd. from page 19) with perfect foresight, the opportunity cost (low yielding reserves and high interest loan costs) may prove prohibitive. This argument is strengthened by the structural changes in the international capital markets that occurred in the late 1970s and early 1980s, when real interest rates became strongly positive and access to foreign commercial funds dried up.

1/ Brodsky (1983) notes that the measurement of export instability depends on the choice of the numeraire currency. Dollar exchange rate instability may result in an overstatement of earnings instability to extent that countries' trade takes place in other currencies. Attempts to measure earnings instability throughout the post World War II period, consequently, should be adjusted to take account of the increase in exchange rate instability since 1971.

Table 6. Measures of Export Earnings Instability

(In percent)

		Developed Countries		Developing Countries		Relative Instability (in percent)
		Mean (1)	Standard Deviation (2)	Mean (3)	Standard Deviation (4)	(5) = (3)÷(1)
	Author					
1946-58	MacBean (1966) 1/	17.6	7.1	23.0	12.8	30.7
1954-66	Erb-Schiavo Campo (1969) 1/	6.2	2.2	13.4	6.2	116.1
1965-70	Sheehey (1977) 2/	3.8	...	5.1	...	34.2
1970-75	Sheehey (1977)	6.8	...	12.6	...	85.3
1972-85	This study 3/	7.4	0.9	16.1	8.1	117.6

1/ Based on Coppock's log variance measure of export instability.
2/ Calculated as the average annual percentage deviation from an exponential trend.
3/ IFS data were used for a sample of 128 countries, including the four oil-exporting developing countries. Instability estimation based on formulation suggested by Taya (1980).

proportion of primary products in total exports exhibit greater earnings instability. For example, in the 1972-85 period, earnings instability is estimated to have been highest for African countries whose exports remain heavily concentrated in primary commodities; by contrast, earnings instability for European developing countries, where manufactures account for a large portion of total exports, was less than half that of African countries (Table 7). Nevertheless, since the 1970s, developing countries as a group have increased their exports of manufactures, while developed countries now export more primary products; on the basis of this shift, a narrowing--rather than the observed widening--gap between developing and developed countries' group measures of earning instability might have been expected.

b. Causes of instability

One of the causes of increased relative instability of developing country earnings may lie in the increased price instability of primary products relative to that of manufactured goods. Between 1957-71 and 1972-82, instability of primary product prices rose relative to that of manufactured goods (Table 8). Moreover, beverage prices exhibited the widest fluctuation in the 1972-82 period and this is the product group where developing countries have retained over 95 percent of world trade. While manufactures' prices are more stable than those of primary products, volumes of manufactured goods exported by developing countries exhibit greater variability than manufactures exported by developed countries. This relatively greater variability reflects: (i) the relatively higher income elasticities of demand for the manufactured products into which many of the developing countries have diversified (such as, electronics assembly industries); (ii) domestic input supply fluctuations, such as intermittent energy availabilities; (iii) the fluctuations in access to imported inputs for manufactured exports on account of periodic lack of adequate foreign exchange; and (iv) the greater instability of income growth since the 1970s.

Earnings instability can reflect underlying exogenous factors determining supply or demand. Fluctuations in product supply can come about because of: (i) short-run changes in production conditions; (ii) fluctuations in the price of inputs; (iii) changing price expectations, leading to a "cobweb" pattern of price and volume changes; and (iv) changes in technology. Fluctuations in demand can occur as a result of: (i) fluctuations in trading partners' income over the business cycle; (ii) changes in relative prices of substitutes; (iii) changes in taste; and (iv) fluctuations in demand for products where the export is an intermediate input or a complementary good. Similarly, policies can also influence the stability of export earnings in various ways; exchange rate and pricing policies can result in a shift of resources out of the export sector, even when the policy intention was to stabilize earnings. While initially establishing export marketing boards or fixing producer prices

Table 7. Developing Countries: Determinants of Export Instability 1/

(In percent)

		Mean Export Instability			Sign of Covariance of Price and Quantity
		Earnings	Price	Quantity	
1952-61	Murray (1978) 2/	11.3 (...)	8.3 (...)	9.7 (...)	-
1962-71	Murray (1978)	9.0 (...)	6.6 (...)	7.6 (...)	-
1972-85	This study 3/				
Non-oil developing countries		11.6 (5.1)	10.8 (4.9)	6.8 (4.3)	+
Africa		17.5 (4.5)	18.1 (4.7)	8.6 (5.2)	-
Asia		10.4 (6.8)	9.5 (5.9)	6.3 (4.3)	+
Europe		7.6 (3.9)	6.2 (1.5)	6.5 (4.9)	+
Non-oil Middle East		9.4 (4.4)	9.4 (3.2)	5.0 (2.8)	+
Western Hemisphere		12.5 (3.4)	11.6 (4.1)	7.2 (2.2)	+
Oil-exporting developing countries		18.5 (4.2)	18.8 (3.3)	7.2 (3.0)	-

1/ Standard deviation given in parentheses.
2/ LDC mean earnings instability calculated on the basis of 75 countries using I.F.S. data; instability was measured as deviations from an exponential trend. Covariance analysis based on a subset of 25 developing countries.
3/ Based on World Economic Outlook data for 69 developing countries; mean instability based on Taya's formulation for individual countries; aggregates are weighted averages where the weights are determined by the country's share of exports in total export earnings.

Table 8. Instability of World Prices of Selected Groups of Traded Goods

(In percent)

	Coppock 1/ (1962)	MacBean 2/ (1966)	Chu and Morrison 3/ (1984)	
	1948-58		1957-71	1972-82
Manufactures	7.6	...	2.0	6.0
Primary	8.4	11.6	--	--
Non-oil primary	...	11.9	4.0	13.0
Food		(8.6)	5.0	19.0
Beverages		(13.0)	9.0	31.0
Agricultural raw materials		(15.0)	4.0	14.0
Metals		(13.4)	9.0	12.0
Oil	...	5.0	5.0	27.0

1/ Based on log variance index of instability, United Nations export unit value data. When Coppock calculated instability index based on price data, measured instability increases. For the 21 products which are also included in the Chu and Morrison study, average instability was 19.8 percent.

2/ Deviation from five year moving average; United Nations unit values are used. Figures in parentheses are the average instability measures of 22 products which also apppear in the Chu and Morrison study.

3/ Instability calculated as percentage deviation from exponental trend; quarterly IMF commodity price data and the United Nations index of manufacture export prices are used.

to stabilize farm income, countries have often been reluctant to adjust producer prices to reflect changes in costs of production, shifts in domestic prices of traded goods relative to non-traded goods, or long-term changes in world prices. Changes in taxation or trade regulations can affect export supply as well as domestic demand for traded goods. Macroeconomic policies can, by reducing domestic demand, increase export supply, or alternatively by limiting the export sector's access to domestic credit or to foreign exchange for imported inputs, reduce the supply of exports.

c. Theoretical and empirical evidence

The role of export diversification in reducing earnings variability and the question of whether a reduction in earnings variability leads to higher economic growth have been the subject of intense investigation in the economic literature since the early 1960s. There has been, however, little or weak existing empirical support 1/ for the hypothesis that an increase in export diversification, by itself, reduces earnings variability. This counter-intuitive result must be interpreted cautiously, since many of the studies were based on cross-section data, correlating export concentration indices for a representative year (or averaged for a number of years) with export earnings instability. Concentration indices relate the number of export products and earnings from these products; instability is usually measured by a deviation from trend-adjusted average earnings over a given period. 2/ The measure of concentration generally used, the Gini-Hirschman coefficient, is subject to a number of limitations, including sensitivity to the degree of data disaggregation and the time period chosen (see Annex 1, for a more detailed discussion). The lack of statistical correlation in cross-section studies may reflect these measurement problems rather than the absence of an underlying relationship. More recently, Love (1986), in shifting from cross-section to time series

1/ Coppock (1962), Massell (1964), MacBean (1966), MacBean and Nguyen (1980), and Love (1983)(1984).

2/ Instability indices have been measured in a variety of ways, the most common of which have been: (i) Coppock's log variance index where the trend adjustment depends only on the value of the first and last observations; (ii) average percentage deviation from a moving average; (iii) sum of squared deviations from a linear trend line; and (iv) sum of squared deviations from an exponential trend line. Knudsen and Parnes (1975) demonstrate that the log-variance and exponential measures yield similar levels. While the moving average index yields much lower absolute estimates of instability, it yields estimates of relative instability that are in line with the other measures. Taya (1980) provides a comparative analysis of the statistical properties of alternative measures of instability suggesting that an exponential formulation which links the trend to the latest observation has smaller prediction errors.

estimation for 24 developing countries, found support for the hypothesis that there is a causal relationship between export concentration and earnings instability.

Recent evidence from country studies also suggests that diversification into manufactures exports may reduce earnings instability. 1/ Early studies, 2/ however, largely did not support this conclusion, because an observed greater stability in the aggregate volume of primary products traded more than offset the higher price instability of primary products. These findings led some authors to postulate that LDC earnings instability stemmed from country-specific fluctuations in supply. For most primary products, individual developing countries are marginal world suppliers, so that reductions in exportable surpluses affect neither the aggregate world volume traded nor world prices. Export earnings instability of a given country resulted from volume instability that would not be observable by measuring instability of aggregate trade in primary products and measures of instability for groups of countries would reflect the sum of the countries' instability caused by country-specific factors.

To determine indirectly whether earnings variability was due to supply or demand factors, Murray (1978) studied the sign of the covariance of price and quantity for 25 developing countries (Table 7). When prices move inversely with quantity, the sign of the covariance is negative and the underlying causes are said to be supply determined (demand constant). When prices and quantities move together (the covariance is positive), demand factors are more important (supply constant). Between 1952 and 1971, supply factors were found to be the major cause of LDC earnings instability. Updating this study for 69 non-oil developing countries, demand factors were found to be the more important cause of earnings instability in the 1972-85 period, with the notable exception of African countries, where earnings instability remains supply determined. The shift from supply-determined to demand-determined variability reflects the increase in the share of manufactures in the production and exports of many developing countries over the last 20 years. Hanson (1982) 3/ found that as countries became more developed, the contribution of volume instability to earnings instability increased, while that of price instability declined. Supply-stimulated instability was less common in industrialized and highly diversified economies than in countries that were

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1/ For example, Mayer's (1982) simulation results from a general equilibrium model of Colombia lend support for this hypothesis.

2/ For example, see Coppock (1962).

3/ Hanson (1982), using the covariance approach, tested whether systematic changes in the components and source of instabity accompanied economic development. Export data for seven developed countries and ten developing countries covering the period 1900-1961 were used.

still heavily concentrated in primary product exports. Furthermore, technological advances and improved infrastructure have helped to dampen the adverse effects of weather on agricultural production for many developing countries.

Diversification that reduces the covariance of supply responses to exogenous shocks (such as weather) or that lowers aggregate price instability can also reduce export earnings instability (Brainard and Cooper). For example, rice prices tend to move in tandem with other food prices (close substitutes in production and consumption) and some agriculture raw materials (close substitutes in production) but tend to have little relationship to changes in prices of tree crops or minerals (Annex III, Table 19). Prices of manufactured goods generally exhibit relatively low correlation with primary product prices, further supporting the role that shifting into manufactures can play in lowering earnings instability; however, the composition of manufactured exports must also be taken into account. Diversifying from primary goods to processing these same primary products would not reduce the vulnerability of earnings to supply factors, although by increasing the domestic value added, both export earnings and economic growth could be raised. Shifting to the export of luxury manufactured goods, facing highly income-elastic demand, from food exports, facing low income-elastic demand, could raise aggregate earnings instability because of the greater possible variation in export volumes. Optimal diversification, moreover, has to take account not only of short-run fluctuations but also the long-term trend path of the product's earnings.

Finally, reduction in variability, even around an upward trend in export earnings, may or may not lead to higher real growth. That a reduction in instability raises the trend path of income growth is contested by a number of empirical studies taking a variety of approaches. MacBean (1966), and Kenen and Voivodas (1972) find no significant correlation between export earnings instability and growth. Rangarajan and Sundararajan (1976) find a statistically significant relationship but no unidirectional causation; that is, for some countries, a higher growth of income was associated with more unstable export earnings. Knudsen and Parnes (1975), hypothesize that consumption and investment decisions are based on a notion of "permanent export income"; earnings instability serves to reduce consumption and increase savings and investment and, as a consequence, growth. Newbery and Stiglitz (1981) illustrate that the impact of reduced export instability on investment depends upon how urban wages are determined and how changes in nominal wages affect profits.

In conclusion, the evidence suggests that earnings instability is less for those countries having a lower proportion of export earnings derived from primary products. Further, for those countries that are marginal world suppliers and are heavily dependent upon primary products, the source of earnings instability tends to be supply-determined. These

findings suggest that diversification from primary to manufactured goods could reduce earnings variability as well as raise the trend path of export earnings (as discussed in the preceding section). Identification of the source of the greatest earnings instability as supply-determined in African countries, however, suggests that diversification of exports may be only a partial solution; other factors, such as adequate infrastructure, extension services, access to necessary inputs, and disease and pest control, initially may be equally--if not more--important.

3. The growth of the domestic economy

The weak empirical support for the hypothesis that a reduction in variability of export earnings is related to higher economic growth is not surprising. Often these studies have failed to take account of both the influence of domestic policy and other economic variables that affect domestic growth. It is to these two topics that this paper now turns.

a. The relationship between export diversification export growth and domestic growth

The relationship between export diversification and domestic growth is complicated, since it is generally observed that the more diversified an economy, the more developed it is, and export diversification is generally associated with the process of output diversification. It is clear that export diversification, combined with the availability of export markets, aids the growth process. Most developing countries, characterized by a fairly low degree of resource diversification and by small domestic markets compared to the larger industrial countries, gain especially from export trade, because their products can be sold in larger markets than the domestic market would accommodate. Also, while import substitution may increase domestic output in the short run as unutilized resources become employed, subsequent growth would be constrained by the rate of growth of domestic demand. In the long run, growth in output in excess of that domestic demand depends upon expanding export volume. Finally, industries producing exports have been found generally to be more efficient than those producing domestic subsitutes for imports; production of import substitutes tends to require greater diversification of production and resources than export-oriented production, and also often relies upon a much higher level of imports of intermediate inputs. Therefore, expanding the share of exports in real GDP is likely to be associated with more efficient allocation of resources and more rapid growth. In turn, this type of production is often accompanied by economies of scale, rising productivity and profits, rising real domestic investment, and enhanced efficiency in marketing.

Export diversification can lead to higher export earnings, as discussed above; however, export diversification may not necessarily be accompanied by an expansion in domestic growth. Indeed, it is possible

for export diversification to increase export growth but reduce the growth of output. For example, real growth in the export sector may reduce domestic growth if resources that are switched from production for domestic consumption to production for export (in response to export subsidies, for example) are used less efficiently. This loss in efficiency, in turn, can reduce the trend path of output growth. Conversely, export diversification and output growth may occur without a concomitant increase in the growth of exports; for example, real growth in the domestic economy induced by an exogenous rise in consumer demand for exportables and nontradable goods, may, over this period, lead to a decline in export growth. Where foreign capital is used to diversify into inefficient export industries, the domestic growth process may also be hindered by the subsequent outflow of profits remittances or debt service not covered by adequate export earnings. Alternatively, fluctuations in export demand may not feed through to the domestic economy, for example, where inventories are used in a countercyclical manner.

In some cases an economy can become more concentrated and also grow: for example, economic activity in Mexico and Indonesia expanded following the rise in export revenues as oil prices surged in the 1970s. However, such a growth path is likely to be unsustainable. Concentration in these cases is usually in one commodity, and if the price of this commodity falls, growth can slacken unless adequate foreign exchange reserves or access to foreign funds allow for countercyclical demand management or unless the country has diversified its export base in the meantime.

b. Empirical evidence

Numerous empirical studies 1/ have investigated the relationships among export diversification, export growth and growth in domestic output. However, the direction of causation between export growth and domestic growth has largely been unexplored. The hypothesis that export growth causes growth in domestic output has been challenged empirically by Jung and Marshall (1985), who argue that in many cases overall economic growth causes export growth rather than vice versa. Jung and Marshall point out that it is possible for unbalanced growth in the economy to create boom industries, which then grow more rapidly than domestic demand and lead producers to turn to foreign markets to sell their goods. In this case, export growth is a residual of domestic economic growth. They also suggest that real economic growth, when it is induced by an exogenous increase in consumer demand for exportable and nontradable goods, can reduce export growth. Jung and Marshall use the Granger notion of causality to test the hypothesis that export promotion leads real GDP growth. Results, based on time series data for 37 countries for the period 1950-1981,

1/ Maizels (1968), Michaely (1977), Balassa (1978), Tyler (1981), and Schenzler (1982).

provide evidence that exports led economic growth in only four instances: Indonesia, Egypt, Costa Rica, and Ecuador.

Similarly, Kormendi and Meguire (1985) found only weak evidence that an increase in the share of exports in total output raises real growth. In a cross-section study of 47 industrial and developing countries, the authors test various macroeconomic hypothesis relating selected economic variables to domestic growth. To measure the contribution of each variable to growth, the authors re-calculated the estimation equation omitting the selected regressor. In aggregate, an increase in the share of exports in total output was calculated to contribute only 4 percent to the observed variation in economic growth. The largest contribution was made by money variance, 22 percent (estimated to be positively related to growth), followed by the initial per capita income level, 11 percent (inversely related to growth), the rate of growth of population, 10 percent, and the variance of real output--taken as a proxy for the riskiness of the technology adopted--8 percent (both positively related to growth), and the variance of inflation, 6 percent (inversely related to growth). The contribution of each of these variables, however, was found to vary across countries; for example, the increase in the share of exports in Korea's total output was estimated to have been the single most important determinant. While these studies suggest that the evidence in favor of export promotion as the initiator of domestic growth is not as strong as previous studies have indicated, they do not negate the strong interdependent relationship between export expansion and GDP growth nor the importance of export growth in raising real GDP for selected countries.

This study proposes to assess the relationships among export diversification, export and economic growth for individual countries. Gini-Hirschman coefficients were calculated annually for a sample of 59 developing countries, for the period 1964-81 1/ (Table 9). These coefficients reflect both the number of export product groups and the share of each product group in total exports; the larger the number the more concentrated, or less diverse, a country's export earnings are said to be. The calculations were based on the three-digit SITC classification. Primary goods and mineral exports were included in primary goods exports; manufactured goods included both final goods and semi-processed agricultural goods; energy products were considered separately. Gini-Hirschman coefficients for non-energy primary products and manufactured goods, calculated to illustrate the source of increased concentration or diversification, are presented Annex III, Table 20.

1/ Data are not generally available beyond 1981 on the SITC classification. Indeed, Zambia, India, Mexico, and Nigeria have been included in the sample despite the lack of 1981 data. Exports include re-exports as well as gross exports from free trade zones.

Table 9. Selected Developing Countries: Diversification, Export Growth, and Real GDP, 1964-81

	Cini-Hirschman Coefficient of Export Concentration			Share in Total Exports				Average Annual Rate of Growth			
				Manufactures		Energy		Exports		Real GDP	
	1964	1981	Change	1964	1981	1964	1981	1964-71	1972-81	1964-71	1972-81
				(In percent)							
Group A. Increased diversification and high or increasing growth											
Brazil	55	19	35.2	13.5	52.1	0.2	5.1	9.5	23.1	8.6	7.1
Colombia	73	50	22.9	6.0	29.7	15.3	1.6	5.6	15.7	5.9	5.2
Sri Lanka	65	42	22.7	9.6	21.9	0.0	14.2	-1.2	12.0	5.9	5.3
Uruguay	54	32	21.3	12.4	35.4	0.0	1.0	2.8	19.5	2.0	3.2
Thailand	43	27	16.9	8.9	32.7	0.1	0.0	7.4	23.9	7.7	7.1
Malaysia	49	35	13.6	20.5	47.5	4.9	26.6	5.6	21.8	6.2	7.9
Pakistan	41	29	11.5	31.6	53.5	0.8	6.6	5.9	15.3	2.5	5.4
Jordan	46	36	10.7	19.4	50.1	0.0	0.0	6.0	35.4	4.5	7.2
Côte d'Ivoire	52	42	10.6	29.8	29.9	0.0	7.5	8.9	18.7	6.1	5.0
Philippines	39	29	9.2	35.5	61.3	0.5	0.7	5.6	17.7	4.9	5.9
Mauritius	99	90	9.1	0.0	38.3	0.0	0.0	-3.8	17.3	-0.1	5.5
Hong Kong	40	38	2.7	96.5	98.2	0.0	0.1	16.7	20.1	6.7	9.4
Yugoslavia	17	15	2.1	63.8	87.3	1.4	2.1	11.7	19.5	6.5	5.1
Ecuador	57	57	0.9	4.6	7.4	0.4	61.9	5.7	27.0	6.0	8.7
Korea	24	23	0.6	48.5	91.8	2.1	0.9	36.7	34.9	10.9	7.4
Singapore	31	31	0.4	43.1	55.8	18.4	32.0	5.7	28.2	9.9	8.9
Group B. Increased diversification and lower growth											
Greece	43	19	23.7	16.7	64.6	0.2	9.5	10.9	20.4	7.6	4.0
El Salvador	57	35	22.2	15.6	38.9	2.9	4.3	5.1	7.9	5.2	1.9
Chile	67	45	21.5	5.2	19.0	0.0	1.8	7.4	14.6	4.4	2.2
Panama	55	37	17.4	3.0	15.6	40.9	18.3	11.6	10.6	7.3	4.9
Costa Rica	50	35	15.4	15.0	34.9	0.0	1.2	11.8	16.2	6.9	4.7
Ghana	72	57	14.5	15.7	7.1	1.0	12.3	2.8	9.7	3.1	0.1
Turkey	36	22	14.2	4.1	43.8	2.3	2.4	7.9	21.4	6.1	4.6
Trinidad and Tobago	77	63	13.8	6.0	8.5	84.5	90.2	4.6	21.9	3.7	3.2
Cyprus	37	25	12.0	10.1	70.5	0.0	5.7	9.5	17.4	7.9	2.8
Israel	41	30	11.5	75.2	85.5	2.5	0.3	13.5	19.4	8.4	4.2
Burkina Faso	59	48	11.4	10.1	15.0	0.1	0.2	8.7	16.8	5.0	0.4
Senegal	52	42	10.0	50.3	32.2	0.0	37.4	1.5	16.2	4.4	1.9
Western Samoa	57	48	9.5	0.6	14.4	0.0	0.0	-1.6	5.1	3.3	2.4
Nicaragua	50	42	8.1	6.3	11.5	0.0	2.0	7.9	10.0	5.6	0.6
Zambia 1/	91	83	8.0	1.1	0.7	0.1	1.2	5.6	3.6	7.6	1.9
India 2/	26	18	7.8	48.5	60.5	1.4	0.0	3.2	14.3	3.7	3.5
Argentina	32	24	7.7	17.6	28.0	0.4	6.8	3.1	18.0	4.2	1.5
Liberia	72	65	7.1	0.1	10.2	0.0	0.1	14.4	8.9	6.2	-0.1
Fiji	84	78	5.3	11.9	19.3	0.0	0.0	2.1	14.8	7.8	4.5
Tanzania	41	36	4.8	15.9	13.0	0.0	0.2	4.2	8.6	5.7	3.6
Zaire 3/	48	44	4.3	21.4	8.8	0.3	1.4	9.2	5.1	6.3	0.1
Peru	34	30	4.3	4.0	21.6	1.5	25.9	6.5	10.1	4.9	3.2
Honduras	44	40	3.9	16.5	18.4	0.0	0.3	10.6	14.6	5.5	4.3
Ethiopia	63	62	1.0	1.6	1.7	0.0	7.9	4.3	11.8	4.5	2.6
Group C. Increased concentration and high or increasing growth											
Dominican Republic	56	57	0.5*	5.3	20.9	0.0	0.0	4.2	15.2	4.9	6.3
Morocco	35	37	1.6*	22.9	37.2	0.8	4.5	3.3	16.6	3.4	4.6
Kenya	39	41	2.1*	17.0	15.8	4.8	32.0	6.6	18.8	5.7	5.7
Egypt	53	58	4.4*	17.6	9.5	9.0	64.6	5.4	15.1	4.2	5.4
Algeria	62	77	14.6*	22.5	1.4	59.4	98.0	1.6	31.5	2.4	7.2
Niger	66	80	14.7*	12.3	5.7	0.0	0.9	8.7	28.0	1.7	5.1
Indonesia	45	62	16.8*	5.0	7.9	36.9	79.8	7.0	33.9	5.0	7.8
Malta	24	45	20.5*	76.3	98.0	3.7	0.0	9.4	27.0	8.0	9.6
Tunisia	33	53	20.5*	53.5	38.7	0.1	54.0	7.0	27.8	6.8	6.9
Mexico 2/	23	63	39.5*	19.9	14.8	4.2	67.8	5.8	31.2	7.1	6.9
Group D. Increased concentration and lower growth											
Portugal	19	20	1.0*	86.2	88.2	1.8	7.1	12.2	14.8	6.9	4.2
Malawi	49	52	2.6*	4.1	9.3	0.0	0.0	9.4	15.8	5.6	2.7
Togo	49	55	5.4*	5.4	15.7	0.0	1.3	15.1	13.9	8.2	1.8
Vanuatu	69	77	8.6*	0.4	6.6	0.0	0.0	10.7	1.0	5.1	4.5
Madagascar	34	44	9.2*	10.3	8.8	0.0	7.9	7.5	8.2	3.5	-0.7
Venezuela	70	80	9.6*	1.4	2.5	91.6	92.9	2.2	18.9	5.4	3.7
Papua New Guinea	38	53	15.7*	29.6	20.3	0.1	0.0	9.8	25.9	6.9	2.7
Jamaica	42	63	21.0*	38.1	71.3	2.6	2.7	6.7	11.4	5.7	-0.8
Nigeria 1/	39	95	55.8*	16.4	0.9	13.4	95.1	16.8	25.4	6.2	1.5

Source: IFS, UN SITC Data - 3-digit level.
*Indicates increased concentration (negative number).

1/ 1981 data not available; latest available data 1979.
2/ 1981 data not available; latest available data 1980.
3/ 1981 data not available; latest available data 1978.

Average annual increases in export earnings and in real GDP were measured for the periods 1964-71 and 1972-81. The choice of periods allowed for the increase in global inflation, and for price and exchange rate instability that has occurred since 1971. Separation into two periods also permits a comparison of the trend path of economic growth in 1964-71 corresponding to a given level of export diversification in 1964 with that attained in 1972-1981, corresponding to a different degree of export diversification. The rate of growth of the volume of world trade differed only slightly between the two periods, falling from an annual average of 6 percent in 1964-71 to 5.6 percent in 1972-81. Countries were classified into four categories: (i) Group A--increased diversification of the export base between 1964 and 1981 associated with relatively high and sustained real growth and/or increased real growth; (ii) Group B --increased export diversification associated with a slowdown of economic growth between 1964-71 and 1972-81; (iii) Group C--increased concentration of the export base on a narrower range of products associated with relatively high and/or increasing real growth; and (iv) Group D--increased concentration and declining real growth. The final two groups are dominated by countries that increased their dependence on energy products, reflecting the substantial increases in petroleum prices in the 1970s. 1/

Most countries for whom export diversification took place recorded lower average annual rates of growth in the period 1972-81 than in the period 1965-71, reflecting the adverse domestic consequences of the deterioration in the terms of trade that took place in most developing countries in the later period. There were, however, 16 countries--half of which are Asian countries--where export diversification was accompanied by increased or sustained high levels of economic growth. Increased export concentration was almost equally distributed among high and/or increasing growth--generally, by countries where the terms of trade improved in the later period--and falling growth countries. Of the countries sampled, Mauritius had the least diversified export base in 1964 with export earnings almost entirely derived from sugar, but since then its export base has expanded to include textiles. Yugoslavia, in both 1964 and 1981, had the most diversified export base, although the composition of its exports shifted; in 1964 manufactured goods accounted for only 64 percent of total export earnings, but by 1981 this share had risen to 87 percent. Brazil recorded the greatest increase in export

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1/ To determine whether the parameter values associated with one group are different from those associated with another, a Chow test was performed on the parameters arising from linear regressions, using cross section data, relating the change in export diversification and the change in real GDP for the two periods. The results, presented in Annex III, Table 21, support the hypothesis that the combined groups (A and B) and (C and D) are statistically distinct.

diversification between 1964 and 1981, as measured by the fall in the Gini-Hirschman coefficient from 55 to 19 over the period; manufactured goods became an increasingly important source of foreign exchange. The greatest reduction in a country's export base was recorded by Nigeria over the period 1964-79, reflecting the increased importance of oil along with the stagnation in palm oil exports, ground nuts, and cocoa; by 1979 Nigeria had the least diversified export base of the countries sampled.

IV. The Role of Policy in Achieving Export Diversification

1. General Policy Framework

The set of economic policies pursued by the government can aid or hinder the process of diversification. The government can provide a climate attractive to investors and a framework in which diversification of production--including production for export--can give rise to a higher growth path of GDP by implementing appropriate monetary and fiscal policies, and supply-side policies that allow exports to maintain competitiveness abroad and that provide adequate incentives for domestic production.

a. Macroeconomic Policy

Macroeconomic policies have as common objectives: (i) maintaining internal balance between aggregate demand and supply to avoid inflationary pressures; (ii) avoiding unsustainable external imbalances; and (iii) maintaining, or strengthening the conditions for achieving a satisfactory rate of long-term output growth. The primary macroeconomic instruments--monetary and fiscal policy--and exchange rate policy play a major role in demand management and in facilitating adjustment to exogenous shocks. Ideally, these policies should be carried out in such a way as to meet the criterion of efficient resource allocation.

Consistency over time and coherence among policies are a *sine qua non* for creating an environment in which long-term decisions about productive investment can take place and export diversification can occur, in line with a country's evolving comparative advantage. When macroeconomic polices, however, are subject to frequent modification, long-term investment decisions can be distorted, encouraging savings to move into inventories of goods, financial investments, or abroad. Lack of coherence among policy instruments invariably produces results that are counter to those intended. For example, excess demand pressures stemming from fiscal deficits can contribute to both internal and external imbalance notwithstanding the stance of monetary or exchange rate policy. In the case where all or part of the fiscal deficit is monetized and the exchange rate is not fully flexible, fiscal deficits can result in balance of

payments deficits. 1/ Similarly, devaluations of the exchange rate that are not supported by appropriate fiscal and monetary policy, would only provide short-term stimulus to the export sector. Successive devaluations of the nominal rate to isolate the external sector from unchecked excess domestic demand pressures can induce a vicious cycle of rising inflation and devaluation and an indexing of the money supply to the price level (Adams and Gros, 1986). Ultimately, the loss of control over the inflationary process would distort new investment decisions. When policy shifts direction frequently, long-term investment and export-marketing commitments are hindered by the attendant uncertainties.

b. Supply-Side Policies

Supply-side policy variables can also be used to influence the distribution of resources among productive sectors--import substituting, exportables or nontraded goods. Structural policies such as pricing policies, incomes policies, trade policies, and specific aspects of taxation, subsidies or spending policies can affect the overall level of savings and investment, thus impacting on domestic growth. Exchange rate policy, in addition to its demand management functions, also has supply-side implications. In this regard, policies that are not significantly biased against exports or in favor of imports are considered to be "neutral" and, as such, contribute to the elimination of distortions. In turn, such a policy stance would result in the development of production along the lines dictated by comparative advantage. Policies which are biased in favor of exports--called by Bhagwati (1986) "ultra export promotion policies"--may lead to new distortions and inefficient allocation of resources.

A subgroup of supply-side policies--called in this paper sector-specific policies--can change the rate of return between products within the export sector and, thus, have a direct impact on export diversification. Sector-specific policies, however, have often been used to offset distortions that have arisen from macroeconomic policy variables. Further, sector-specific policies often have favored manufactured goods exports and have been biased against traditional exports. Depending upon the degree of bias, such policies can shift resources from efficient production, in which the country enjoys a comparative advantage, to inefficient production that depends on the existence of domestic subsidies in order to compete internationally.

1/ Milne (1977), Kelly (1982), Tanzi and Blejer (1984).

2. Country experience

a. Assessment of the general economic environment for individual countries

In reviewing the selected indicators for the 59 countries sampled, there appear to be a number of characteristics that are shared by countries that have diversified their export bases, expanded export earnings and realized high rates of domestic growth (group A countries). High growth countries, independent of the degree of export diversification, however, tend to exhibit higher rates of national saving and investment as a proportion of GDP. The high ratios of national savings and investment to GDP recorded by countries that increased their export concentration, however, were predominantly oil-exporting countries that benefited by the sharp improvement in their terms of trade. For those countries that diversified their export base, those that also realized higher domestic growth also tended to experience lower inflation rates and a relative greater improvement of international competitiveness, as measured by the real effective exchange rate (Table 10). There are, however, notable exceptions; for example, while most of the countries of Group A experienced relatively low rates of inflation during the 1964-81 period, Brazil did not. In fact, by the early 1980s, Brazil's annual inflation rate had reached triple digits. Yet Brazil achieved the greatest degree of export diversification of the countries studied, increased manufactured goods exports, and realized high rates of growth of export earnings and real GDP. Nor does improving international competitiveness alone guarantee a successful outturn. Malawi's external competitiveness, as measured by its real effective exchange rate, improved over the period but its export base became more concentrated, and while the growth of export earnings accelerated, real growth declined. These examples underscore the need for caution in interpreting the role of individual policies for any particular country.

A variety of macroeconomic policy instruments are available to foster the conditions necessary for efficient export diversification, growth in export earnings and an expansion of real output. The expansion of domestic credit has been shown to be significantly positively related to the rate of inflation and inversely related to the rate of growth (Johnson, 1985). Domestic credit expansion has tended to be higher, on average, for the higher inflation countries. Further, the change in the rate of credit expansion, has tended to be higher for group B countries, those that experienced a decline in the trend path of economic growth.

The role of interest rates in promoting financial savings and investment has been discussed at length in IMF (October, 1983). It was found that interest rates in allocating resources were more important for those countries with relatively developed financial markets, where savings and

Table 10. Selected Developing Countries: Macroeconomic Indicators 1964-81 1/

(Period averages unless otherwise indicated)

	Investment		Gross National Savings		Central Government Deficit		External Debt		Rate of Growth of CPI		Changes in Terms of Trade		Domestic Credit Expansion		Real Effective Exchange Rate Index 2/	
	1964/ 1971	1972/ 1981	1964/ 1971	1972/ 1981	1964/ 1971	1972/ 1981	1971	1981	1964/ 1971	1972/ 1981	1964/ 1971	1972/ 1981	1964/ 1971	1972/ 1981	1964/ 1971	1972/ 1981
	(As percent of GDP)								(Annual percentage change)						(1980=100)	
Group A--Increased diversification and high or increasing growth																
Brazil	22.5	26.1	22.0	20.2	-1.1	0.6	30.5	36.9	37.6	42.7	1.9	-3.9	45.4	59.0	152.1	130.3
Colombia	19.5	18.7	16.3	18.3	1.0	0.2	26.5	25.2	10.0	23.0	3.7	1.9	18.5	24.4	107.0	91.0
Sri Lanka	15.9	20.0	13.2	15.9	-6.7	-9.9	16.9	45.9	3.4	10.2	-5.7	-7.5	10.2	26.0	301.9	155.7
Uruguay	11.6	14.5	10.8	11.3	0.0	0.0	17.4	19.5	52.2	64.0	0.5	-2.0	51.0	71.0	80.9	80.6
Thailand	23.5	26.6	22.1	22.5	-0.3	-2.2	16.3	30.3	1.5	11.0	-1.5	-3.0	21.7	22.6	124.9	100.6
Malaysia	16.9	26.8	18.5	25.7	-5.1	-7.4	14.0	33.0	1.0	6.7	-2.4	1.0	15.2	27.3	128.0	109.9
Pakistan	16.5	16.4	11.3	11.1	-5.4	-7.5	36.3	32.9	4.9	12.9	-1.3	-0.9	14.1	17.4	190.7	104.4
Jordan	17.1	33.2	17.4	34.0	-5.8	-9.2	28.0	58.3	4.0	11.6	-4.5	1.0	17.2	29.2	87.4	93.9
Côte d'Ivoire	19.4	25.0	18.0	15.5	-5.1	-6.4	23.5	75.1	3.4	13.1	1.2	-2.5	15.4	26.9	76.6	83.7
Philippines	20.7	27.7	19.2	24.2	-1.9	-1.3	29.0	56.8	7.6	13.8	-2.0	-5.9	13.7	24.4	140.4	96.6
Mauritius	15.6	29.1	14.0	24.0	-6.2	-8.1	20.5	37.5	2.4	16.0	-5.0	-1.1	20.7	32.5	112.3	98.2
Yugoslavia	39.9	42.1	36.6	40.2	-1.9	-1.1	22.0	32.0	14.1	20.9	0.7	-0.7	28.5	24.2	89.6	97.0
Ecuador	17.2	24.2	12.0	20.0	-3.3	-1.6	27.9	46.5	5.1	13.4	1.7	5.4	15.3	22.5	102.5	94.4
Korea	22.4	28.9	18.1	23.5	-1.7	-2.0	29.2	43.8	14.7	17.0	2.2	-3.0	40.1	34.0	127.2	100.1
Singapore	27.3	40.3	13.3	29.0	-0.3	1.4	18.7	4.4	1.2	7.1	0.5	0.3	23.5	33.9	121.0	110.0
Group B--Increased diversification and lower growth																
Greece	25.2	28.6	22.0	23.6	-0.5	-4.7	15.0	23.4	2.4	16.5	-1.9	-1.4	17.0	24.7	114.3	100.2
El Salvador	14.6	19.0	12.1	16.0	-0.5	-1.9	14.6	36.7	1.0	12.2	1.0	-1.0	9.0	19.4	94.7	93.2
Chile 3/	17.0	10.9	15.7	3.9	12.1	3.7	26.8	47.6	28.0	130.2	4.5	-4.0	N.A.	159.8	493.6	156.0
Panama	22.7	29.8	20.9	20.7	-1.1	-7.3	21.2	62.0	1.6	7.6	-0.9	-0.1	20.7	18.7	145.7	111.4
Costa Rica	19.6	24.7	13.1	12.2	-5.4	-5.3	29.0	179.9	2.3	14.0	0.4	-1.9	11.1	29.3	121.2	100.9
Ghana	14.0	8.1	7.1	8.3	-8.1	-7.4	39.4	3.7	8.7	50.2	0.0	-4.8	20.5	35.6	30.6	74.2
Turkey	17.3	23.2	17.5	19.6	-1.4	-2.3	31.0	35.1	6.1	33.2	-0.1	-5.5	14.7	43.5	136.3	113.4
Trinidad and Tobago	21.9	27.9	15.9	31.4	9.1	6.4	10.2	14.8	3.2	14.2	-1.7	4.0	17.1	-46.3	127.5	101.0
Cyprus	21.7	29.4	20.9	21.8	0.6	-5.8	6.4	32.3	1.7	8.5	1.2	-1.0	10.1	24.0	132.5	106.1
Israel 4/	27.9	28.4	21.9	21.0	-15.7	-18.5	79.2	113.3	5.6	51.3	0.2	-1.6	28.4	69.1	134.3	110.5
Burkina Faso	11.9	22.5	12.0	18.2	-8.9	-6.1	6.0	32.8	1.5	9.2	-0.6	-0.8	-8.4	44.3	119.2	97.0
Senegal 5/	14.2	17.9	10.7	10.2	-1.0	-2.8	14.0	55.1	3.9	10.3	3.2	0.2	9.6	24.9	100.8	103.0
Nicaragua	19.7	15.9	13.0	8.5	-1.1	-6.0	22.9	108.0	14.5	18.5	-2.5	-1.8	14.6	34.5	55.5	96.4
Zambia 6/	26.5	27.6	32.9	19.1	-3.1	-12.5	44.0	75.7	6.0	11.9	-4.7	-10.0	138.3	27.1	119.9	108.3
India	18.1	22.0	16.7	22.2	-3.9	-4.7	15.1	12.5	7.4	8.7	1.3	-5.0	11.3	18.0	157.2	113.6
Argentina	19.1	23.2	19.0	22.7	3.9	-6.5	21.1	47.2	12.6	128.7	0.6	4.0	515.5	144.9	73.3	79.2
Fiji	23.2	24.7	16.3	17.5	-2.4	-3.3	31.9	26.4	3.7	10.5	-2.5	2.6	18.8	26.2	106.5	98.5
Tanzania 7/	17.9	21.5	18.3	14.7	-4.5	-7.4	23.7	33.6	10.3	16.1	-3.3	-1.9	23.5	28.0	80.1	93.7
Zaire	22.4	27.8	24.2	14.0	-3.0	-9.7	19.4	100.9	18.5	44.6	4.4	-0.3	16.8	39.7	48.3	85.1
Peru	16.5	17.0	14.3	12.0	-6.1	-4.9	49.8	58.6	10.2	36.8	2.0	-1.5	-1.8	43.3	142.8	120.8
Honduras	17.4	21.7	13.9	13.5	-4.2	-5.3	18.5	61.3	2.5	8.8	-1.4	-1.9	14.3	16.1	120.5	101.4
Ethiopia	12.8	10.0	11.1	8.7	-0.9	-3.5	9.9	21.2	2.9	11.0	1.3	-1.3	15.7	18.6	87.6	88.6
Group C--Increased concentration and high or increasing growth																
Dominican Rep.	15.9	23.1	10.2	18.0	0.3	-1.1	24.8	25.7	1.3	10.7	-1.2	1.5	12.7	17.1	99.5	101.7
Morocco	13.4	23.0	13.5	17.3	-8.6	-9.6	19.7	70.3	1.8	9.4	-0.7	1.8	8.3	20.0	113.7	101.0
Kenya 7/	19.1	24.4	17.4	17.0	-3.0	-4.8	27.1	47.1	2.0	12.8	-0.9	-4.4	20.4	23.1	122.8	97.4
Egypt	15.5	25.5	12.1	21.2	-20.4	-17.8	77.0	98.5	4.9	10.1	0.1	3.1	8.1	26.8	186.1	135.6
Algeria	24.9	44.8	26.5	39.6	-6.4	-4.3	24.3	34.9	7.5	9.7	2.2	17.0	17.1	23.3	94.9	99.7
Niger	9.6	20.4	9.0	15.6	-2.0	-3.4	35.6	41.3	3.6	12.9	-0.6	3.1	5.8	29.6	97.1	98.5
Indonesia	10.1	20.9	7.1	20.1	-1.9	0.2	59.9	24.4	122.8	18.3	5.3	13.6	81.4	28.5	68.6	109.5
Malta	29.3	25.2	32.8	34.2	0.7	0.5	8.1	9.7	1.9	7.6	-0.7	-2.8	23.9	3.6	148.5	107.0
Tunisia	23.5	27.8	18.9	23.1	-2.1	-3.8	33.4	40.8	3.9	6.4	-1.5	10.4	9.7	18.9	136.9	113.2
Mexico	20.2	24.0	18.3	20.2	-5.2	-4.5	20.0	33.5	3.7	18.8	2.0	4.4	11.8	42.4	95.9	97.5
Group D--Increased concentration and lower growth																
Portugal	19.4	26.8	21.7	22.2	5.3	-4.9	9.2	48.9	5.4	19.4	-2.2	-1.0	12.7	25.7	93.0	110.9
Malawi 6/	16.6	26.7	10.0	16.3	-7.1	-8.2	32.3	57.7	4.9	10.6	-0.2	-3.9	32.0	26.9	107.2	97.3
Togo	16.4	31.8	17.1	23.8	-7.6	-8.5	15.0	95.8	2.3	11.4	3.7	-0.2	13.0	29.6	115.5	103.9
Madagascar	14.5	15.6	15.2	14.4	-3.0	-6.7	13.2	55.1	2.6	11.6	-0.9	0.0	13.8	24.7	109.4	99.9
Venezuela	24.4	31.3	26.0	33.1	0.7	-0.3	21.3	57.1	1.9	9.7	0.8	17.8	10.3	23.1	114.6	97.7
Jamaica	26.7	21.0	20.1	13.2	-5.0	-13.4	62.2	62.0	4.3	18.9	-0.6	-1.1	18.7	25.7	99.7	106.9
Nigeria 8/	16.3	24.5	11.0	24.7	-35.2	-9.0	5.2	10.5	6.1	15.9	-0.4	18.7	22.1	104.2	54.9	81.3

Source: IFS and Fund staff estimates.

1/ The countries and the ordering of the countries presented in this table are the same as those presented in Table 9.
2/ Calculations based on changes in relative consumer prices; an increase implies a real effective appreciation of the exchange rate.
3/ Data for domestic credit expansion are not available for 1964 to 1971.
4/ Data for investment and savings for 1981 are estimates.
5/ Data for investment, savings, and credit were calculated over the period 1969 to 1971.
6/ Data for credit were calculated over the period 1966 to 1971.
7/ Data for credit were calculated over the period 1967 to 1971.
8/ Data for investment and savings are estimates.

investment decisions are separated--that is, undertaken by different economic agents--and where capital was relatively freely mobile, characteristics shared by, but not unique to, most group A countries. While time series data are not readily available on real interest rates, there are indications both from the case studies (see below) and from recent research (Galbis, 1979, IMF, 1983) that countries in group A have tended to maintain real interest rates that were sufficiently renumerative to encourage financial savings, while the majority of countries in group B did not.

Financing requirements stemming from public sector deficits can crowd out productive investment, notwithstanding positive real interest rates. Recourse to foreign borrowing, moreover, to finance current expenditures or inefficient investment eventually will reduce, to the extent of the debt service, the impact on the domestic economy of higher export earnings. On average, countries where the export base became more concentrated and economic growth was sluggish (group D countries) were those with relatively high fiscal deficits 1/ relative to GDP. Both group B and D countries exhibited significant increases in external debt to GDP ratios between 1964 and 1981, suggesting that for group B countries, the impact of diversification and increased export earnings on the domestic economy was partly offset by increased debt service payments.

While the level of aggregate investment has been found to be positively related to economic growth, Blejer and Khan (1984), in reviewing the role of public sector investment for 24 developing countries (mostly Latin American and Asian), found that increasing public sector investment in infrastructure affects private investment positively. Raising other types of public investment, however, tends to crowd out the private sector. Thus, where public sector investment spending complements private investment, total investment is increased with its concomitant effect on real output. Unfortunately disaggregated data are not readily available for a wide sample of countries but results from the case studies, discussed below, lend support to Blejer and Khan's conclusions. At the same time, direct public subsidies to private investment have tended to result in a loss of efficiency (for example, see Martin and Page, 1983).

Flexible management of the exchange rate, supported by appropriate monetary, fiscal, and income policies, appears to have been undertaken by

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1/ Care must be taken in interpreting these findings because of data limitations and the inclusion of only the central government deficit in the statistics. Where public enterprise operating deficits are covered by central government transfers, the central government deficit can serve as a proxy for public sector excess demand. This is not the case when operating deficits of public enterprises are financed directly by the banking system.

those countries that achieved diversification of their export bases and real growth in exports (group A countries). Maintenance of the real effective rate by frequent adjustments to the nominal rate rather than redressing the underlying causes of inflation, as occurred in Argentina, resulted in a deterioration of private sector confidence and increased uncertainty, so that higher export growth was not translated into higher overall economic growth. Further, when the terms of trade have deteriorated, as occurred in Malawi in 1972-81, maintenance of the real effective rate is not sufficient to restore external equilibrium; in such cases, the relative price of traded goods needs to be increased.

The importance of maintaining a trade system that is not biased against exports is well-documented in the literature. Krueger et al. (1981) provide detailed documentation on the shift in policy stance from import-substitution to export promotion for ten developing countries in the 1960s and early 1970s. 1/ Only one of the countries studied, Chile, exhibited lower economic growth in 1972-81 than in 1964-71: it was the one country studied where the shift in tariff policy stance had failed to take place. Chile's policies, through the early 1970s, remained more or less focused on import substitution and effective protection of domestic industry was relatively high, with the greatest protection being accorded to capital-intensive industries. Consequently, industrial development tended to be biased toward non-traded goods, and exports, at that time, did not tend to reflect Chile's relative factor endowments. Similarly, Reynolds (1985) reviewed the growth performance of 41 developing countries over the period 1850-1980 (of these, 25 countries are also included in this study) and found that those non-oil developing countries realizing relatively high rates of economic growth (Brazil, Colombia, Côte d'Ivoire, Kenya, Korea, Malaysia, Pakistan, the Philippines, Sri Lanka, and Thailand) were also those which maintained only moderate effective rates of domestic protection. Tariff structures that supported industrial development via import substitution, according to Reynolds, were predominantly maintained by those countries that are classified as Group B countries in this study.

While effective management of excess demand and supply-side policies that are conducive to export diversification have been adopted by most developing countries that have increased their export earnings and domestic growth, other policies--tending to be country-specific--have been adopted by particular countries. For example, social security programs can raise public sector savings, as in Panama, where the working population tends to be relatively young; compulsory payroll deduction schemes, such as implemented by Singapore, have contributed to increased national savings. Both schemes may, however, unduly raise the price of labor and result in a

1/ Countries included were Brazil, Chile, Colombia, Côte d'Ivoire, Indonesia, Pakistan, Korea, Thailand, Tunisia, and Uruguay.

shift toward capital-intensive investment, or a loss of foreign investment to lower-wage countries. 1/ Allocation of bank credit to sectors to encourage investment was successful in Korea but failed in Ghana, where actual credit allocations diverged significantly from those planned. Brazil's adoption of a monetary correction policy through 1978 allowed for the maintenance of incentives to savings and investment, notwithstanding rising inflation. Some countries (Colombia, Malaysia, Costa Rica, Honduras) have efficiently utilized export taxes to raise fiscal revenues and stabilize producer incomes over time without adversely affecting the supply of traded goods. Most countries, however, maintain export taxes higher than what would be considered optimal, with resultant adverse consequences for export supply (Sanchez-Ugarte and Modi, 1986).

It is important to stress, however, that adoption of one or more of the "correct" policies without reference to underlying economic factors, such as excess demand conditions, can yield results that are the exact opposite of those desired. For example, interest rate policy alone is not sufficient to promote efficient investment. Argentina liberalized interest rates in 1977; rates became positive in real terms, and financial savings increased; the high interest rates combined with a preannounced schedule of devaluation stimulated large capital inflows in 1979. Fiscal, monetary, and incomes policies, however, were expansionary; inflation accelerated and the exchange rate became overvalued, stimulating a speculative capital outflow. Real interest rates increased further but financial savings declined and investment shifted out of productive activity into both domestic assets, whose return was linked to the rate of inflation, and foreign assets.

It is these contrasting results that point to the importance of policy coherence and the need to review the entire macroeconomic policy framework. Furthermore, the role that sector-specific policies played in promoting or impeding efficient export diversification differed among countries. A number of individual country studies are presented in Annex II, including Malaysia, and Côte d'Ivoire (both Group A countries), and Ghana and Argentina (Group B countries). These studies provide insights into the role of policy and are summarized below.

b. Lessons from the country studies

In-depth investigations for a number of countries of export diversification, export growth, variability of earnings, the trend in recent economic activity and the role of government policy are contained in Annex II. These studies have provided the basis for the broadly drawn conclusions delineated below.

1/ Indeed, such an outturn precipitated Singapore's lowering, in 1986, of Central Provident Fund rates to enhance competitiveness.

When unimpeded, export diversification tends to respond to changes in international comparative advantage; attempts to force diversification by influencing the relative rates of return between primary products and manufactured goods through taxes, tariffs, subsidies, or producer pricing policies have not proven successful over the long term. Indeed, at the extreme, such a policy bias has led to a decline in the traditional, primary sector that is significantly greater than the increase in the manufactured goods sector (Ghana). Diversification of production for export was facilitated by public sector investment in infrastructure (free trade zones in Malaysia and irrigation and transportation facilities in Côte d'Ivoire). Where public investment took the form of direct investment in the means of production, efficient resource utilization was impeded (Ghana, Malaysia in the early 1980s). There is some evidence, however, that an efficient industrial sector, which eventually can compete abroad, can benefit initially from moderate import protection and special incentives (Malaysia). Maintaining too high a level of protection for too long, however, contributed to the development of an inefficient import-substituting sector (Côte d'Ivoire after 1973, Ghana, Argentina). Where tariff structures were cascaded, that is, final goods protected by rates that were higher than those for raw material inputs, intermediate goods, or capital goods, production remained highly dependent upon imported inputs and few backward linkages developed (Ghana). Where tariff barriers were moderately and fairly uniformly applied, backward production linkages took place (Malaysia).

Diversification and the growth of export earnings are strongly influenced by real effective exchange rate developments. Export growth of all countries studied responded positively to improved international competitiveness. New investment, which is a factor in diversifying the export base, was more responsive to the maintenance of international competitiveness via control of inflation (Malaysia). Adjustments in nominal exchange rates to accommodate prevailing inflation, as happened in Argentina, tend to reduce investor confidence and encourage investment in financial assets or real assets that appreciate with the increase in prices rather than in productive activities.

Export earnings instability tended to be higher for those countries where primary products were an important source of foreign exchange earnings. Instability was also affected by the stance of government policy. Broadly inappropriate fiscal, monetary and exchange rate policies, sustained over a long period of time--as in Ghana--resulted in a foreign exchange constraint that hindered access to necessary imported spare parts and raw material inputs. Producers could export only when inputs were available for production. Lack of consistency over time in the stance of policy also raised earnings instability; for example, in Argentina, at times the real effective exchange rate appreciated significantly before being corrected by a large devaluation and export earnings

fluctuated accordingly as the relative return between exports and home sales changed. The impact of earnings instability on the domestic economy also depends on the role of policy. Instability of exports earnings was reduced by government participation in quality control of export products (Malaysia) and the maintenance of adequate producer prices (Côte d'Ivoire). Sliding-scale export taxes have been used to offset export fluctuations by most countries but where taxes or inadequate producer prices transferred to the government most of the economic rents which would have accrued to the export sector, the production of exportables declined and export volume instability increased (Ghana).

The macroeconomic policy framework is fundamental to translating higher export earnings into higher real growth and to providing an environment conducive to investment, including investment in new export activities. In the case of Malaysia and Côte d'Ivoire, growth in export earnings was reflected in higher economic growth; in Argentina, export growth--reflecting for the most part selected incentives to primary product exports--did not result in higher real growth. For the period studied, Malaysia followed cautious monetary and fiscal policies, while Argentina tended toward a stop-go policy of demand management relying on fiscal restraint and exchange devaluations; at the same time, monetary policy was generally accommodating and increases in real wages were not supported by productivity gains. For the most part, Argentina's higher export earnings had higher imports or capital outflows as a counterpart in the balance of payments, the latter reflecting, at times, differential higher interest rates abroad, speculation against the peso, and higher debt service payments.

In summary, those countries that realized export diversification, export growth, and high real growth maintained, for the most part, a stable noninflationary environment, where there were few restrictions on private initiative, and where public sector spending complemented rather than competed with private capital (Malaysia and Côte d'Ivoire). Alternatively, inconsistencies and lack of coherence among policies, maintenance of broadly inappropriate monetary, fiscal, incomes and pricing policies, and the existence of a strong bias against exports through overvalued exchange rates and/or high tariffs were associated with declining or low overall economic growth, and falling or stagnant export earnings (Ghana and Argentina). Although export diversification was achieved by both these countries, in Ghana it reflected a shrinking of the export base and a reduction in importance of the cocoa sector _pari passu_ with the policy-induced decline of the cocoa industry.

V. Summary and Conclusions

This paper has reviewed the recent experience of developing countries in diversifying their export base. It was found that since the mid-1960s, developing countries, as a group, have increased the share of manufactured goods in total exports, with the greatest transformation having occurred in Asian countries and the least in African countries.

With the advent of the debt crisis, developing countries have increasingly turned toward export diversification--and, in particular, diversification into manufactures--as a means by which export earnings can be increased so as to limit the adverse impact of rising debt service on domestic growth. It was found that export diversification into manufactured goods can raise the trend path of export earnings. These findings were based on recent empirical evidence that: (i) the net barter terms of trade for primary products, as a group, compared with manufactures has deteriorated over the long term; (ii) the income elasticity of demand is higher for manufactured goods than for primary goods, in aggregate--implying that, for a given increase in trading partners' income, the increase in demand for manufactured imports will be greater than for primary products; (iii) the demand for imports of primary products is more price inelastic than that for manufactures goods--implying that an increase in total volume of primary products exported will lead to a greater reduction in export price than would an equivalent increase in export volume of manufactured goods; (iv) in the short-run, the supply elasticity for primary products is less than that of manufactured goods; and (v) export diversification may help circumvent barriers to trade. These findings, however, have to be interpreted cautiously. Disaggregated data suggest that there are significant exceptions to the above conclusions: (i) there was no consistent trend found in the net barter terms of trade between beverages and agricultural raw materials, on the one hand, and manufactures, on the other; (ii) income elasticities of demand for some manufactured goods did not differ significantly from those of some primary products; (iii) differential market growth and differential import demand functions among major trading partners have limited the export gains by regions--in particular, the European trading partners of African countries have tended to exhibit both lower income growth while increasing their domestic supplies of traditionally imported food products; and (iv) market imperfections can contribute to a global oversupply of any given product.

With the increase in primary product price instability since the early-1970s, developing countries viewed diversification into manufactures exports as a means to reduce uncertainty of the earnings path and to avoid the adverse domestic consequences of short-run exogenous changes in supply or demand of individual products. In reviewing and extending the recent empirical literature, this paper found that diversification into exports of manufactures has contributed to reducing earnings instability. As the composition of exports shifted toward manufactures, the

absolute level of instability declined and the source of instability shifted from supply factors to demand factors. The notable exception to this trend was African developing countries, where earnings instability remained supply determined. Evidence suggests that the growth of the manufacturing sector for African countries, as a group, did not reduce earnings instability, since such diversification has not generally reflected its underlying comparative advantage and has often taken place at the expense of, rather than as a complement to, traditional primary product exports. Further, because of the structure of domestic protection, African industry is often highly dependent upon imported inputs and, hence, vulnerable to constraints imposed by foreign exchange availabilities. Finally, it should be stressed that instability of export earnings may not be reduced if diversification takes the form of elaborating traditional primary product exports or if the new products tend to exhibit the same phase of price fluctuations as traditional exports.

Export diversification, export earnings growth, earnings instability and the growth of domestic economic activity were found to be interdependent, and the causal relationships between these variables not unidirectional. Thus, greater fluctuations in export earnings may not reduce economic growth, to the extent that variability itself leads to greater savings. Growth in export earnings was found, statistically, to "lead" domestic growth only in a limited number of cases. Finally, diversification into manufactures exports requiring increased imported inputs or financed by foreign borrowing may not impact positively upon the domestic economy. To the extent that the domestic value added declines or resources are used less efficiently, diversification can lower the trend path of economic growth. The lack of a unique relationship between export diversification and real GDP growth is illustrated by changes in export diversification and the trend path of economic activity for a large sample of countries over the period 1964-81.

Finally, the role of policy in creating an environment conducive to export diversification, export growth and economic growth was reviewed. Selected economic indicators for the sample of developing countries and a summary of insights gained from the case studies provide the basis for the broadly drawn conclusions presented. Export diversification, and export and economic growth were facilitated by maintenance of a set of consistent and coherent policies which provided a noninflationary environment, where public investment spending complemented--rather than competed with--private capital, and where there was not a strong bias against exports arising from the exchange and/or trade system. Sector-specific policies often favored the promotion of manufactured exports but were found to be less important than the macroeconomic framework in stimulating efficient export diversification and export growth.

In summary, the paper has reviewed the conditions under which export diversification can lead to higher growth of earnings and economic activity and to lower earnings instability. While broadly supporting the importance of export diversification, particularly into manufactures, the paper shows that diversification of the export base, by itself, is no guarantee that either export earnings or real growth will increase; achievement of these goals depends upon whether the macroeconomic setting is supportive of economic development.

The Measurement of Diversification

It is a widespread practice to measure the degree of a country's diversification of its export base by a concentration index which was first developed by Hirschman (1945), who extended the Lorenz curve measure of relative income dispersions to the traded goods sector. As with the Gini coefficient, the index of country j's export concentration (Cj) is defined as:

$$Cj = 100\left(\sum_i \left(\frac{X_{ij}}{X_j}\right)^2\right)^{1/2} \qquad i = 1, \ldots, n$$

where X_{ij} is the value of the ith good exported by country j, X_j is the total value of country j's exports and n is the number of export product groups. The higher the value of C_j, the more concentrated--or less diverse--a country's exports are said to be; for a country that exports only one product, the concentration index is one hundred. The lower limit also depends on the number of product groups weighted by their share in total exports. Where total exports are divided equally among product groups, the concentration index is defined as $1/\sqrt{n}$.

There are, however, a number of problems with this statistical measure, so that empirical results using this measure have to be interpreted cautiously. The formulation implicitly assumes that the cross elasticities of demand between product groups are equal. Thus, the level of data disaggregation affects not only the absolute value of the index but may also result in a misspecification of the underlying trade structure. Massell (1964) demonstrated the sensitivity of the index to the level of data disaggregation by calculating concentration indices for 1959 based on both the one-digit and three-digit SITC export classification system; the concentration index is uniformly higher when the number of product groups is smaller (Table 11). Changes in the number of product groups, as occurs when the SITC classification moves from the one-digit to the three-digit level, moreover, resulted in changes in the relative position of countries with respect to the degree of export diversification. The coefficient of correlation between the two series for the same year was only .81. Export concentration indices have also proven to be highly sensitive to slight changes in the year for which they are calculated. The correlation coefficient between Coppock's results for 1957 and Massell's for 1959 was estimated to be .725 when both authors calculated their indices based on the one-digit SITC classification.

The calculation of an aggregate index to measure the process of export diversification may not reflect significant shifts in the struc-

Table 11. Comparison of Gini-Hirschman Coefficients of Selected Developing Countries 1/

	Michaely 2/ 1952-55	Michaely 2/ 1954	Coppock 3/ 1957	Massell 2/ 1959	Massell 3/ 1959
Mauritius	98.8 (1)	99.6 (1)	...	99.1 (1)	100.0 (1)
Egypt	84.2 (2)	84.2 (3)	78.0 (8)	...	...
Colombia	84.0 (3)	85.0 (2)	84.9 (4)	78.0 (2)	81.5 (4)
Burma	74.4 (4)	74.4 (4)	85.6 (3)	69.1 (4)	83.1 (3)
Thailand	68.3 (5)	68.3 (5)	81.9 (5)	49.0 (6)	69.1 (6)
Honduras	65.0 (6)	62.7 (7)	81.3 (6)	...	...
Panama	62.8 (7)	62.8 (6)	95.6 (2)	74.0 (3)	99.1 (2)
Brazil	61.2 (8)	61.2 (8)	76.1 (10)	56.8 (5)	77.7 (5)
Costa Rica	60.5 (9)	60.5 (9)	96.4 (1)	...	...
Nigeria	49.3 (10)	49.3 (10)	76.6 (9)	43.9 (7)	64.6 (8)
Indonesia	41.7 (11)	41.7 (11)	63.1 (12)	...	...
Mexico	35.0 (12)	35.0 (12)	52.5 (13)	...	...
Libya	34.1 (13)	34.1 (13)	78.9 (7)	...	...
Argentina	30.6 (14)	28.7 (14)	64.0 (11)	30.3 (8)	72.9 (7)

1/ Figures in parentheses give the rank order of the countries so that the country with the most concentrated export base is ranked first.
2/ Three-digit SITC data.
3/ One-digit SITC data.

ture of domestic production. For example, aggregate concentration indices calculated for Korea, often cited for its emergence as a manufactures goods exporter, show virtually no change when comparing 1964 with 1981 (24 and 23, respectively) (text Table 9). On closer examination, however, a dramatic transformation of its export composition is seen to have occurred (Annex III, Table 20). 1/ Between 1964 and 1981, Korea shifted its export base from primary to manufactured goods becoming more concentrated in exports of primary products as indicated by a rise in the concentration index from 35 in 1964 to 53 in 1981 for primary products. Exports of manfactured goods, as measured by a reduction in the concentration index from 33 to 25 over the same period, reflect an increased diversity of semi-processed primary products as well as final manufactured products. Finally, the index does not distinguish between price and volume factors. Consequently, a sharp fall in the world price of a country's main export product (cet. par.) would be measured as a reduction in export concentration although no change in domestic production had occurred.

The sensitivity of relative country ranking to the representative year chosen and to the degree of data disaggregation, and the failure of the index to reflect changes in the structure of domestic production raise doubts about the validity of cross-sectional studies that rely on rank to correlate aggregate export concentration with other macroeconomic variables. For these reasons, this paper has refrained from presenting econometric results using the Gini-Hirschman coefficient as the dependent variable. The index has been used as an indicator by which countries were grouped; the Chow test, used to test the statistical independence of groups, relied on annual data over the full period 1964-81, and not on changes in the index between two selected representative years.

1/ Unlike other studies, this study includes exports of semi-processed primary products (e.g., refined sugar, butter, sawn timber, tinned foodstuffs, etc.) as part of manfacturing exports. This treatment is consistent with country data classifications and reflects more accurately the development process as initially countries try to increase the domestic value added of products already produced. Disaggregated reliable data for SITC product groups are generally not available beyond 1981 for a large group of countries.

Case Studies

I. Group "A" Countries

1. Malaysia

a. Economic structure, macroeconomic and supply-side policies

Malaysia can be characterized as a small, open, market-oriented economy, where exports and imports of goods and nonfactor services each typically have accounted for more than 50 percent of GDP. Trade has tended to reflect Malaysia's comparative advantage--exports being natural-resource and labor-intensive, imports being relatively technology- and capital-intensive. However, Malaysia has shown itself to be adaptive to changing economic conditions and has enjoyed relatively high rates of economic growth. With a minimum of government intervention, producers have demonstrated their willingness to introduce new products and develop new types of comparative advantage. In the last half of the 1800s, tin formed the basis of Malaya's export base. New plant varieties and production technologies allowed for the emergence of rubber as the principal export in the early 1900s. In recent years, the secular decline in rubber prices has encouraged a shift in cultivation, and rubber has been eclipsed by palm oil exports and the exploitation of natural energy resources--petroleum and LNG. Since the early 1970s, manufactured goods production and exports have exhibited strong growth as both processing of primary products and assembly industries expanded.

In the period under review, 1964-81, Malaysia's exports became more diversified, with the Gini-Hirschman index of concentration falling from 49 to 35 over that period; this diversification reflected mainly developments in the primary goods sector (Table 12). Although the importance of manufacturing as a source of foreign exchange earnings rose, the export base within manufactures became more concentrated in electronics, electrical machinery, textiles and clothing. The source of export earnings instability changed over this period from supply to demand factors, as Malaysia shifted from a dominant world supplier of tin and rubber, to exporting a variety of agricultural and manufactured goods. The increased concentration of manufactured goods on products with relatively high income demand elasticities as well as the increase in the importance of oil as a source of foreign exchange has contributed, however, to an increase in earnings instability between 1962-71 and 1972-85 greater than that exhibited by non-oil developing countries as a whole. Diversification in the non-oil primary sector, conversely, may have dampened earnings variability; the base has been expanded from tin and rubber to palm oil and cocoa, whose prices exhibit relatively low covariance.

Table 12: Case Study Countries: Selected Export Indicators

	Malaysia		Côte d'Ivoire		Ghana		Argentina	
	1962-1971	1972-1985	1962-1971	1972-1985	1962-1971	1972-1985	1962-1971	1972-1986
	(In percent)							
Export instability								
Value	4.3	13.1	6.6	13.3	7.0	13.7	4.1	13.0
Volume	2.6	6.2	6.8	5.8	9.5	15.8	3.8	10.4
Price	4.8	12.1	3.3	12.9	8.5	15.6	4.0	13.1
Sign of covariance	-	+	+	+	-	-	+	+
Composition of exports	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0 1/
Primary	68.1	33.7	68.2	66.6	86.8	85.2	76.3	63.2
Agricultural	(43.3)	(23.1)	(66.9)	(60.3)	(72.6)	(67.2)	(75.8)	(62.3)
Mineral	(24.8)	(10.6)	(1.3)	(0.3)	(14.2)	(18.0)	(0.5)	(0.9)
Energy	6.2	17.9	0.4	5.5	0.5	5.5	0.6	2.3
Manufactures	25.7	48.4	31.4	36.9	12.7	9.3	23.0	34.5
Semi-processed primary	(19.4)	(29.1)	(27.1)	(26.9)	(12.0)	(8.2)	(15.4)	(17.5)
Manufactures	(6.3)	(19.3)	(4.3)	(10.0)	(0.7)	(1.1)	(7.7)	(17.0)
	(Concentration index)							
	1964	1981	1964	1981	1964	1981	1964	1981
Total	49	35	52	42	72	57	32	34
Non-oil primary	64	61	67	63	85	70	38	34
Manufactures	37	39	73	39	65	60	33	33

Source: UN SITC data, IMF, World Economic Outlook, (1986), and Fund staff estimates.

1/ Disaggregate data are not available beyond 1984.

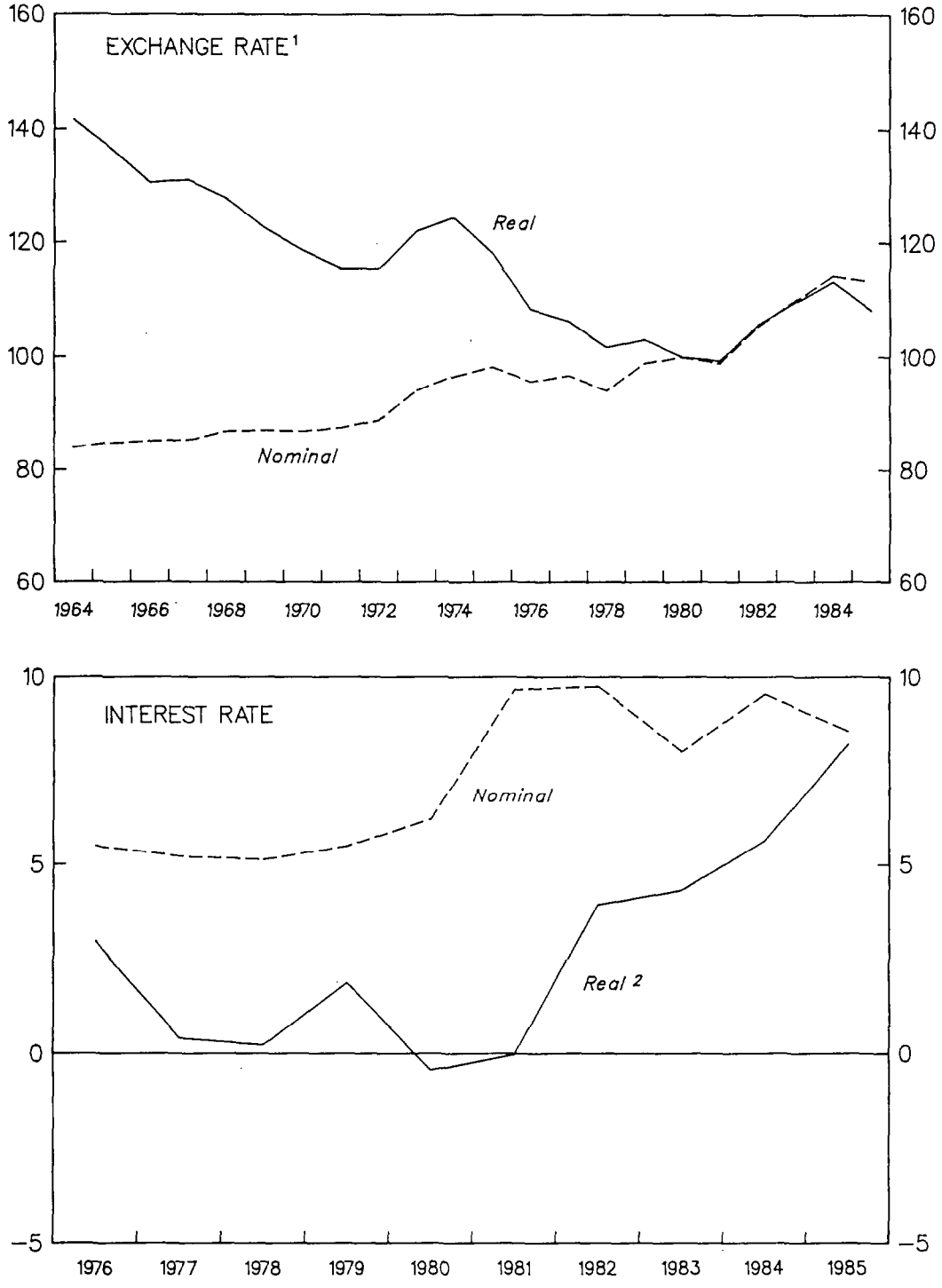
Macroeconomic policy has been key in providing an environment in which investment--particularly in new export-oriented activities--can take place (Table 13). Traditionally, and with only brief interruptions, Malaysia has followed cautious fiscal, monetary and incomes policies. Exports have provided an important source of fiscal revenue, either directly through sliding-scale export taxes or indirectly through royalties or income tax paid by export producers. Some of these funds are returned to the export sector, however, via direct investment subsidies (for example, rubber tree replanting grants) or by government subsidization of research and development, export promotion, and quality control activities. The secular rise in export earnings through the last 20 years has sustained, for most of the post-war period, the long-term growth in public sector revenue above that of current expenditures, and contributed to the relatively high level of national savings. Public sector investment traditionally has concentrated on developing infrastructure and ensuring reliable electricity and water supplies. However, in the early 1980s, coinciding with the development of its energy resources but also reflecting a temporary shift in the stance of policy, the public sector increased its direct involvement in economic activity, particularly in heavy industries, and the efficiency of investment--as measured by the incremental capital/output ratio--declined. With recent announcements of impending privatization of public enterprises as well as sharp reductions in public investments, it appears that this trend has been reversed.

Monetary policy has focused on providing a relatively stable non-inflationary financial environment. Because of the openness of the economy, the main policy instruments have been those used to regulate domestic credit expansion, offsetting any instability generated by the export sector. Interest rates have gradually been liberalized and commercial rates generally have been positive in real terms reflecting, for much of the period, low domestic inflation (Chart 2).

Government intervention in setting wages is minimal; the labor market is characterized by a low level of unionization, and labor relations are relatively stable. Further, Malaysia's labor force is considered to be relatively well educated, although vocational training has lagged skill requirements. Until the cyclical downturn of the mid-1980s, the agricultural sector was facing some labor supply constraints and wages of skilled agricultural workers were increasing.

The exchange and trade systems, generally, have not biased significantly the allocation of resources between traded and non-traded goods production. The exchange rate can be described since 1972 as a managed float against a basket of currencies. The nominal rate remained fairly stable through 1978 while the real effective rate depreciated, reflecting the low rate of domestic inflation relative to that of its main trading

CHART 2
MALAYSIA
REAL AND NOMINAL EFFECTIVE EXCHANGE RATE
AND REAL AND NOMINAL INTEREST RATE
(1980=100)



Source: IFS, *International Financial Statistics*.

[1] Depreciation.

[2] Calculated as the three-month time deposit rate less the rate of inflation.

Table 13. Malaysia: Selected Economic Indicators

	1964-71	1972-81	1982-85
	Average annual percent change		
GDP (real)	6.0	7.9	4.3
GDP (nominal)	7.0	16.1	7.4
Consumer prices	1.0	6.7	3.3
Terms of trade	-2.4	1.0	0.7
Money 1	6.0	17.6	5.8
Money 2	10.4	21.4	12.2
Domestic credit expansion	15.6	27.2	15.3
Export value	5.2	21.8	8.0
Exports volume	6.2	5.5	10.1
	Ratio to Nominal GDP--Average		
Composition of GDP			
Consumption	79.5	70.2	67.9
Investment	16.9	26.8	34.6
Trade of goods and nonfactor services	3.6	3.0	-1.3
Exports	45.2	48.7	53.2
Imports	41.6	45.7	54.5
Current account-balance of payments	1.0	-1.1	-7.7
Gross national savings	18.5	25.7	26.9
Central government deficit	-5.1	-7.4	-9.1
External debt (end of period)	14.0	33.0	60.3
	Price of Primary Commodity Exports		
	(In real terms, index 1980=100)		
Major commodities			
Rubber	94.4	85.3	71.3
Tin	63.9	82.0	82.4
Tropical lumber	50.7	88.9	76.0
Palm oil	120.9	125.2	104.5
Petroleum	16.8	61.4	104.7
Minor commodities			
Cocoa	70.9	115.9	91.5
Coconut oil	156.2	131.4	122.9

Source: International Financial Statistics and IMF staff estimates.

partners. With the export boom of the late 1970s, followed by increased foreign borrowing in the early 1980s, the nominal and real effective rates appreciated. Since then, the ringgit has been devalued and managed in a flexible manner, so that by mid-1986 Malaysia's competitive position, as measured by changes in the real effective exchange rate, has been restored to that prevailing in the mid-1970s. Effective import protection--averaging, in recent years, around 23 percent--is considered to be moderate; however import-substituting industries are estimated to enjoy a rate of effective protection that is somewhat higher than export-oriented industries. The tariff structure is considered to be relatively non-cascaded and thus, the export-oriented manufacturing sector developed backward linkages in the domestic economy. For example, prior to 1972 Malaysia imported almost all of its cloth for processing, but the demand created by the emerging textile industry stimulated the development of domestic weaving. Finally, Malaysia's trade and exchange system is relatively free of restrictions; foreign direct investment has been encouraged, and by 1979 foreign-owned multinational corporations were estimated to have accounted for two-fifths of Mayalsia's total capital stock. During the 1970s, however, legislation provided for increased domestic ownership via equity participation; the foreign ownership limitations were recently eased for export-oriented industries. 1/

b. Export diversification and sector-specific policy

Sector-specific policy initiatives have tended to be biased toward the industrial sector. 2/ The impact of sector-specific policy on agricultural diversification has been marginal, with government mainly providing infrastructure, extension and marketing services. By introducing quality control specifications, such as the grading system in rubber, the government has contributed to a reduction in the fluctuations in export unit values, thus moderating the decline in earnings. Generally, the authorities have limited their direct intervention in producer prices, concentrating their efforts on international commodity agreements 3/ to

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1/ Nationalization in Malaysia has taken the form of purchase of equity, facilitated by government established trusts. In turn, shares in these trusts are sold to the Malayan population.

2/ For example, exports of food products also consumed domestically were at times, in the early 1970s, regulated via quotas.

3/ There is mounting evidence that international commodity agreements which seek to increase the rents to the exporting country as well as providing price stability have, in fact, increased instability by not allowing the feedback effects of changes in aggregate supply and/or demand on prices (Charette, 1985).

improve price stability. The primary export sector contributes heavily to fiscal revenue 1/ and direct fiscal subsidies have tended to be counter to, rather than reinforcing, changes in comparative advantage in agricultural exports. For example, since 1979 subsidies have been given to small holders for replanting rubber trees to improve productivity, since the more efficient estates expanded the acreage planted to palm oil and cocoa at the expense of rubber. It has been estimated by the World Bank, however, that the gross return per man day worked is eight times higher for palm oil and six times higher for cocoa than for rubber at present relative prices. Furthermore, rubber production costs are higher in Malaysia than in other major world suppliers.

Alternatively, the manufacturing sector has benefited from a wide variety of incentives ranging from tax holidays (under the Pioneer Incentives Ordinance), to subsidization of electricity to provision of export credit refinancing facilities by the Central Bank. In 1971, free trade zones were established and additional incentives were provided, dependent upon employment creation. The government has taken an active role in developing industrial parks, easing the burden of compliance with domestic building codes on foreign investors; between 1962 and 1981 the number of industrial estates rose from 5 to 77. Since the mid-1970s, however, the introduction of limitations on foreign ownership has been estimated to have slowed the growth of the manufacturing sector (Spinanger, 1986). The substitution of public for private investment in the early 1980s reduced the efficiency of investment, as measured by the incremental capital/output ratio, and contributed to a slowing in economic growth.

Although manufacturing activity has benefited from complementary public investment, there is only weak evidence to suggest that the long run development of the manufacturing export sector has depended upon explicit incentives. The growth of manufactures, particularly textiles, has reflected an increase in direct investment from other countries in the region since Malaysia had freer access to selected overseas markets than other Asian exporters. Further, in 1969, only 15 percent of total investment projects approved were not provided with some type of special incentive, but by the mid-1970s this proportion had risen to 65 percent, suggesting that incentives were not key in determining investment strategies. Where special incentives were granted, the industries thus attracted exported less than those which arose as a response to Malaysia's comparative advantage. Kasper (1974) estimated that the manufacturing sector as whole exported about 20 percent of its output while those industries having pioneer status exported only 14 percent of their output.

1/ Direct taxes on exports have been shown not to affect the supply of taxed products since Malaysia's tax rates have been calculated to be within the optimal range (Sanchez-Ugarte and Modi, 1986).

In summary, it would appear that the expansion of Malaysia's export base has depended more upon the overall stance of macroeconomic policy than upon sector-specific initiatives. A stable, noninflationary environment coupled with a trade and exchange system unencumbered with restrictions and consistency of policy have contributed to investor confidence. The relatively neutral stance of Malaysia's trade and exchange system has contributed to efficient private investment along the lines suggested by Malaysia's international comparative advantage. Export diversification, taking place within the context of an expansion in economic activity and trade, has facilitated a shift in the country's production possibility frontier.

2. Côte d'Ivoire

a. Economic structure and macroeconomic and supply-side policies

Côte d'Ivoire can be characterized as a small agrarian, market-oriented economy, that for the most part, has sustained a favorable environment for private agriculture. Exports and imports of goods and nonfactor services each have typically accounted for 25 to 33 percent of GDP; in 1976 the export to GDP ratio reached a record high of 35 percent reflecting the coffee and cocoa boom. Presently, Côte d'Ivoire is the world's third largest exporter of coffee, and the world's largest producer and exporter of cocoa.

Traditionally, Côte d'Ivoire's exports were primarily agricultural such as palm oil, coffee, cocoa, and timber, and industry expanded quite slowly. By the early 1960s manufacturing was limited mainly to textiles and foodstuffs, plus the first stage of processing of primary products; subsequently, however, manufacturing activity accelerated--rising from 4 percent of GDP in 1960 to 13.8 percent in 1980. The present structure of manufacturing falls into two distinct types of activities: first, the processing of local raw materials from the agriculture or forestry sectors; and second, those which rely on imported raw materials, such as chemicals and plastics and engineering. The first type of activity--food processing, textiles and construction materials--are the ones in which Côte d'Ivoire has demonstrated a comparative advantage and are relatively export-oriented. The second type of activity tends to be more inefficient, and generally produces substitutes for imports for the domestic market.

Exports became more diversified between 1964 and 1981, with the Gini-Hirschman index of concentration falling from 52 to 42 over that period (Table 12). In addition to a high growth rate of coffee, cocoa, and logs, diversification of the export base has reflected the development of new natural resource-based exports, including sugar, palm products, cotton, fruit, and rubber. Manufactured exports, consisting mostly of processed primary products, have also increased in importance, reflecting

the local processing of cocoa, coffee, and timber; the expansion of refining capacity has contributed to the strong increase in petroleum products exports in recent years. Côte d'Ivoire, notwithstanding the diversification of its export base, has been faced with rapid changes in its external environment, especially on account of fluctuations in world prices of its main commodity exports. Nevertheless, earnings instability was calculated to be significantly below that recorded by African countries as a group, mainly reflecting the increased importance of manufactured exports and its dominant market position for selected agricultural exports. Despite the importance of primary and processed primary products in exports, the covariance between price and volume fluctuations was estimated to be positive, suggesting that, in contrast to other African countries, supply factors were not the underlying cause of earnings instability. Cobweb-type shifts in production have been dampened by maintenance of producer prices sufficiently remunerative to stabilize output.

The agricultural sector has provided both the impetus to growth and the surpluses for investment. A stabilization fund, which makes up the difference between official producer prices and export prices, has provided the means to generate and transfer revenue to the public sector. One-third of agricultural production is directly dependent on public enterprises. These public enterprises, encompassing land transportation, shipping services, construction and electricity, are important because of their contribution to national production and investment.

During the 1960s and the 1970s, Côte d'Ivoire registered relatively strong economic growth, notwithstanding the deterioration in its terms of trade in the latter decade (Table 14). The stance of economic policy tended to be relatively cautious with policies, on the whole, favoring agriculture and exports. Diversification into processed primary products contributed to the expansion of domestic activity by increasing the domestic value added of exports. Until the early 1970s, industrial development took place within a framework of a simple system of incentives where a moderate tariff schedule applied equal protection among industrial activities and where quantitative restrictions on exports and imports did not play a role. The manufacturing sector relied almost exclusively on private capital--mainly foreign--which has been attracted both by the stable economic environment and by the incentives provided for the manufacturing sector. In 1973 tariff reforms and the introduction of a proliferation of quantitative restrictions distorted the structure of industrial incentives, and inefficient import-substituting enterprises were bolstered at the expense of exporting enterprises. Between the mid-1970s and the early 1980s, however, fiscal policy became more expansionary and trade and exchange rate policies tended to favor less efficient import-substituting manufacturing activities, contributing to the slowing of economic activity.

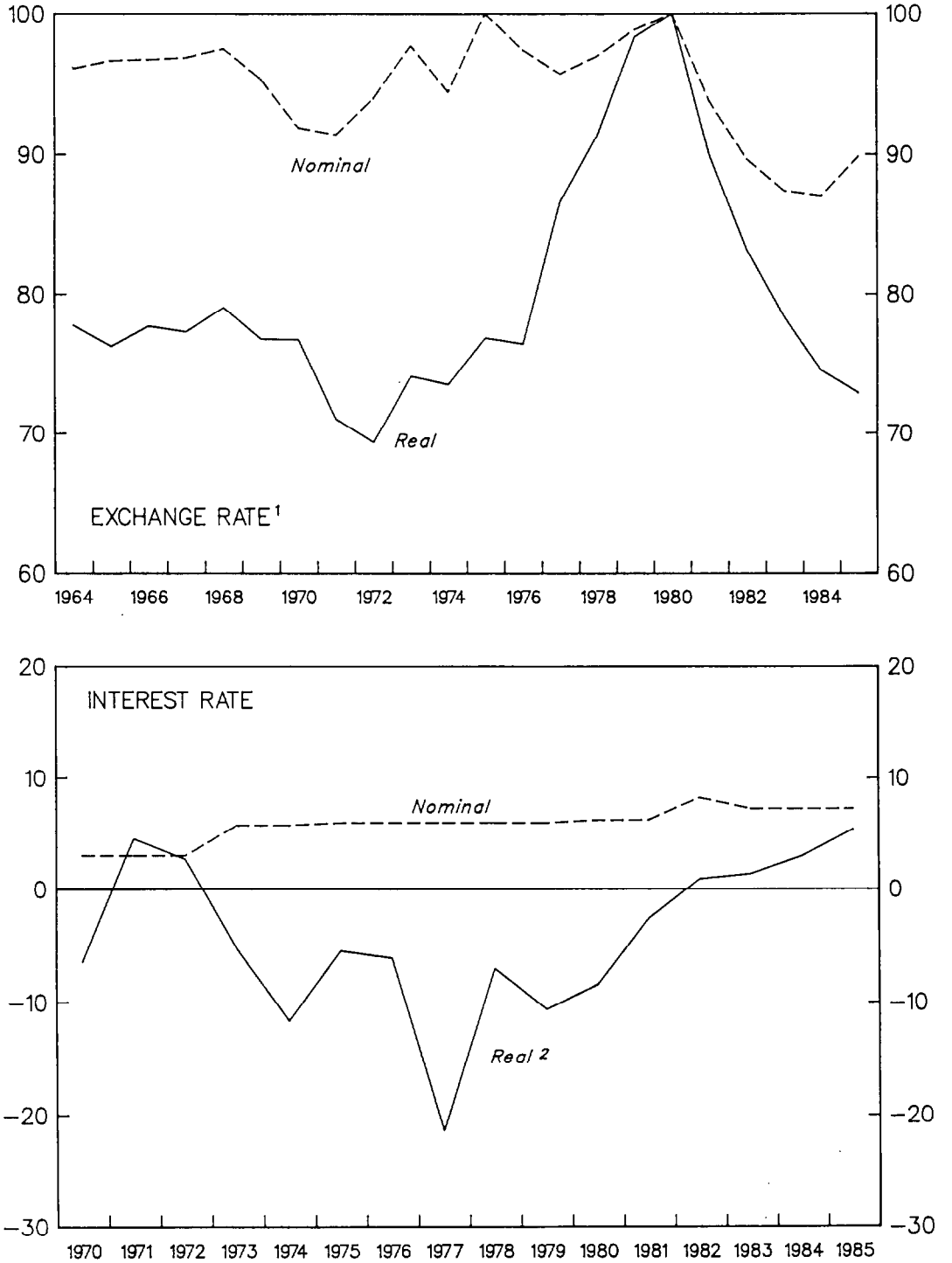
Table 14: Côte d'Ivoire: Selected Economic Indicators

	1964-71	1972-81	1982-85
Average annual percent change			
GDP (real)	6.1	5.0	-1.6
GDP (nominal)	9.7	16.2	7.0
Consumer prices	3.4	13.1	4.8
Terms of trade	1.2	-2.5	1.4
Money 1	12.7	17.6	7.5
Money 2	16.7	18.5	10.1
Domestic credit expansion	16.2	26.9	6.1
Export value	8.9	18.7	4.1
Exports volume	5.4	7.0	4.0
Ratio to Nominal GDP--Average			
Composition of GDP			
Consumption	63.9	72.9	82.6
Investment	16.4	24.3	21.3
Trade of goods and nonfactor services	3.9	-0.5	-7.0
Exports	28.6	37.5	38.1
Imports	24.7	38.0	45.1
Current account--balance of payments	-1.9	-9.3	-7.0
Gross national savings	15.3	15.0	7.3
Central government deficit	-5.1	-6.4	-6.9
External debt (end of period)	20.0	74.9	81.4
Price of Primary Commodity Exports (In real terms, index 1980=100)			
Coffee	80.4	109.4	97.9
Cocoa	70.9	115.9	91.5
Tropical Timber	50.7	88.9	76.0

Source: International Financial Statistics and IMF staff estimates.

CHART 3
CÔTE D'IVOIRE

REAL AND NOMINAL EFFECTIVE EXCHANGE RATE AND REAL AND NOMINAL INTEREST RATE



Source: IFS, *International Financial Statistics.*

1 Depreciation.

2 Calculated as the rate on time deposits of CFAF 500,000–2,000,000 for under six months less the rate of inflation.

Côte d'Ivoire is a member of the West African Monetary Union, which centralizes foreign currency reserves, issues a single currency (the CFA franc) through a central bank, has a common interest rate structure, and allows free transfer of funds within the union. Therefore, the exchange rate is not available as a policy instrument. Although Côte d'Ivoire cannot effect a nominal devaluation unilaterally, a real devaluation can be achieved through demand management policies (for example, by a reduction in government expenditure) or a change in commercial policy (for example, by import tariffs or export taxes). Thus, the large appreciation of the real exchange rate that took place between 1976 and 1978 reflected mainly expansionary fiscal policies associated with the 1975-77 commodity boom (Chart 3). The real effective exchange rate continued to rise, albeit more modestly, over the latter 1970s as the large government investment program-concentrated on expanding the country's sugar refining capacity--was sustained even after the export boom ended. Part of the rising public sector deficit was financed internally by recourse to bank credit but much was financed externally. Over this period, inflation accelerated and manufacturing rapidly lost international competitiveness.

During the first half of the 1980s the economy has stagnated, not only because of the weakening of prices of its main commodity exports but also because of mounting debt service payments. From 1981, a new policy orientation was adopted including a modification of its trade system to reduce the bias against production for export. Inflationary pressures were reduced, helping to restore the real effective exchange rate by mid-1985 to the level prevailing in the mid-1970s; however, recent policy slippages have contributed to a reversal of this trend.

b. Export diversification and sector-specific policy

Within the export sector, specific policies have tended to be biased in favor of manufacturing 1/ relative to agriculture. Primary product exports are subject to both direct taxation and indirect taxation through producer pricing policies. The gap between producer prices and world prices has always been large enough to allow the stabilization fund to provide the government with funds. Producer prices have, however, been sufficient to induce a continued expansion of acreage and output. Moreover, substantial fiscal resources have been devoted to agriculture through research and extension, credit facilities and rural infrastructure development and have encouraged diversification in the agricultural sector.

The most dynamic and diversified part of the industrial sector is the agro-processing sector, which has developed in response to Côte d'Ivoire's comparative advantage and which is mainly export oriented.

1/ Although within the industrial sector policies favored the impact substitution sector between 1973-1983.

Although the industrial sector in general has been stimulated by high and well-distributed incomes arising from agricultural export earnings and government investment incentives, the widening differentials in effective protection across categories of goods created a bias against manufactured exports after the 1973 tariff reform. As a result of this and the real effective appreciation of the exchange rate, a strong bias against exports appeared and the diversification process was slowed. The government implementation, in 1984, of a comprehensive reform of industrial policy to equalize effective protection across sectors and between domestic export markets has seemed to reverse to this process.

In summary, Côte d'Ivoire's experience can be divided into two distinct phrases. In the first phase, the stance of macroeconomic policy was cautious; the trade and exchange system was not strongly biased against exports and export diversification proceeded in line with the country's comparative advantage. In the second phase from the mid-1970s, macroeconomic policy generally was more expansionary; inflation accelerated; real economic activity and export volume growth declined. The tariff reform increased incentives to production of import substitutes. Export diversification continued although at a slower pace and was concentrated in the local processing of primary products.

II. Group "B" Countries

1. Ghana

a. Economic structure, macroeconomic amd supply-side policies

Cocoa was first introduced into Ghana in the mid-1800s and soon surpassed the traditional commodity exports--gold, rubber and palm oil--as the main source of foreign exchange earnings. By the mid-1920s Ghana had become the world's leading supplier of cocoa, accounting for over 40 percent of world trade. Attempts in the first half of the decade to force diversification through taxes on cocoa exports and special incentives for other cash crops failed, thus demonstrating the significantly higher rate of return on cocoa production. The emergence of new exports (manganese, kola nuts) at that time was facilitated by public sector investment in infrastructure, especially a deep water port, roads and railways.

The measured increase in export diversification that has occurred between the mid-1960s and the beginning of the 1980s does not reflect diversification in the usual sense of an expansion in the number and types of products produced and exported; rather, it represents a reduction in the export volume of cocoa. Further, the secular decline in cocoa production and exports did not arise in response to a shift in Ghana's comparative advantage but because, throughout the 1970s, an increasing proportion of the economic rents from cocoa was absorbed by

the public sector. 1/ Producer prices, initially introduced to reduce the earnings variability of the farmer, were not adjusted to reflect changes in domestic relative prices. Thus, by 1982, real producer prices were 85 percent below their 1963 level (Chart 4). By the early 1980s cocoa production had fallen to about half the level attained in the 1960s and Ghana now ranks third among world suppliers.

Export earnings instability rose in 1972-85 compared with the 1962-71 period (Table 12). This increase in absolute instability reflected both greater price and volume instability, with the latter during 1972-85 being almost twice that experienced by African countries as a group. Supply factors continued to be the dominant source of instability, reflecting not only two major droughts but also mounting shortages of spare parts and imported inputs for export production.

The deterioration of cocoa parallels that of Ghana's economy (Table 15). During the 1960s and 1970s Ghana, for the most part, experienced slow and stagnant real growth, declining per capita incomes, sharp falls in the levels of national savings and investment, high and accelerating measured inflation, shortages of both imported and domestically produced goods, underutilization and deterioration of the capital stock, a marked deterioration in existing infrastructure, an exodus of skilled manpower, increased smuggling, and persistent external imbalances financed, in part, by the accumulation of payments arrears. Finally, there was a tendency for changes in policy direction, with corrective action in one area not supported by a coherent and sustained set of policy actions in other areas. 2/ Thus, the gains in competitiveness from the 1967, 1971 and 1978 devaluations were quickly eroded by failure to contain aggregate domestic demand. In fact, the 1971 devaluation was partly reversed by a revaluation of the cedi in 1972.

Fiscal policy can be characterized during this period as expansionary. The tax base, traditionally dependent on taxes on trade, eroded as a result of the overvalued exchange rate, the compression of imports, the use of quantitative restrictions on imports, and the breakdown of tax administration. Coincidentally, central government current expenditures expanded rapidly, reflecting increased public employment, subsidies

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1/ After 1967 there was an effective export duty of 100 percent of the differential between the external price and the floor price established to cover the operating costs of the cocoa marketing board including the amount paid to the producer. As the operating costs at times exceeded the floor price, cocoa farmers, at times, were paid with chits, not cash.

2/ While exogenous events such as the decline in of terms of trade and two major droughts can be held partly responsible, the contrast in economic performance between Ghana and neighboring countries, also subject to these exogenous shocks, underscores the role of policy in the economic decline.

Table 15: Ghana: Selected Economic Indicators

	1964-71	1972-81	1982-85
Average annual percent change			
GDP (real)	3.1	0.1	-0.6
GDP (nominal)	10.8	40.0	56.1
Consumer prices 1/	8.7	50.2	56.1
Terms of trade	0.0	-4.8	5.7
Money 1	9.0	40.2	41.8
Money 2	10.4	38.2	38.5
Domestic credit expansion	20.5	35.6	46.5
Export value	5.9	8.2	-19.3
Exports volume	3.6	-0.8	-19.3
Ratio to Nominal GDP--Average 2/			
Composition of GDP			
Consumption	90.2	91.0	96.0
Investment	14.0	8.1	4.4
Trade of goods and nonfactor services	-3.1	0.4	-0.4
Exports	20.0	13.9	5.1
Imports	23.1	13.5	5.5
Current account--balance of payments	-5.2	0.2	-2.6
Gross national savings	7.1	8.3	1.0
Central government deficit	-8.1	-7.3	-3.0
External debt (end of period)	39.4	3.7	24.8
Selected Prices (In real terms, index 1980=100)			
Cocoa	70.9	115.9	89.2
Tropical Timber	50.7	88.9	75.2
Cocoa producer price			
Nominal	5.8	37.5	462.5
Real	168.8	123.9	73.3

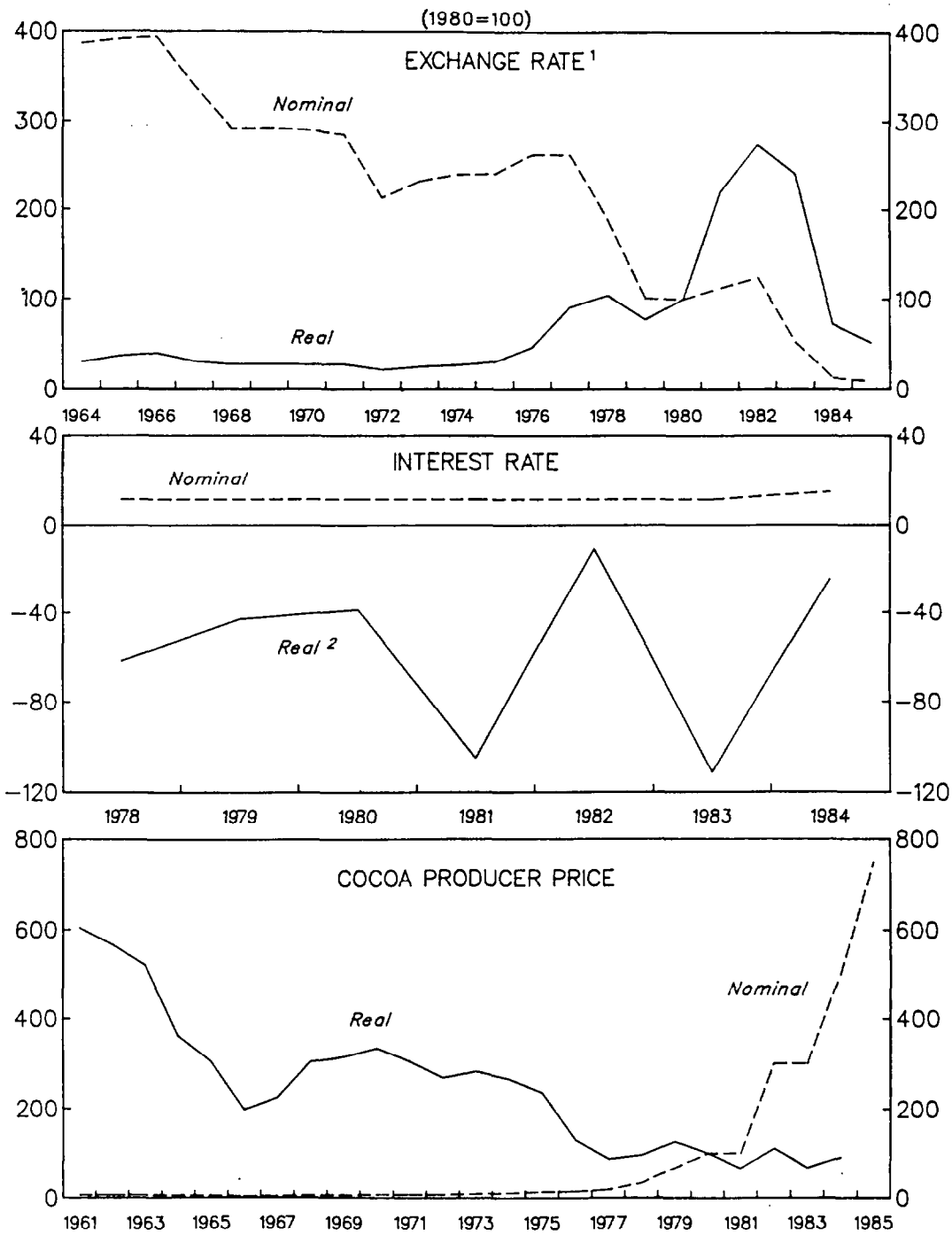
Source: International Financial Statistics and IMF staff estimates.

1/ Because of the prevalence of price controls measured inflation in the period prior to 1983 probably underestimates actual price movements. This should be taken into account when assessing the decline in real cocoa producer prices as well as the deterioration in external competitiveness, as measured by the real effective exchange rate.

2/ The introduction of multiple currency practices in 1983 necessitate caution when interpreting ratios to GDP.

CHART 4
GHANA

REAL AND NOMINAL EFFECTIVE EXCHANGE RATE, AND REAL AND NOMINAL INTEREST RATE, AND REAL AND NOMINAL COCOA PRODUCER PRICE



Source: IFS, *International Financial Statistics.*

[1] ↓ Depreciation.

[2] Calculated as the three-month time deposit rate less the rate of inflation.

on imported essentials and transfers to the parastatals. Following the 1975 legislation requiring minimum domestic participation in business ownership, 1/ the public sector became increasingly involved in domestic economic activity. The mounting public sector deficits were financed primarily by domestic bank credit and monetary policy was such as to accommodate these deficits.

Ghana also relied on quantitative controls to allocate credit; nominal interest rates were virtually unchanged through the period and, with high and rising domestic inflation, real rates were significantly negative. For the most part, these credit guidelines were ineffective and the actual allocation of credit often diverged widely from that programmed, with retail, construction and mining activities exceeding programmed levels, while credit to the designated priority areas--agriculture and exports--fell short. By the early 1980s, there was evidence of a shift out of the monetized economy and an unwillingness to hold domestic currency.

The increasingly overvalued exchange rate, although temporarily corrected throughout the period, resulted in incentives that were strongly biased against production for export, and exports declined in real terms. Scarcity of foreign exchange to meet import demand resulted in licensing and other quantitative restrictions to limit imports, including essential inputs needed for export production. Tariffs are considered to be high, with effective protection estimated by the World Bank (1984) to exceed 80 percent. There is a wide dispersion of rates among products with final goods receiving the greatest protection, thus adding further to the distorting effects of these tariffs.

Since 1983, there has been a marked shift in the stance of economic policy. The nominal exchange rate was devalued successively throughout 1984, 1985 and 1986 but was supported by improved fiscal discipline and tight monetary policy. The gains in competitiveness have thus not been eroded and the real effective exchange rate has depreciated significantly. The exchange rate has continued to be managed in a flexible manner under an auction system. Efforts have been taken to reactivate the export sector, and cocoa, stimulated by increased producer prices, is again expected to lead the recovery in exports. In the immediate future, it is expected that the source of Ghana's export earnings will become more concentrated but reflect a revitalization of cocoa production and the development of a solid base from which to encourage the growth of other exports.

1/ The transition to national ownership took place mainly by direct purchase of existing facilities. Foreign ex-owners were paid in local currency but were required to deposit the funds in non-interest bearing accounts in the Central Bank. Repatriation of the funds was restricted by the limitations on foreign exchange availabilities.

(b) Export diversification and sector-specific policy

While macroeconomic policies prior to 1983 provided an overall bias against exports, specific policies were implemented in efforts to stimulate or restrict the activity of particular groups of export products. Such policies were subject to frequent modification and were generally short-lived.

The policy to shift land use from cocoa to domestic food crops, by depressing the relative price of cocoa in the late 1960s-early 1970s, was followed by the introduction of subsidies to cocoa producers for sprays and spraying machinery in the mid-1970s and upward revisions in nominal producer prices in the late 1970s. Subsequently, real prices were maintained more or less constant; under the recent policy initiative, prices have again been raised substantially.

Non-cocoa exports have been subject to trade taxes (lumber, diamonds), prohibitions (logs, scrap iron and steel and foodstuffs in 1976 and logs again in 1979), and government control over marketing. For example, to encourage timber exports, the Timber Marketing Board allowed producers to market their own products overseas in 1973 but by 1977 the Board had again resumed its role as sole marketing agent. At the same time, special incentives for manufactured exports were being introduced, modified, eliminated and reintroduced. For example, in 1966 an export incentive scheme was initiated to grant preferential treatment for import licenses but was rescinded shortly thereafter. In 1969 a new export incentive scheme granting liberalization of import licenses, rebates on corporate tax liabilities, drawback of import duties, subsidies to domestic freight costs and a 10 percent cash bonus was introduced but was not enacted until 1971, at which time the cash bonus was raised to 20-30 percent of the value of the export. In 1978, the cash bonus was reduced to 10 percent, and by the end of 1979 the cash bonus was eliminated.

Recently, the authorities have enacted new legislation aimed at promoting non-cocoa exports, including the elimination of the Timber Marketing Board, partial foreign exchange retention for the purchase of imported inputs, rebates on import duties, and corporate tax rates. A new investment code providing protection against expropriation and guarantees for capital remittances was passed in July 1985. It would be expected, however, that investment might be slow to respond, as investors try to gauge the commitment to the incentives in the light of Ghana's history of modifying such schemes.

In summary, during the period studied, 1964-81, Ghana declined economically and its export base shrank. Inconsistent and broadly inappropriate policies contributed to mounting internal and external imbalances, rising uncertainty and declining incentives for productive economic activity. Trade and exchange rate policies, moreover, were strongly

biased against exports. While some effort was made, sporadically, to increase exports via specific incentives, the generally adverse macroeconomic climate of the 1970s was fundamental in forming investment decisions, leading to a decline in export volume and in economic activity. Similarly, the recent change in macroeconomic policy direction is expected to lead to a reactivation not only of exports but also of domestic economic activity.

2. Argentina

a. Economic structure, macroeconomic and supply-side policies

(1) Economic structure: exports

Argentina's exports are dominated by resource-based primary products. Notwithstanding a policy bias that has generally strongly favored industrialization--often at the expense of agriculture--traditional exports have recorded significant increases in volume. Agriculture has proven to be highly adaptive to changing external conditions and diversification has played an important role in maintaining a dynamic export sector. During the period studied, 1964-81, Argentina's export base became more diversified, as measured by the Gini-Hirshman concentration coefficient; in particular diversity of primary exports increased, reflecting mainly the expansion of soybean cultivation since the mid-1970s (Table 12).

Argentina's export earnings in 1972-85 exhibited greater instability than that recorded both for non-oil developing countries as a group and other non-oil Western Hemisphere developing countries. Despite increased diversity, Argentina's agricultural exports have remained subject to the vagaries of weather; further, the pattern of diversification has not conformed to the Brainard-Cooper concept of "optimal" diversification in that the price correlation of Argentina's main agricultural exports (wheat, corn, meat, wool and soybeans) is relatively high (Annex III, Table 19). While Argentina is a large world supplier of its major primary products, and therefore volume fluctuations in the past have tended to be offset by price movements, this tendency has weakened since the early 1970s because of increased competition from industrial countries. In addition to these structural factors, however, shifting economic policy played a role in increasing earnings variability. At times, exports were encouraged via exchange rate devaluations and changes in tax and tariff structures; at other times, unchecked inflationary pressures eroded gains from devaluations, encouraging production for the domestic market. Selected primary exports were subject to varying quota limitations to ensure adequate domestic supplies. Finally, periodic capital flight via unrecorded exports may have contributed to observed fluctuations in recorded exports.

The trend path of earnings was higher in 1972-82 than that recorded in the 1962-71 period, reflecting both volume and price factors and in general, the terms of trade moved in favor of Argentina during the more

recent period (Table 16). While the rate of growth of earnings increased, this was not translated into higher econnomic growth; the annual average increase in real GDP fell from 4.2 percent in 1964-71 to 1.4 percent in 1972-81. Jung and Marshall (1985), in fact, found no statistically significant causal relationship between Argentina's export growth and real GDP growth.

(2) Macroeconomic policy

Throughout the post World War II period, Argentina has adopted a series of stabilization programs (1953-57, 1959, 1966-69, 1976-81, 1982, 1984, 1985-86) in efforts to restore external balance, and to reduce the rate of price increases, without negatively affecting employment. In most cases, these programs relied on exchange rate devaluations supported by wage and price controls. 1/ Generally, monetary policy has been accommodating and fiscal discipline has been short-lived. The underlying political instability and the strength of the unions in Argentina over the last two decades, moreover, undermined wage restraint and sustained declines in real wages. 2/ Relaxation of wage and price controls generally led to a resurgence of inflationary pressures, loss of international competitiveness, and mounting pressure on the balance of payments. The subsequent emerging economic crisis would then be confronted by a new stabilization effort, often embodying different tax, credit and sector-specific initiatives.

The lack of consistent economic policy over time, the implementation of policies that were not always coherent (for example, devaluation not supported by appropriate fiscal monetary and incomes policies), and political instability contributed to a loss in private sector confidence and an increasing unwillingness to undertake long-term investment in productive activities. Although the average ratio of investment to GDP

1/ Wage and price controls aimed at reducing inflationary expectations and breaking wage/price spirals. The protected domestic market has contributed to the development of a highly oligopolistic industrial sector. Similarly, Argentina currently has the most highly organized labor force in Latin America--similar in trade union structure and in political activism to European trade unions. Although a number of smaller labor organizations exist, the main labor confederation, Confederacion General de Trabajo, has been dominant in wage determination. The labor market, consequently, can be described as monopsonistic on the supply side and oligopolistic on the demand side.

2/ Frenkel et al (1986) found that real wages rose by 20 percent in the ten years ending 1974; notwithstanding subsequent short-lived reductions in real wages in conjunction with stabilization programs, real wages in 1984 were at about the same level as in 1974.

Table 16. Argentina: Selected Economic Indicators

	1964-71	1972-81	Sub periods 1972-76	1977-81	1982-85
		(Average annual percent change)			
GDP (real)	4.2	1.4	2.1	0.7	-1.0
GDP (nominal)	27.9	129.9	124.6	135.3	418.6
Consumer prices	22.6	128.7	117.2	140.8	406.7
Terms of trade	0.6	4.0	8.6	-0.3	-6.1
Money 1	12.5 1/	117.2	120.7	113.7	404.6
Money 2	22.9	138.0	121.1	156.1	368.5
Domestic credit expansion	515.5	144.9	110.6	184.8	378.5
Export value	3.1	18.0	17.6	18.5	-2.1
Exports volume	0.3	0.6	-6.4	8.2	6.1
		(Ratio to nominal GDP-average)			
Composition of GDP					
Consumption	78.0	76.0	75.9	76.2	82.2
Investment	19.1	23.2	23.2	23.2	18.0
Trade of goods and nonfactor services	1.0	1.3	1.6	0.9	4.0
Exports	8.4	9.9	9.8	9.9	14.1
Imports	7.4	8.6	8.2	9.0	10.0
Current account--balance of payment	-0.5	-0.5	-0.5	-0.6	-6.6
Gross national savings	19.0	22.7	22.7	22.6	9.9
Central government balance	3.9	-6.5	-7.2	-5.8	-11.5
External debt	21.1	47.2	29.9	47.2	152.6
		(Price of primary commodity exports) (In real terms, Index 1980=100)			
Commodities					
Wheat	110.0	120.7	143.8	97.5	97.8
Maize	133.7	127.7	151.4	104.1	109.4
Soybeans	118.8	130.1	147.5	112.6	97.3
Beef	120.7	104.5	112.1	97.0	93.5
Wool	112.7	114.5	125.3	103.8	83.0
Hides	89.8	122.7	122.0	123.4	118.2

1/ Average 1966-71 used for this calculation.

remained moderately high throughout the 1960s and 1970s, the public sector accounted for an increasing proportion of this investment; the share of public sector fixed capital formation in total investment rose from about one-quarter at the end of the 1950s to almost 40 percent by the early 1980s.

Argentina's exchange and trade systems have been, for the most part, biased against exports (Chart 5). The significant intensification of an import-substitution development strategy after World War II resulted in the establishment of high, protective, tariff barriers, with the captial goods sector, in which Argentina had the least comparative advantage, being accorded the greatest protection. 1/ Protection from external competition allowed firms producing for the domestic market to pass-through any wage awards to the consumer. Argentinian manufactured goods producers, however, are price takers in the international market and producers tend to view the external market as a residual market to absorb reductions in domestic demand.

(3) Economic liberalization (1976-81) and export diversification

Comparison of trends in macroeconomic variables for the periods 1964-71 and 1972-81 presents a misleading picture, since 1976 marks a significant change in policy direction. While export earnings expanded at about the same average rate in 1971-76 as in 1977-81, the growth of earnings in the former period was entirely due to price factors, as export volume registered an average annual rate of decline of 6.4 percent. With the reduction in bias in macroeconomic policy against exports plus an increase in incentives to exports in evidence after 1976, export volumes rebounded. The recovery in exports, however, was not reflected in higher average real GDP growth for the 1977-81 period.

The shift in policy direction in 1976 arose from mounting internal and external disequilibria as a consequence of policies adopted in previous years. Of these, two policies specifically had hindered export growth: (i) the extensive use of price controls, particularly on exportable foodstuffs, to subsidize indirectly urban consumption; and (ii) the absorption by the government of the economic rents--arising from the currency devaluations of the early 1970s--normally accuring to the export sector through increased export and profit taxes. As a result of these factors, traditional agricultural production and the volume of traditional agricultural exports declined sharply. However, nontraditional products, such as oilseeds and semiprocessed primary products not subject to such

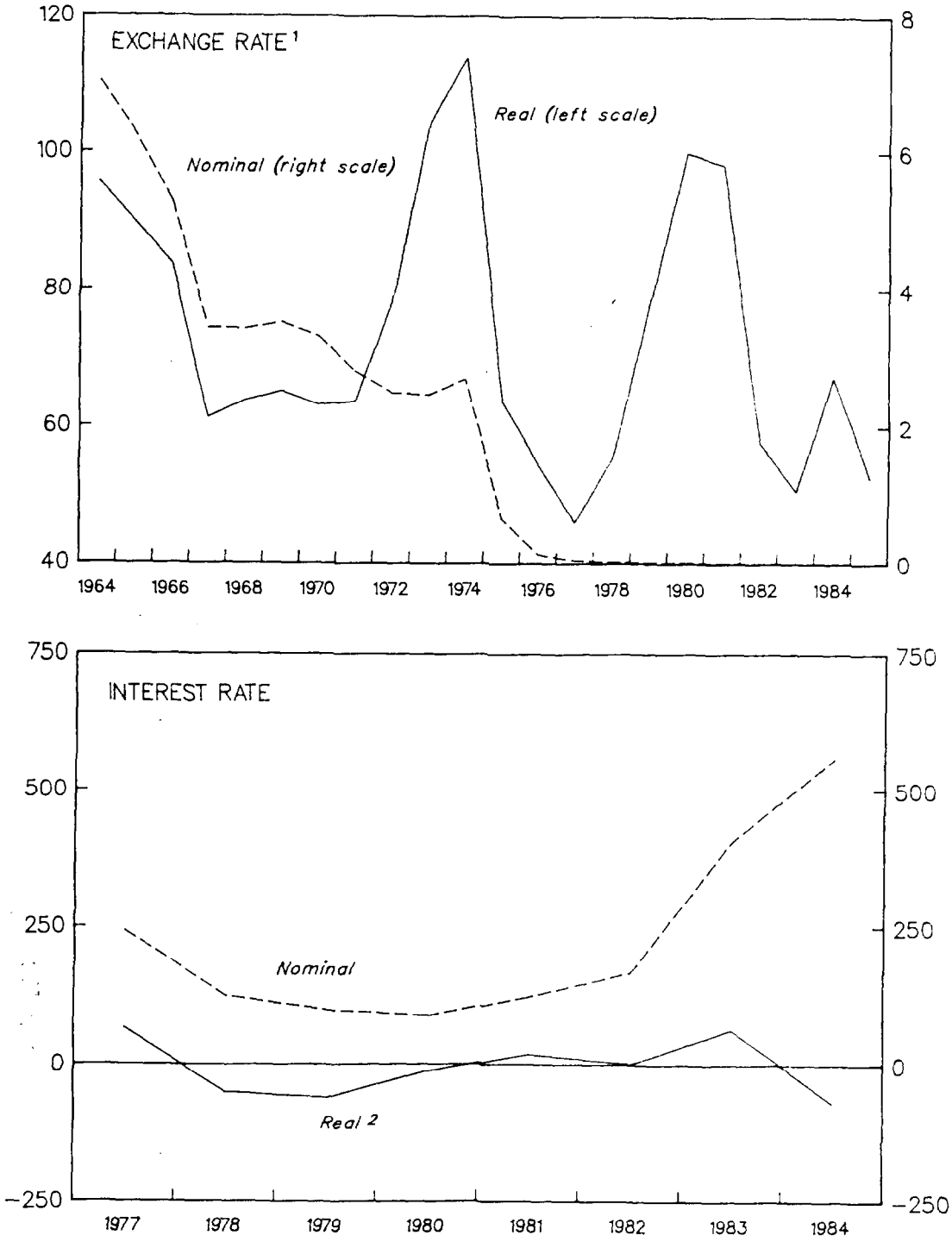
1/ The share of imported capital goods in total imports fell from 30 percent in 1935-38 to 11 percent by 1965 (Michalopoulous, 1971).

CHART 5

ARGENTINA

REAL AND NOMINAL EFFECTIVE EXCHANGE RATE AND REAL AND NOMINAL INTEREST RATE

(1980=100)



Source: IFS, *International Financial Statistics.*

1 ↓ Depreciation.

2 Calculated as the 30-day time deposit rate offered by a rotating sample of eighteen banks less the rate of inflation.

high taxation, contributed to a shift in resource allocation and an expansion of these exports. Between 1971 and 1975, export diversification increased in both primary and semi-processed primary products. 1/ Despite the increase in export diversification, however, the volume of total exports fell. In 1975, the peso was devalued to reverse the real effective appreciation which had occurred since 1971 and multiple exchange rates were introduced; in early 1976, price controls were removed.

By mid-1977, a liberalization of the financial system was undertaken; marginal reserve requirements were lowered; and interest rates were freely determined. Financial savings, in particular those intermediated by the formal market, rose. Increased fiscal discipline, adjustments to public sector tariffs, and indexation of taxes helped to reduce the public sector deficit; wages and prices were initially controlled. The exchange rate was unified at a depreciated level, and, after December 1978, devaluations of a diminishing magnitude were preannounced. This expectations management approach to the exchange rate was geared to reducing price expectations (Fernandez, 1985). Finally, a major opening of the economy was to be undertaken with a preannounced schedule of tariff reductions (that, in the final analysis was implemented only on a limited scale) and negative tariffs on exports were eliminated. The increase in competition was expected to increase productive efficiency by limiting the ability of firms to pass on to the consumer increases in production costs.

Although exports responded quickly, this policy initiative failed to reactivate the domestic economy. The underlying causes of the lack of recovery have been widely reviewed in the economic literature: (i) the relaxation of fiscal discipline and wage awards in excess of the rate of inflation contributed to keeping inflation above that projected, leading to a real effective appreciation of the exchange rate and increasing speculation of an eventual correction; (ii) the sequence of liberalization--freeing the capital market before the goods market--increased Argentina's vulnerability to speculative capital movements and exogenous real shocks (Frenkel, 1983); (iii) the freeing of interest rates combined with preannounced devaluations reduced risk, stimulating a capital inflow and expanding the monetary base, thus sustaining domestic inflation (Blejer and Mathieson, 1981); and (iv) the speed of adjustment in interest rates and tariff levels eventually undermined the authorities ability to sustain

1/ As measured by the Gini-Hirschman coefficient of concentration which fell from 41.5 for primary products and 46.2 for semi-processed products in 1971 to 34.1 and 37.2, respectively in 1976.

them. 1/ The eventual subsidization (through exchange guarantees) of private sector debt, the liberalization of Central Bank rediscount operations, the relaxation of fiscal discipline in the face of an economic recession, and the de facto adoption of a real effective exchange rate rule (Adams and Gros, 1986) set the stage for the resurgence of inflation of the early 1980s and the virtual abandonment of the liberalization experiment.

b. Export diversification and sector-specific policy

While macroeconomic policy for most of the post-war period, except for the very brief and limited efforts at liberalization, generally has favored import-substituting activities, certain activities within the export sector have benefited from special incentives. Manufactured exports generally have been promoted while traditional, primary exports have been taxed--often heavily--to subsidize the development of industry.

Taxation of the primary exports has taken a variety of forms, with direct taxes for budgetary support fluctuating from between a high of 27 percent of tax revenue in 1976 to a low of 7 percent in 1977. The agricultural sector has also been subject to indirect taxation through: (i) the application of differential exchange rates in the late 1960s and mid-1970s; and (ii) repressed producer prices, at times, as a result of policy decisions to subsidize urban consumers. Finally, primary goods exports have been subject to direct government control through state marketing boards and meat and grain exports frequently have been limited by quota, in order to ensure adequate domestic supplies. At times, the bias against agriculture was reversed. 2/ Incentives to agriculture were sporadically applied in the 1960s and early 1970s but after 1976, the

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1/ Firms which had been heavily indebted because of the long history of negative real interest rates were suddenly confronted with rising domestic interest rates and, for import-competing firms faced with tariff liberalization, a reduced ability to recoup higher costs through price increases (Petrei and Tybout, 1985). Initially, the preannounced devaluations and lower differential foreign interest rates encouraged a shift from domestic debt to foreign debt. When real interest rates became strongly positive in 1980, as domestic inflation moderated, many firms were unable to meet their debt obligations, thus precipitating a bank crisis. Export-oriented industries were not found to have sharply increased their level of debt and were less affected by these developments.

2/ For example, the policy-induced secular drop in agricultural output in the late 1940s and early 1950s was an important underlying factor in shifting Argentina from a major wheat exporter to a wheat importer in 1952; partly as a consequence, agriculture received incentives during the mid-1950s.

internal terms of trade for agriculture improved with timely adjustments to producer prices, allowance for increased private sector participation in marketing and the extension of special tax incentives to selected agricultural products. This shift in policy combined with supportive exchange rate policies was fundamental to the reactivation of the agricultural sector; earnings from primary product exports increased at an average annual rate of 19 percent between 1976 and 1981, despite the deterioration in international market prices for most of Argentina's main exports over this period.

Manufactured goods have received substantial incentives. The high tariff barriers to promote production for domestic consumption also provided some infant-industry protection for efficient producers and despite an often overvalued exchange rate, Argentina was able to compete abroad in semi-processed primary products (such as tanned leather and processed meats) and in a wide range of intermediate and finished goods, the latter mainly to regional trading partners under regional trading arrangements. Argentina provides industrial exports with a number of direct incentives in the form of tax rebates and drawbacks of import duties, as well as indirect incentives through the maintenance of negative real interest rates and exchange guarantees for external debt. However, the trend of manufactured goods export earnings suggest that the special incentives to manufactured goods exports are less important than the overall bias against exports arising from the exchange system. In the period 1975-79 when the real effective exchange rate had been devalued significantly, earnings from manufactured goods exports rose at an average annual rate of 20 percent, but when the real effective exchange rate appreciated significantly in the following three years, earnings stagnated. Finally, the continued high level of protection encourges investment into import-substituting activities rather than into new activities for export.

In summary, Argentina's export growth and diversification over the period 1964-81 reflects, for the most part, its comparative advantage in natural resource-based products. The process of diversification seems to have been advanced by excessive taxation of traditional agricultural exports in the early 1970s although agricultural exports have responded to changes in producer prices, relative international prices and exchange rates. The growth of manufactured exports seems mainly to have reflected an increase in regional trade and sluggish domestic demand. For the most part, incentives to nontraditional exports, however, tend to have been aimed at offsetting the bias against exports arising from the macroeconomic setting. In aggregate, exchange rate actions that changed relative prices of traded and nontraded goods, positively affected exports. The dynamism of the export sector, for the most part, was not translated into higher growth for the economy as a whole. While mounting debt service payments absorbed an increasing proportion of the foreign exchange earnings from exports, lack of consistency and coherence among policies was also a contributing factor in reducing investor confidence.

Table 17. Real Primary Commodity Price Indices, 1957-1985

(1980=100)

Year	Non-oil Primary Total	Food	Beverages	Agricultural Raw Materials	Metals	Oil
1957	117.63	120.63	123.05	99.47	129.50	25.90
1958	108.28	111.16	122.45	87.24	118.25	25.45
1959	108.10	111.96	106.61	96.27	114.95	22.12
1960	105.74	108.12	95.68	98.99	114.83	18.05
1961	103.69	108.64	87.82	95.46	112.40	17.77
1962	104.13	111.46	85.82	96.42	109.31	17.83
1963	105.43	116.74	84.62	94.62	107.41	17.77
1964	110.11	118.37	93.50	88.96	127.47	17.51
1965	109.15	114.02	83.80	91.00	134.53	17.30
1966	113.26	119.05	86.30	93.20	140.51	16.99
1967	107.84	117.69	86.02	89.43	122.09	16.81
1968	106.51	112.57	87.14	89.48	125.78	16.86
1969	107.38	111.11	88.81	88.80	132.99	16.32
1970	106.68	110.18	91.20	85.59	134.13	15.40
1971	98.86	108.27	78.74	80.57	113.28	17.58
1972	98.11	108.02	79.81	84.82	104.99	18.91
1973	135.88	166.09	86.32	115.64	128.53	22.56
1974	136.35	170.29	86.80	99.86	131.59	60.99
1975	100.80	120.51	72.08	75.20	97.70	56.99
1976	109.02	112.66	132.90	95.94	101.94	59.94
1977	110.70	100.63	212.23	89.14	98.92	60.27
1978	97.20	98.91	137.63	82.25	88.62	52.51
1979	103.88	101.60	126.31	99.68	102.07	67.48
1980	100.00	100.00	100.00	100.00	100.00	100.00
1981	93.84	101.59	83.16	89.54	87.72	115.27
1982	85.94	88.23	85.52	87.19	79.38	112.97
1983	94.45	98.95	95.46	92.69	86.96	103.20
1984	99.29	101.62	114.69	100.65	84.52	104.16
1985	86.19	85.06	100.25	87.78	78.98	98.69

Source: International Financial Statistics.

Table 18. Regression Analysis of Net Barter Terms of Trade by Commodity Group

Terms of Trade Dependent Variable (ln)	Intercept	Estimated Trend Growth	R^2	D-W
Sapsford 1/ (1900-82)				
Non-oil primary	4.69** (52.67)	-0.01231** (3.677)	0.663**	1.818
This study (1957-85)				
Non-oil primary	1.31** (3.729)	-0.0051* (2.641)	0.2053	1.247
Food	1.98** (3.854)	-0.0063* (2.086)	0.1488	0.818
Beverages	-0.076 (.884)	+0.0036 (.7153)	0.0186	0.775
Agricultural raw materials	0.069* (2.131)	-0.0010 (.515)	0.010	2.013
Metals	0.3054** (6.769)	-0.0145** (5.522)	0.5304	0.795
Oil	-2.201** (13.717)	+0.0742** (7.997)	0.7032	0.281

Source: Sapsford (1985), Fund staff estimates.

1/ Adjusted to allow for pre- and post-war differences. Figures in parentheses are absolute 't' values; a single asterisk denotes that a coefficient is significantly different from zero at the 5 percent level of confidence and a double asterisk denotes significance at the 1 percent level.

Table 19. Price Correlation Matrix: 1964-1985 1/

(In percent)

	Manufactures	Aluminum	Bananas	Beef	Coconut Oil	Coffee	Copper	Cotton	Fish Meal	Groundnuts	Hides	Iron Ore	Jute	Lamb	Lead	Linseed Oil	Logs	Maize
Manufactures	100.0																	
Aluminum	71.8	100.0																
Bananas	33.0	57.4	100.0															
Beef	32.1	44.3	10.5	100.0														
Coconut oil	30.1	37.1	7.0	40.3	100.0													
Coffee	48.4	34.6	-1.6	-19.0	-5.5	100.0												
Copper	20.6	43.2	49.6	66.8	58.7	-30.5	100.0											
Cotton	39.4	25.8	-12.0	16.2	82.6	37.9	25.5	100.0										
Fish meal	44.1	22.2	2.9	59.5	39.4	26.2	45.9	53.9	100.0									
Groundnuts	70.9	40.9	0.3	38.0	57.1	39.1	34.0	86.4	68.3	100.0								
Hides	39.5	23.6	-26.6	37.5	13.2	44.0	-9.4	23.1	44.5	34.4	100.0							
Iron ore	38.5	48.6	75.1	39.0	36.6	-11.2	75.1	26.9	36.5	37.5	-24.6	100.0						
Jute	-10.5	24.0	40.5	36.9	39.7	-39.2	76.6	6.5	7.5	12.2	-19.8	65.7	100.0					
Lamb	89.0	49.0	7.5	38.1	16.1	48.5	5.3	49.8	58.7	66.7	57.3	11.8	-32.3	100.0				
Lead	82.9	76.0	32.1	55.9	58.6	39.3	44.8	55.5	50.9	68.7	52.6	41.4	10.9	73.2	100.0			
Linseed oil	50.0	7.5	-10.4	16.3	67.1	3.7	30.7	88.9	48.7	72.6	8.7	29.5	6.2	43.3	46.7	100.0		
Logs	68.0	21.2	-27.8	10.2	11.6	61.1	-27.0	57.4	49.4	54.6	59.4	-22.9	-57.4	82.8	49.8	47.7	100.0	
Maize	51.9	26.6	23.5	34.4	65.5	-5.4	60.6	77.3	62.9	75.3	3.0	66.6	37.5	37.1	48.9	84.5	24.4	100.0
Nickel	66.9	49.1	-2.2	45.5	20.7	40.5	22.1	67.0	48.4	72.9	29.7	33.1	0.3	60.5	60.6	44.8	48.3	48.2
Palm oil	58.5	39.2	8.2	24.0	82.5	23.5	40.8	78.7	54.7	82.6	23.7	40.8	21.6	47.6	67.3	78.8	38.5	79.6
Phosphate rock	53.9	8.0	1.8	-25.7	26.2	8.2	-0.3	69.8	7.9	54.2	-9.9	20.8	-8.6	36.8	25.4	76.4	39.6	64.5
Rice	56.0	31.4	16.4	39.5	69.1	-7.4	57.6	75.9	47.3	71.7	-2.8	48.2	32.9	43.7	50.9	83.0	29.3	81.7
Rubber	71.7	74.5	60.6	45.3	53.3	29.1	57.4	40.0	56.2	49.6	29.4	55.3	17.6	61.7	80.7	37.7	39.4	53.4
Sisal	57.2	17.5	4.2	18.2	67.6	10.2	30.9	80.1	54.8	72.3	17.4	37.4	4.1	52.2	56.5	93.7	47.4	82.8
Shrimp	26.2	-10.2	-48.3	-16.4	-26.1	50.9	-64.0	12.2	3.1	2.8	56.9	-60.1	-82.3	41.9	11.4	2.7	68.7	-25.0
Soybeans	57.3	28.8	3.4	54.5	59.4	22.6	50.3	74.8	91.0	83.2	40.5	47.6	19.8	59.1	60.1	71.8	50.9	82.7
Soybean oil	52.4	27.8	-4.6	21.6	78.2	16.0	39.9	85.6	53.2	83.7	18.3	39.2	24.4	40.2	57.2	86.7	36.6	85.2
Sugar	57.9	15.2	-10.8	12.4	43.1	4.9	13.8	77.7	38.5	66.7	4.4	22.3	-11.7	55.1	41.6	88.2	50.7	71.4
Tin	74.6	50.2	1.5	-5.1	20.4	66.2	-24.4	38.5	17.2	40.8	49.0	-19.1	-52.6	75.3	63.7	29.4	78.0	7.7
Tobacco	-11.6	19.6	54.6	41.7	27.7	-50.6	76.7	-14.8	5.5	-1.5	-40.8	67.5	70.3	-31.1	7.3	-4.9	-65.7	28.4
Wheat	59.6	17.6	8.5	38.2	61.0	-4.0	44.6	77.9	65.2	73.6	17.3	48.9	15.6	54.6	52.5	91.2	46.3	91.7
Wool	37.2	12.8	20.6	58.3	43.9	-4.8	56.2	43.0	85.3	51.9	30.0	52.7	27.1	45.9	43.2	54.1	32.5	68.8
Zinc	40.7	-1.5	-14.4	28.7	66.2	-2.0	36.3	82.5	66.5	74.2	17.3	32.2	10.0	42.4	42.3	94.9	43.2	87.4
Cocoa	30.3	36.9	-19.0	-6.6	17.2	88.7	-27.0	53.5	24.8	49.0	50.4	-23.2	-36.5	50.1	45.0	20.5	70.4	0.8
Petroleum	13.6	-27.1	-37.3	-55.0	-29.3	31.2	-73.7	0.3	-23.4	-14.8	13.3	-66.0	-87.7	29.7	-11.3	8.8	56.8	-29.1
Sorghum	57.0	26.3	17.1	40.6	60.1	-5.8	55.6	79.3	65.4	76.4	4.3	61.4	28.2	45.7	49.2	86.6	33.1	97.4
Tea	20.5	55.4	71.0	6.5	37.3	18.9	48.4	5.5	14.9	18.3	-9.7	66.7	56.8	-3.9	32.3	-6.3	-29.3	26.9

	Nickel	Palm Oil	Phosphate Rock	Rice	Rubber	Sisal	Shrimp	Soybeans	Soybean Oil	Sugar	Tin	Tobacco	Wheat	Wool	Zinc	Cocoa	Petroleum	Sorghum	Tea
Nickel	100.0																		
Palm Oil	40.8	100.0																	
Phosphate Rock	39.9	53.7	100.0																
Rice	42.9	70.8	60.1	100.0															
Rubber	30.1	58.6	15.8	49.6	100.0														
Sisal	37.5	84.3	67.4	76.3	51.9	100.0													
Shrimp	18.4	-11.4	12.1	-24.0	-8.5	2.2	100.0												
Soybeans	55.5	74.9	35.5	70.5	57.3	75.1	-0.4	100.0											
Soybean oil	47.4	95.8	64.5	73.5	44.1	86.7	-10.4	76.8	100.0										
Sugar	57.0	65.2	79.7	70.9	29.2	85.8	10.2	56.7	74.3	100.0									
Tin	29.3	44.8	34.6	20.0	52.9	39.1	57.6	22.8	32.9	37.1	100.0								
Tobacco	-4.5	6.5	-14.1	26.6	16.1	-4.9	-70.9	8.0	6.3	-14.5	-51.1	100.0							
Wheat	45.7	74.1	65.2	85.6	52.1	90.8	-2.3	85.0	79.1	79.6	22.4	8.0	100.0						
Wool	23.9	48.5	12.5	59.5	57.0	62.5	-15.7	86.2	47.4	37.0	0.7	21.2	77.5	100.0					
Zinc	41.2	78.6	61.1	77.6	36.6	92.6	-0.8	82.9	85.7	81.4	16.5	0.2	93.4	69.9	100.0				
Cocoa	42.7	32.4	16.2	14.0	28.9	20.7	56.0	29.3	27.8	16.9	70.5	-52.2	8.6	-1.6	11.4	100.0			
Petroleum	-15.5	-8.7	30.5	-18.6	-13.9	9.0	71.0	-24.8	-11.3	22.1	61.3	-73.7	-7.1	-30.4	-2.9	31.3	100.0		
Sorghum	56.6	73.5	63.8	86.1	50.5	82.8	-16.6	84.2	80.2	77.9	10.3	21.7	95.2	71.0	88.8	3.2	-23.6	100.0	
Tea	-2.9	37.5	-8.2	17.1	51.5	10.7	-53.2	21.8	23.6	-17.1	1.6	45.8	4.9	22.1	-4.1	6.9	-50.8	14.7	100.0

Source: International Financial Statistics.

1/ Prices were deflated by a weighted average of industrial countries' GDP deflator to take account of the effect of underlying global inflation.

Table 20. Gini-Hirschman Concentration Indices by Product Group

	Non-oil primary						Manufactures					
									Semi-Processed			
	Total		Agriculture		Minerals		Total		Agriculture		Manufactures	
	1964	1981	1964	1981	1964	1981	1964	1981	1964	1981	1964	1981
Group A. Increased diversification and high or increasing growth												
Brazil	63	37	68	42	79	81	33	19	49	37	22	23
Colombia	91	73	92	73	93	49	26	21	46	52	32	22
Sri Lanka	71	58	71	58	89	71	85	70	93	57	58	82
Uruguay	61	49	61	49	0	69	41	26	48	43	78	31
Thailand	47	37	52	41	94	76	43	26	56	45	39	31
Malaysia	64	61	91	81	81	88	37	39	51	57	23	50
Pakistan	58	57	59	58	60	54	38	33	83	73	40	36
Jordan	56	68	67	64	96	98	46	20	61	45	35	22
Côte d'Ivoire	67	63	68	63	77	64	73	39	80	58	25	25
Philippines	51	41	57	52	80	68	58	40	68	57	80	52
Mauritius	99	96	99	96	0	67	0	72	0	71	0	78
Hong Kong	41	42	50	65	62	51	42	38	39	34	43	39
Yugoslavia	35	30	47	35	38	52	18	16	39	31	20	18
Ecuador	60	46	61	46	99	64	43	38	59	62	59	38
Korea	35	53	47	60	50	37	33	25	44	38	35	25
Singapore	63	48	65	57	43	58	18	24	31	33	21	26
Group B. Increased diversification and lower growth												
Greece	52	33	56	41	59	54	25	23	45	37	27	28
El Salvador	70	59	70	62	69	74	24	23	40	38	27	25
Chile	70	56	46	49	76	70	26	32	37	47	37	31
Panama	64	48	65	49	92	62	25	34	44	40	30	51
Costa Rica	59	53	59	54	66	63	42	19	32	34	49	20
Ghana	85	70	98	97	70	93	65	60	69	65	88	65
Turkey	38	35	41	37	57	71	33	25	50	33	43	30
Trinidad and Tobago	75	62	81	63	92	65	36	28	58	55	42	31
Cyprus	41	49	55	58	61	71	59	31	67	48	39	37
Israel	69	46	80	53	73	58	51	34	81	72	27	25
Burkina Faso	66	56	67	56	96	71	51	36	61	60	64	38
Senegal	66	52	77	65	94	82	80	31	86	62	30	31
Western Samoa	58	56	58	56	0	0	80	43	100	51	100	41
Nicaragua	54	48	56	49	94	60	31	34	60	45	29	44
Zambia 1/	92	85	74	62	94	85	41	51	57	62	59	57
India 2/	36	29	41	31	63	74	39	24	51	62	45	25
Argentina	38	34	38	35	55	79	33	23	50	39	30	22
Liberia	72	72	81	75	98	93	79	63	95	81	93	50
Fiji	94	96	95	96	77	80	88	51	91	63	42	40
Tanzania	47	41	47	43	60	84	66	47	72	71	57	45
Zaire 3/	59	49	59	64	74	69	62	46	66	67	61	54
Peru	36	41	52	45	46	54	59	26	71	58	33	28
Honduras	52	49	55	52	63	69	60	28	76	50	39	31
Ethiopia	64	68	64	68	99	71	51	47	58	76	47	58
Group C. Increased concentration and high or increasing growth												
Dominican Republic	59	70	62	72	95	85	55	56	58	58	51	70
Morocco	45	58	51	55	74	83	38	37	50	60	23	39
Kenya	49	49	50	52	63	96	30	27	42	53	39	32
Egypt	71	60	72	69	54	98	47	54	44	48	52	60
Algeria	54	48	63	73	63	54	76	62	88	81	34	68
Niger	74	86	74	89	89	99	67	59	97	86	58	35
Indonesia	58	40	63	49	94	69	78	42	94	66	46	36
Malta	59	39	74	46	93	63	27	46	53	51	31	49
Tunisia	41	36	37	40	72	70	50	42	60	56	54	53
Mexico 2/	30	33	37	40	38	51	23	31	50	50	26	36
Group D. Increased concentration and lower growth												
Portugal	43	31	52	38	47	50	22	22	44	39	24	26
Malawi	51	57	51	57	98	100	52	47	81	62	53	56
Togo	52	65	61	56	100	99	37	68	73	52	40	72
Vanuatu	69	83	84	83	99	100	97	70	97	77	0	60
Madagascar	38	51	40	54	77	72	34	34	45	37	52	43
Venezuela	83	64	68	48	99	70	35	29	62	59	41	32
Papua New Guinea	49	66	50	52	78	100	51	48	66	66	69	69
Jamaica	58	70	72	62	98	98	64	85	80	92	51	23
Nigeria 1/	51	74	56	77	88	68	47	53	54	67	71	76

Source: UN SITC Data - 3-digit classification.

1/ Data available only through 1979.
2/ Data available only through 1980.
3/ Data available only through 1978.

Table 21. Parametric Test Results for Group Interdependence, 1965-1981 1/

		D.W.
1. Regression results		
(a) Group (A+B):	$\Delta C_j = -11.250 - .003 \Delta \frac{\dot{GDP}}{P}_j$ (-7.814) (-.006)	.352
(b) Group (C+D):	$\Delta C_j = -13.654 - .670 \Delta \frac{\dot{GDP}}{P}_j$ (4.187) (-.856)	1.023
(c) Group A:	$\Delta C_j = -12.264 + .567 \Delta \frac{\dot{GDP}}{P}_j$ (4.643) (.503)	.194
(d) Group B:	$\Delta C_j = -11.165 - .120 \Delta \frac{\dot{GDP}}{P}_j$ (4.364) (-.162)	.054
(e) Group C:	$\Delta C_j = 16.311 - 1.057 \Delta \frac{\dot{GDP}}{P}_j$ (3.263) (-.829)	.473
(f) Group D:	$\Delta C_j = 4.405 - .266 \Delta \frac{\dot{GDP}}{P}_j$ (.353) (-.892)	.796

2. Chow test results	F statistics
Group (A+B)/Group (C+D)	39.49 2/
Group A/Group B	.30
Group A/Group C	15.89 2/
Group A/Group D	6.18 2/
Group B/Group C	8.45 2/
Group B/Group D	19.95 2/
Group C/Group D	.47

Source: Table 9.

1/ Figures in parenthesis are t-statistics; ΔC_j = change in country j's concentration index--a reduction implies increase in diversification; $\Delta \frac{\dot{GDP}}{P}_j$ is the change in real GDP growth of country j between the two periods 1964-71 and 1972-81.

2/ Significant: the null hypothesis that the groups are statistically the same cannot be accepted.

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