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The Export Performance of Sub-Saharan Africa, 1970-90: A Survey

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Abstract

The export performance of Sub-Saharan Africa has lagged behind that of developing countries in other regions for the past two decades, and total export proceeds have fallen significantly since 1980. Many factors explain this outcome, including continued concentration in slowly-growing non-fuel primary commodities and domestic economic policies that have discouraged new investment that could promote diversification and increased production of traditional crops. Diversification into new agricultural products and light manufactures could boost export earnings, but only if the region can compete successfully with existing producers elsewhere. In most countries this will require major structural reforms to create a more attractive economic environment.

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Summary

The economies of sub-Saharan Africa have lagged significantly behind those of most other developing countries, and the region's poor export performance is a major reason. Total export earnings in 1990 were nearly 20 percent below their nominal level in 1980. Moreover, the "real" value of sub-Saharan African export earnings, measured relative to import unit costs, fell by more than 35 percent between 1980 and 1990. Since nominal exports and export volumes from other developing countries rose significantly over this period, the share of developing country exports coming from sub-Saharan Africa fell from 8.5 percent in 1980 to 5.0 percent in 1990.

Although the region has experienced a considerable fall in its terms of trade since 1980, sluggish growth in export volumes attributable to poor domestic policies appears to have been particularly responsible for its weak export performance. Overvalued exchange rates, declining real producer prices, and the failure to maintain and modernize infrastructure have discouraged the maintenance and expansion of existing production facilities. These factors, poor investment codes, and difficult regulatory environments have also discouraged investment from abroad and the transfer of new technology. As a result, sub-Saharan Africa has lagged behind other regions in diversifying its exports and penetrating new markets. Because of preferential trade agreements and the region's concentration in exporting primary, non-fuel commodities, it does not appear to have been significantly hurt by protectionism. At the same time, international responses to the region's export problems have been limited, reflecting the ineffectiveness of international commodity agreements and the limited support available from multilateral facilities, such as the IMF's compensatory and contingency financing facility and the European Community's STABEX and SYSMIN arrangements.

The outlook for sub-Saharan African exports is uncertain. Because of low income elasticities, global demand for the primary, non-fuel commodities that comprise the bulk of the region's exports is expected to rise slowly, on the order of only 1-2 percent a year. For similar reasons, real export prices of these commodities are not expected to show much improvement over the next decade. Although the region could augment growth by diversifying exports toward more rapidly expanding markets in Asia, high cost levels may make it hard to compete effectively with nearby producers of primary commodities. Thus, sub-Saharan Africa's best chance for export growth may lie in augmenting its so-called nontraditional exports, such as floriculture, off-season fruits and vegetables, and light manufactures. Studies indicate considerable untapped demand for these products in the region's traditional markets in Western Europe, which a few countries, notably Kenya and Mauritius, have begun to fill. However, the success of diversification will depend on the region's ability to penetrate marketing networks and supply consistently high-quality and competitively priced items. This is likely to require further structural reforms in many sub-Saharan African countries to create a more attractive investment climate.

I. Introduction

Sub-Saharan Africa 1/ has experienced severe and continuing economic problems during the past decade. Gross domestic product (GDP) per capita declined at a rate exceeding 1 percent a year between 1980 and 1990, while aggregate external debt was estimated at more than 70 percent of GDP and over 350 percent of annual export earnings in 1988. 2/ Most Sub-Saharan countries have also experienced severe balance of payments difficulties, resulting in continuing import constraints and, in some cases, repeated foreign exchange crises, as countries struggle to meet short-term payments and post-rescheduling debt service obligations. In the circumstances, it has been difficult for many African nations to direct their policies toward growth and development. Rather, the more successful countries are those that have managed to avoid substantial income declines, but whose income gains, when compared with other regions of the developing world, are considered to be modest at best.

There is common agreement that weak export performance is a key factor behind Sub-Saharan Africa's continuing external problems. Total 1990 export earnings for the region were 19 percent below their 1980 value in nominal terms. Although developing countries as a whole also experienced a decline in export earnings between 1980 and 1988 (largely reflecting the heavy weight of petroleum exports and the plunge in world oil prices after 1985), the decline was only 16 percent. Even with Africa's major oil-exporting countries--Cameroon, Republic of the Congo, Gabon, and Nigeria--excluded, the comparisons are telling: between 1980 and 1990, export earnings rose by 12.5 percent, compared with an increase of more than 92 percent for all non-fuel exporting developing countries. Indeed, with the exception of the fuel-exporting developing countries, Sub-Saharan Africa is virtually unique among groups of developing countries in having experienced an absolute decline in export earnings during the 1980s.

Sub-Saharan Africa's export earnings have fallen during a period of generally rising prices for imports. With debt service obligations also rising and foreign assistance largely static in real terms, the region has found it increasingly difficult to finance essential imports. Thus, import volumes have fallen, by 37 percent during 1980-90 and by 21 percent if the region's four main oil-producers are excluded. The decline in real import levels has not only constrained export production, but output in the region's heavily import-intensive manufacturing industries has also been seriously affected. Returns to the exporting sector and on other productive activity have been reduced, as countries have found it harder to finance the imported consumer goods their residents demand.

1/ In this paper, Sub-Saharan Africa refers to all African countries that are Fund members, except for Algeria, Morocco, South Africa, and Tunisia.

2/ See Greene (1989, pp. 840, 842).

Although there is general acknowledgement of Sub-Saharan Africa's export difficulties, the factors responsible are less widely understood. It is often alleged, for example, that most of the region's export problems are demand based, stemming from the lack of growth in world consumption for the kinds of non-fuel primary products that have traditionally been exported from the region. Sluggish growth in consumption and abundant world supplies of these primary products have meant poor product prices and low export unit values for the region. Moreover, with the cost of imported manufacturing goods rising, the region's terms of trade have steadily deteriorated.

It has also been alleged that Sub-Saharan Africa has suffered from the effects of protectionism in industrial countries. Quantitative restrictions and high tariff barriers are said to have restricted the possibilities for the region to increase its export volume. In addition, protection against textiles and other manufacturing goods may have discouraged countries from pursuing export diversification.

In addition to demand-side factors, supply-side problems are also said to have contributed to the weakness of Sub-Saharan African exports. Inappropriate macroeconomic policies, including those relating to exchange rates and pricing, are alleged to have discouraged local production of export crops, constraining domestic production and reducing export volumes. The same policies, together with outdated and overly restrictive investment codes, are said to have discouraged new investment and to have retarded efforts at export diversification.

The purpose of this paper is to explore these issues, identify the major factors behind recent export decline in Sub-Saharan Africa, and to assess the possibilities for recovery during the 1990s. In so doing, the paper draws heavily on existing research and literature. Section II begins with a review of the recent history of Sub-Saharan Africa's export earnings and focuses on the period since 1970. Trends in export earnings are compared with the export performance of other developing countries. Reasons for the sluggish performance in the region's traditional exports of primary commodities and the limited growth in nontraditional exports are also examined, including the effects of protectionism. Section III reviews the measures taken by international organizations and groups of donor countries to alleviate the problems facing Sub-Saharan Africa's chief commodity exports. Included here are brief discussions of international commodity agreements, preferential trade agreements, and compensatory financing schemes. Section IV addresses export prospects for Sub-Saharan Africa, focusing on the slow increase in demand for traditional agricultural exports, the need for substantial investment to revive the mining sector, and the possibilities for nontraditional exports. Section V summarizes the discussion and offers suggestions on ways to increase the region's export earnings.

II. The Export Performance of Sub-Saharan Africa Since 1970

Before analyzing the factors responsible for the region's export performance, it is useful to provide an overview of the relevant data. For this purpose, it is convenient to focus on the two decades from 1970 onward, by which point virtually all Sub-Saharan countries had become independent.

1. Export trends

Table 1 summarizes trends in export earnings for the region, with and without the four major fuel exporters, for the 20-year period of 1970-90. As the table shows, in nominal U.S. dollar terms 1/ the region's total exports rose by more than sixfold in the decades of 1970-80, only to fall by 19 percent between 1980 and 1990. Excluding the region's four main petroleum-exporting countries (Cameroon, Republic of the Congo, Gabon, and Nigeria), the trend was only somewhat less dramatic. Total export earnings rose almost fourfold from 1970 to 1980, but fell by about 20 percent between 1980 and 1982, and then rose steadily over the next eight years, registering a net increase of about 13 percent between 1980 and 1990.

Because of the steady rise in import prices during the last two decades, a reflection of trends in the cost of manufactures and other items consumed or used in local production but produced outside the region, a better measure of the export performance of Sub-Saharan Africa may be the purchasing power of its export earnings, or its "income terms of trade." This is calculated by deflating total export earnings by the region's import unit value. Measured by its "income terms of trade," the real value of Sub-Saharan African export earnings nearly doubled between 1970 and 1980, only to fall by 37 percent between 1980 and 1990. 2/ Thus, in 1990 the real purchasing power of Sub-Saharan exports was not much higher than in 1970. With the four predominantly fuel-exporting nations excluded, the trend has been even worse. Between 1970 and 1980, there was almost no change in the real purchasing power of exports, with total export earnings and import unit values growing by roughly the same percentage. Between 1980 and 1990, export unit values rose by 25 percent, but import unit values rose by 39 percent. Accordingly, in 1990 the real purchasing power of exports was about 10 percent lower than in 1980, and 8 percent below the 1970 level. This experience is consistent with the so-called Prebisch-Singer hypothesis, which contends that prices of primary commodities should fall over time

1/ All figures are in U.S. dollars, unless otherwise specified.

2/ As indicated in Table 1, using the index of manufacturing unit values (manufacturing exports of industrial countries) in place of import unit values as a deflator yields broadly comparable results.

Table 1. Sub-Saharan Africa: Trends in Export Earnings, 1970-90

(1980 = 100)

	Est. 1970	Est. 1975	1980	1982	1985	1988	1990
Sub-Saharan Africa							
Export value	15.2	41.0	100.0	65.0	68.4	62.1	80.9
Export unit value	17.8	46.3	100.0	90.9	89.2	74.9	87.4
Income terms of trade, relative to:							
Import unit value	53.9	68.8	100.0	93.7	92.5	58.6	62.8
MUV index 1/	44.2	60.2	100.0	96.7	99.7	60.0	64.5
Sub-Saharan Africa, excluding major fuel exporters							
Export value	26.5	50.8	100.0	81.2	85.6	107.7	112.7
Export unit value	29.5	52.2	100.0	89.6	101.1	124.4	125.1
Income terms of trade, relative to:							
Import unit value	98.5	87.4	100.0	87.6	99.8	97.7	90.0
MUV index 1/	75.9	80.0	100.0	95.3	113.0	99.5	92.3
Memorandum items:							
Import unit value							
Sub-Saharan Africa	28.2	59.6	100.0	97.0	96.4	127.9	139.2
Sub-Saharan Africa excluding major fuel exporters	26.9	58.1	100.0	102.1	101.2	127.2	138.8
MUV index 1/	34.9	63.5	100.0	94.0	89.5	125.1	135.5

Source: Staff calculations based on the IMF WEO (1991) data base.

1/ Index of export unit value for manufactures of industrial countries.

relative to those of manufactures because of the satiation of demand for primary commodities as income levels rise. 1/

The export experience of Sub-Saharan Africa during the last two decades has been significantly worse than in most other groups of developing countries. This is illustrated in Table 2. Between 1970 and 1980 total exports from developing countries as a whole rose by more than ninefold, or about one and one half times as fast as in Sub-Saharan Africa--from about \$61 billion to \$577 billion. Between 1980 and 1990, total exports for the group rose a further 37 percent to \$793 billion, compared with \$39.5 billion for Sub-Saharan Africa (a 19 percent decline). The difference is even more striking if predominantly fuel-exporting nations are excluded. Among non-fuel exporting developing countries, export earnings rose by 480 percent from 1970-80, versus a 200 percent rise for the comparable countries in Sub-Saharan Africa. Moreover, between 1980 and 1990, exports from non-fuel exporting developing countries grew by more than 123 percent, compared with a 13 percent rise for the comparable nations in Sub-Saharan Africa.

As a result of these developments, Sub-Saharan Africa's share of total developing country exports plunged from 12.5 percent in 1970 to 5.0 percent in 1990. Among all non-oil developing countries, the export share from Sub-Saharan African nations fell from 13.7 percent in 1970 to 3.6 percent in 1990. These overall developments are reflected in market share trends of individual commodities. Between 1973-75 and 1985-87, the region's share of world coffee exports fell from 32 percent to 22 percent; and for cocoa, from 74 percent to 63 percent. Only for tea and tobacco, where market shares each rose by 4 percent, did the region's share of world agricultural exports increase more than marginally. Among minerals, the region's bauxite exports grew from 17 percent to nearly 38 percent of total world exports between 1973-75 and 1982-84 (the latest date for which data are available). Over the same period, however, exports of copper fell from 24 percent to 17 percent of all world exports.

Although both demand (price-related) and supply (volume-related) factors have contributed to the region's comparatively poor export performance, those factors inhibiting volume growth have been particularly important during the 1980s. As shown in Table 3, between 1970 and 1980 export unit values for Sub-Saharan Africa grew by about 460 percent, compared with about 680 percent for all developing countries, and fell by about 13 percent between 1980 and 1990, versus a 6 percent decline for

1/ Boughton (1991) provides empirical support for this hypothesis, although most of the decline over the last century has occurred since the mid-1970s, with an especially steep drop since 1985. However, research by Powell (1991) suggests that the real pattern may be a stable terms of trade between primary commodity and manufacturing prices, punctuated by occasional sharp drops in the terms of trade such as those occurring in 1921, 1938, and 1975.

Table 2. Sub-Saharan Africa versus Developing Countries: Comparative Export Earnings, 1970-90

	1970	1975	1980	1982	1985	1988	1990
<u>(In billions of U.S. dollars)</u>							
Sub-Saharan Africa	7.6	18.7	48.8	31.7	33.4	30.3	39.5
Developing countries <u>1/</u>	60.6	231.7	576.6	499.4	481.9	634.0	793.3
Sub-Saharan Africa excluding major fuel exporters	6.0	9.3	18.1	14.7	15.5	19.5	20.4
Non-fuel exporting developing countries <u>1/</u>	43.8	111.0	254.2	249.7	292.8	481.5	568.2
<u>(In percent)</u>							
Memorandum items:							
Sub-Saharan Africa as a share of developing country exports <u>1/</u>	12.5	8.1	8.5	6.4	6.9	4.8	5.0
Sub-Saharan Africa excluding major fuel exporters as a share of exports from non-fuel exporting developing countries <u>1/</u>	13.7	8.4	7.1	5.9	5.3	4.0	3.6

Sources: IMF (1991 a, b); and staff estimates.

1/ Excluding Bulgaria, Czechoslovakia, Hungary, Poland, Romania, Yugoslavia, and the former USSR.

Table 3. Sub-Saharan Africa and Developing Countries: Trends in Export Unit Values and Volumes, 1970-90

(1980 = 100)

	Est. 1970	Est. 1975	1980	1982	1985	1988	1990
Export Unit Values							
Sub-Saharan Africa	17.8	46.3	100.0	90.9	89.2	74.9	87.4
Sub-Saharan Africa excluding major fuel exporters	29.5	52.2	100.0	89.6	101.1	124.4	125.1
Developing countries <u>1</u> /	12.8	45.9	100.0	99.8	88.3	84.4	94.3
Non-fuel exporting developing countries <u>1</u> /	32.0	60.1	100.0	93.9	89.0	103.7	109.3
Export Volumes							
Sub-Saharan Africa	85.4	88.7	100.0	71.5	76.6	82.8	92.6
Sub-Saharan Africa excluding major fuel exporters	89.8	97.4	100.0	90.8	84.4	86.3	90.0
Developing countries <u>1</u> /	83.8	86.9	100.0	86.8	94.6	130.4	145.9
Non-fuel exporting developing countries <u>1</u> /	46.1	65.7	100.0	104.5	129.4	182.5	204.5

Sources: IMF (1991 b); and staff calculations based on IMF (1991 b).

1/ Excluding Bulgaria, Czechoslovakia, Hungary, Poland, Yugoslavia, and the former USSR.

developing countries as a whole. As for volumes, between 1970 and 1980 real exports rose by about 15 percent in the region and by 16 percent for all developing countries. From 1980 to 1990, however, export volumes fell by 7 percent in Sub-Saharan Africa, versus an increase of 46 percent for all developing countries (and 104 percent for non-oil developing countries).

2. Factors responsible for the region's poor export performance

The poor export performance of Sub-Saharan Africa can be traced to three main sources: weak performance of the region's traditional, non-fuel primary commodity exports, limited success in developing major non-traditional exports, and difficulties in penetrating new export markets.

a. Poor performance of traditional exports

A major reason for Sub-Saharan Africa's low export earnings is the weak performance of its traditional exports. This is evident in the price and volume trends of the region's main non-fuel export commodities. As Table 4 shows, a weighted average of prices for the chief export commodities rose sharply between 1970 and 1977, remained fairly high between 1977 and 1980, and then fell by about 23 percent from 1980 to 1987. The prices of most individual commodities followed a similar pattern. For example, prices of coffee beans and cocoa, the region's two largest non-fuel exports, each rose more than fivefold between 1971 and 1977, plunged by 50 percent between 1978 and 1980, and then fell an additional 30 and 20 percent, respectively, between 1981 and 1987. The price of cotton rose by more than 250 percent during the 1970s, peaked in 1981, and then fell to about 75 percent of its 1980 level in 1987. The price of copper, the region's leading mineral export, doubled during the 1970s, peaked in 1980, and then fell sharply during most of 1980s.

Volumes of major agricultural exports also showed an overall decline between 1973-75 and 1985-87 (Table 5). The average yearly volume of coffee exports fell by 18 percent, while exports of palm oil and timber fell by 28 and 35 percent, respectively. Cocoa exports, on the other hand, rose by 8 percent during this period, and exports of tea and tobacco each grew by more than 50 percent, but these gains were not enough to offset volume declines in other commodities. Among minerals, for which volume data are harder to secure, between 1973-75 and 1982-84 average yearly exports of copper fell by 14 percent, while that of iron ore and manganese registered fairly small increases. Exports of bauxite grew fourfold, reflecting higher production in Guinea and Guinea-Bissau, while phosphate exports fell by 14 percent.

The decline in real export prices for the region's major commodities during the past two decades reflects weak world demand for most of these items. Table 6 provides some estimates of price and income elasticities and data on the average annual growth in world consumption for several of the region's main non-fuel primary commodity exports. World consumption of coffee, accounting for almost one quarter of all Sub-Saharan non-fuel

Table 4. Sub-Saharan Africa: Trends in Prices of Major Export Commodities,
Calendar Years 1971-87

(1980 = 100)

	1971	1974	1977	1980	1981	1984	1987
<hr/>							
Agricultural products							
Coffee	28.7	39.9	152.1	100.0	69.9	93.9	69.5
Cocoa beans	20.2	75.6	168.4	100.0	79.9	91.4	74.0
Sugar	23.4	48.3	63.4	100.0	85.7	72.6	94.8
Tobacco	51.5	67.0	80.3	100.0	112.3	130.4	110.1
Tea	47.3	62.6	120.7	100.0	90.6	155.2	76.6
Cotton	27.5	70.6	88.1	100.0	128.9	88.9	74.4
Groundnut oil	51.3	125.4	98.5	100.0	121.4	118.4	58.2
Timber (logs)	17.7	47.9	63.1	100.0	84.6	69.8	83.5
Palm oil	44.9	118.6	90.9	100.0	97.9	125.0	58.7
Sisal	22.2	138.0	66.8	100.0	84.3	76.3	66.9
Minerals							
Copper	49.5	94.1	59.9	100.0	79.8	63.0	81.5
Bauxite	23.3	33.8	63.5	100.0	101.8	77.6	77.6
Phosphate rock	24.1	113.0	65.7	100.0	106.0	81.9	68.4
Manganese	41.1	73.5	96.8	100.0	108.1	92.2	82.1
Iron ore	49.4	69.7	79.2	100.0	90.3	84.8	81.6
Memorandum item:							
Weighted price index	34.1	71.4	113.7	100.0	85.1	87.2	77.4
Terms of Trade							
With industrial country export price deflator	99.8	126.6	168.0	100.0	88.5	99.7	70.4
With African import price deflator	131.0	154.3	200.2	100.0	86.4	103.5	53.7

Source: Kox (1990, Table 34).

Table 5. Sub-Saharan Africa: Trends in Exports for Leading
Non-Petroleum Export Commodities, 1973-75 to 1985-88

	Exports by Sub-Saharan Africa			Total World Exports		
	1973-75	1978-80	1985-87	1973-75	1978-80	1985-88
Agricultural products						
(in thousands of metric tons)						
Coffee	1,155	941	951	3,579	3,629	4,306
Cocoa	855	744	926	1,160	1,066	1,472
Tea	136	175	230	797	276	1,096
Sugar	1,349	1,451	1,604	22,687	26,768	28,162
Palm oil	178	94	129	1,761	2,849	5,743
Cotton	474	451	609	4,121	4,512	4,793
Timber	5,925	5,273	3,875	122,577	141,563	142,391
Sisal	250	133	63	408	238	151
Groundnut oil	174	147	92	426	461	354
Tobacco	121	142	171	1,284	1,383	1,352
Minerals						
(in millions of U.S. dollars)						
Bauxite	91	186	338 <u>1/</u>	529	769	900 <u>1/</u>
Copper	1,799	1,926	1,556 <u>1/</u>	7,487	8,992	9,000 <u>1/</u>
Iron ore	403	420	428 <u>1/</u>	4,285	6,266	6,915 <u>1/</u>
Manganese	85	107	106 <u>1/</u>	361	410	351 <u>1/</u>
Phosphate	159	157	137 <u>1/</u>	1,502	1,848	1,692 <u>1/</u>

Source: Kox (Tables 2 and 3, 1990).

1/ Values for 1982-84.

Table 6. Sub-Saharan Africa: Estimated Price and Income Elasticities and Growth in World Consumption for Selected Non-Fuel Exports, 1960-80

	Price Elasticity	Income Elasticity	Average Annual Growth in World Consumption		
			1960s	1970s	1980s
Coffee	-0.2 to -0.4	0.45	2	1	3
Cocoa	-0.2 to -0.4	0.6 to 0.9	2	negative	4
Tea	-0.1 to -0.3	0.1 to 0.7	...	--	4
Copper	-0.01 to -0.8	0.5 to 1.4	5	3	1

Source: Staff estimates.

commodity export earnings, grew by only 1 percent a year during the 1970s and by 2 percent during the 1980s. The slow rate of growth reflects relatively low price and income elasticities in the major export markets of Europe and in the United States. Indeed, there is some evidence of market saturation in these countries, with the U.S. share in total world imports declining since the early 1970s, as U.S. consumers have shifted some beverage consumption to soft drinks and fruit juices. Income elasticities of nearly two in Japan and about unity for Eastern Europe have been estimated by Akiyama and Larson (1982), but these markets together represent only about 10 percent of the total import demand--not enough to offset estimated elasticities of 0.2 to 0.4 in the major European and North American markets. Further constraining coffee exports from the region is the growing consumer preference for milder Arabica and similar coffees, which thrive in cooler, high altitude areas. Three quarters of Sub-Saharan coffee exports represent the more bitter robusta varieties, which command lower prices in world markets. Partly offsetting this problem is the rise in African production of tea, for which world consumption is rising at a faster pace. However, the market for tea also exhibits weakness, with somewhat higher income elasticities being offset by an apparent secular decline in the demand for non-herbal teas observed in studies of several industrial countries (see, for example, Akiyama and Trivedi, 1987).

The market for cocoa, Sub-Saharan Africa's second-largest non-fuel commodity export, also reflects weak demand. Consumption in industrial countries, which accounts for about 70 percent of total world imports, actually declined in the 1970s. During the 1980s, it grew by about 4 percent a year in the 1980s, while consumption in Eastern Europe, which accounts for about 13 percent of world imports, grew at about the same rate as in the 1980s following marginal increases during the previous decade. Price elasticities of demand have been estimated at 0.2 to 0.4, while income elasticities are estimated at 0.6 to 0.9, with lower figures for the United States. World consumption grew by about 4 percent a year during 1980-88. However, innovations that may reduce overall demand for cocoa products are occurring. Kox (1990, p. 50) reports that some European companies have been developing substitutes for cocoa butter from less expensive vegetable oils. If allowed to replace even 5 percent of cocoa butter ingredients, these could reduce world export demand by perhaps 4 to 5 percent.

A third commodity whose prospects for major export growth are limited by market conditions is copper, the region's largest mineral export. World consumption of copper grew by about 5 percent a year from 1950 to 1973, but has slowed to only 2-3 percent a year since then. This slowdown reflects several factors, including the shift from manufacturing, which traditionally was one of the main sources of copper demand, to services in industrial countries. Also important is the development of product substitutes, such as the replacement of copper by plastic pipes and the substitution of fiber optics for copper wire in telecommunications. Finally, advances in miniaturization have required less copper, even in items where product substitution has not occurred. All these factors contributed to the

weakness in copper prices between 1980 and 1986, although prices have increased markedly since 1987.

On the supply side, a number of factors seem to have contributed to the sluggish growth in export volumes of the region's traditional export commodities. Among them are an appreciation in real exchange rates and corresponding decline in competitiveness in many Sub-Saharan African countries, attributable to inflation and the lack of -- or, in some cases, the inability to make -- offsetting exchange rate adjustments (Table 7) 1/. The appreciation was particularly large during the 1970s, although much of it has been reversed since the mid-1980s as a result of deliberate exchange rate adjustments in countries with independent exchange rate authority. Although by 1991 the average real bilateral exchange rate vis-à-vis the U.S. dollar for Sub-Saharan Africa was only 18 percent above the 1970 level 2/, in some countries the degree of appreciation was considerably higher.

Perhaps more important, the real bilateral exchange rates in most of these Sub-Saharan African countries were considerably higher than those in the major non-African exporters of primary commodities (Brazil, Colombia, Indonesia, and Malaysia). Of these four countries only the appreciation in Brazil's real exchange rate approached the average for Sub-Saharan Africa, and even this relate was lower than that for two thirds of the Sub-Saharan African countries in 1991. As Table 7 indicates, the currencies of these non-African countries appreciated far less during the 1970s and depreciated far more during the 1980s, thereby improving these countries' relative competitiveness. This approach was consistent with the downward trend in real commodity prices during the past two decades.

Another reason for slow growth rates in export volumes has been the sharp decline in real producer prices for key agricultural exports in the main exporting countries of Sub-Saharan Africa, relative to trends in real prices among the chief non-African exporters. These declines reflect the failure of procurement prices in state marketing agencies to keep pace with domestic inflation, which in turn reflects appreciating real exchange rates in many Sub-Saharan African countries. Although some decline in real producer prices between the 1970s and mid-1980s may have been justified in response to falling world commodity prices, real producer prices for coffee, cocoa, and cotton during this period fell in most of the main producing countries in Sub-Saharan Africa, while they generally rose in the major non-African exporting nations (Table 8). For coffee, real producer prices in

1/ A number of countries in Sub-Saharan Africa, most notably the 13 in the CFA franc zone, belong to currency unions that rule out independent exchange rate policy. In these countries other policy instruments must be used to maintain competitiveness, in particular, measures to curb inflation.

2/ If data for the Sudan are excluded, the average real bilateral rate in 1991 for Sub-Saharan Africa was 105 percent of the 1970 level, rather than 118 percent.

Table 7. Selected Countries: Real Bilateral Exchange Rates, 1970-91

(1970=100)

	1970	1975	1980	1985	1986	1987	1988	1989	1990	1991
<u>Sub-Saharan Africa</u>	100	135	174	116	115	114	116	111	119	118
Burundi	100	123	139	121	127	122	108	101	95	94
Cote d'Ivoire	100	134	192	91	127	151	157	141	156	146
Cameroon	100	154	174	110	146	167	164	149	168	153
Congo	100	137	142	87	114	129	130	120	136	124
Ethiopia	100	104	141	155	138	129	133	137	137	178
Gabon	100	154	187	107	145	160	140	134	159	152
Ghana	100	139	516	182	135	106	102	91	98	99
Gambia, The	100	137	153	97	84	98	111	101	103	97
Burkina Faso	100	129	142	75	93	100	101	90	99	94
Kenya	100	118	141	91	94	94	91	82	78	72
Liberia	100	121	121	110	111	113	119	142	151	157
Madagascar	100	146	150	91	101	71	65	60	68	58
Mauritius	100	118	132	77	89	90	90	85	94	92
Niger	100	135	177	92	113	117	112	97	107	100
Nigeria	100	160	248	280	148	69	91	81	75	66
Rwanda	100	150	168	162	181	200	206	190	182	138
Sudan	100	150	164	109	122	119	123	197	365	476
Senegal	100	176	162	102	138	147	140	125	140	126
Sierra Leone	100	100	109	133	76	94	129	108	85	85
Somalia	100	119	212	166	121	102	110	77	46	46
Swaziland	100	112	129	72	78	96	92	86	94	96
Seychelles	100	161	187	157	178	194	198	183	191	188
Togo	100	148	163	81	107	119	115	102	114	106
Tanzania	100	131	152	204	142	90	74	61	51	50
Zaire	100	170	265	70	85	82	87	83	76	76
Zambia	100	113	122	59	36	42	71	93	85	74
Zimbabwe	100	116	108	66	72	78	74	68	66	53
<u>Other Countries</u>										
Brazil	100	106	84	52	57	63	71	87	104	91
Colombia	100	98	125	87	74	71	71	66	62	61
Indonesia	100	154	131	90	81	67	68	65	64	63
Malaysia	100	131	117	99	94	93	88	84	82	81

Source: IMF (1991); and staff estimates.

Table 8. Selected Countries: Real Producer Price Indices for Coffee, Cocoa, and Cotton, 1974/75-1985/86 1/

(1970/71 = 100)

Country	Crop Years		
	1974/75	1980/81	1985/86
Coffee			
Sub-Saharan Africa countries			
Burundi	83.3	99.3	72.4
Cameroon	72.9	93.4	80.4
Côte d'Ivoire	104.4	82.9	84.9
Ethiopia	77.8	57.4	48.8
Kenya	96.6	109.3	132.2
Madagascar	85.6	70.0	57.1
Rwanda	76.7	100.7	78.6
Tanzania	72.3	55.3	36.2
Zaire	82.7	89.1	153.3
Other countries			
Brazil	124.5	134.9	312.7
Colombia	97.4	96.8	112.2
Indonesia	76.1	131.0	163.4
Cocoa			
Sub-Saharan Africa countries			
Ghana	106.8	66.0	82.4
Côte d'Ivoire	144.0	104.4	107.2
Cameroon	86.1	112.6	99.9
Nigeria	115.6	20.8	36.9
Other Countries			
Brazil	209.8	223.1	270.7
Malaysia	132.1	153.7	133.1
Cotton			
Sub-Saharan countries			
Burkina Faso	95.0	78.9	99.5
Cameroon	92.9	98.6	113.1
Senegal	72.3	77.7	68.3
Sudan	90.4	78.8	54.5
Tanzania	102.9	83.8	94.1
Zimbabwe	143.4	113.8	99.9
Other Countries			
Egypt	107.4	114.2	103.7
China	99.8	130.5	120.8 <u>2/</u>
Pakistan	120.5	96.1	77.8
Turkey	155.2	94.6	95.1

Sources: Akiyama and Larson (1989, pp. 21, 23), based on data from International Coffee Organization, FAO, and World Bank.

1/ Indices deflated by the consumer price index from each country.

2/ Average for 1984-85.

1985/86 are estimated to have fallen by 15-64 percent from their estimated 1970/71 levels in most of the major African producing countries, except for Zaire and Kenya, where real producer prices are estimated to have risen by 30 percent and 53 percent, respectively (Akiyama and Larson, 1989, p. 21). However, real producer prices in Brazil, the world's leading coffee producer, were more than 3 times their 1970/71 level, while those of Columbia and Indonesia were 12 percent and 63 percent higher than their levels at the start of the 1970s, respectively. For cocoa, real producer prices in Ghana, Côte d'Ivoire, and Cameroon during 1985/86 were estimated at 82-107 percent of their 1970/71 levels, compared with figures of 271 percent for Brazil and 133 percent for Malaysia. Only for cotton have real producer prices in some Sub-Saharan countries (Burkina Faso, Tanzania, and Zimbabwe) shown the same trends as those in a number of non-African producers. Nevertheless, several leading African producers (Senegal and Sudan) experienced decreases of more than 30 percent in real producer prices of cotton during this period.

A third reason for the sluggish growth in export volumes has been the slow introduction of new product varieties and production technologies, which has contributed to a decline in production yields relative to those in other regions (Table 9). With the exception of Kenya and Rwanda, where limited arable land and well organized research facilities have bolstered yields, many Sub-Saharan countries have coffee yields that are uniformly lower than those of comparator nations. This reflects, among other factors, low producer prices in these countries, which in turn have discouraged maintenance and the replacement of older trees with newer varieties. Several countries outside Africa have boosted coffee yields by introducing newer, more productive varieties. Among cocoa producers, several non-African countries have achieved higher yields from the newer hybrid varieties that have been introduced. For cotton, the generally lower yields of Sub-Saharan countries reflect production under rainfed, rather than irrigated, conditions. Nevertheless, better pricing policies and convenient packages of modern inputs have enabled some African countries such as Togo, Burkina Faso, and Mali to obtain better yields than others have achieved.

Finally, production of export products has also been hampered by low rates of project development and direct investment from abroad. This is particularly evident in mineral production. A recent study by Fozzard (1990) has observed that the ratio of exploration expenditure to total production in recent years has averaged less than 1.5 percent in three of Sub-Saharan Africa's four largest non-diamond mineral producers: Guinea, Zaire, and Zambia. ^{1/} This compares with ratios of 6 percent in Canada and 13 percent for gold mining in Australia, and figures averaging from 5 to 10 percent for individual companies engaged in a variety of successful

^{1/} The ratio of exploration expenditure to production in 1987 was also below 1.5 percent in two major diamond exporters in Sub-Saharan Africa: Botswana and Namibia. However, because of the very high returns to diamond extraction, a low ratio of exploration expenditure to production may be less of a concern for these countries.

Table 9. Selected Major Producing Countries: Comparative Yields for
Coffee, Cocoa, and Cotton, 1970/71-1985/86

(In kilograms per hectare)

Countries	Crop Years			
	1970/71	1975/76	1980/81	1985/86
Coffee				
Sub-Saharan Africa				
countries				
Cameroon	351	356	464	523
Côte d'Ivoire	327	334	263	230
Kenya	726	1,037	726	781
Madagascar	372	352	339	288
Rwanda	862	1,344	1,044	1,082
Uganda	494	528	461	441
Zaire	409	351	390	461
Other countries				
Brazil	561	576	593	593
Colombia	564	570	863	722
Costa Rica	1,201	1,037	1,560	1,610
Mexico	559	604	608	756
Indonesia	469	568	630	564
Cocoa ^{1/}				
Sub-Saharan Africa				
countries				
Cameroon	...	...	...	373
Côte d'Ivoire	...	...	...	555
Ghana	...	...	...	250
Nigeria	...	...	...	335
Other countries				
Brazil	...	...	...	595
Indonesia	...	...	...	730
Malaysia	...	...	...	745
Cotton				
Sub-Saharan Africa				
countries				
Sudan	484	335	343	431
Mali	314	424	450	487
Côte d'Ivoire	357	437	447	562
Chad	122	190	192	257
Cameroon	150	247	493	517
Burkina Faso	123	241	318	529
Senegal	366	335	282	357
Tanzania	250	139	154	125
Togo	289	296	338	543
Zimbabwe	402	580	454	352
Other countries				
Egypt	770	716	1,010	927
Syria	614	810	877	913
Pakistan	337	246	342	525
Turkey	760	768	745	835
China	444	450	560	815
Brazil	231	247	311	333
Mexico	778	863	925	953

Source: Akiyama and Larson (1989), based on data in USDA, World Coffee Situation (May, 1988), World Cotton Situation, and World Bank.

^{1/} World Bank estimates in 1986/87.

mining operations. Several factors help to explain the low rates of project investment in these and in other Sub-Saharan countries, including outmoded and restrictive investment codes, inconvertible currencies and limitations on repatriating investment capital and earnings, poor infrastructure, inadequate government support for mining and agricultural investment activities, limited financial markets and lack of access to international capital resources, and an unstable macroeconomic and political climate, as well as various sociocultural factors. With more favorable investment conditions elsewhere, many potential investors have avoided Sub-Saharan Africa in favor of other regions. In addition, many domestic residents have chosen capital flight over reinvestment in domestic projects and securities.

b. Limited success in export diversification

Besides weak export prices and sluggish gains in export production, exports in Sub-Saharan Africa have also suffered because few countries have succeeded in developing significant nontraditional export activities. Kox (1990) observes that between 1971 and 1987, the percentage of export earnings derived from non-fuel primary commodities in 27 non-oil exporting Sub-Saharan African countries decreased only slightly, from 89 to 80 percent. Indeed, with the exception of a few oil producing countries (notably Nigeria, Cameroon, Gabon, and the Republic of the Congo), virtually every Sub-Saharan Africa country has remained an exporter of mostly primary commodities. As recently as 1988, there were only four Sub-Saharan countries--Lesotho, Mauritius, Tanzania, and Zimbabwe--in which manufactured goods represented even 20 percent of total export earnings (Table 10). Of these, manufacturing accounted for a majority of exports in only Lesotho and Mauritius, although it is somewhat misleading to think of Lesotho as a manufacturing exporter, since most of its external earnings come from workers' remittances. In one country, Swaziland, processed fruit concentrates have come to represent about 40 percent of all export earnings.

During the past two decades the commodity composition of export earnings in the region has become less concentrated. Kox (1990) notes, for example, that among the 40 Sub-Saharan countries in his sample, countries in which three main primary commodities accounted for more than half of total non-fuel export earnings had fallen from 26 in 1973-75 to 20 by 1982-84. Nevertheless, the degree of overall export concentration remains high. As recently as 1988, two commodities provided at least 60 percent of the export earnings of 30 out of the 43 Sub-Saharan countries for which export data by commodity are available (Table 10). Only in Zimbabwe did the top two export commodities provide less than 40 percent of total export earnings.

Although some shifts in export composition appear to have taken place during the past two decades, except for the petroleum exporters, most of the change has been in movement back to the primary commodities that already accounted for a large share of regional exports. Between the mid-1970s and mid-1980s, the countries in which coffee and cotton were among the three largest non-fuel exports have increased by two and three, respectively

Table 10. Sub-Saharan Africa: Export Concentration and Export Share of Manufactures and Fruits and Vegetables, 1987-88

(In percent)

Country	Year	Export Share of Manufactures 1/	Export Share of Fruits and Vegetables 2/	Share of Principal Export	Share of Top Two Exports
Benin	1988	--	--	47.8	82.6
Botswana	1988	--	--	76.7	81.3
Burkina Faso	1988	--	--	27.6	50.7
Burundi	1988	6.8	--	82.9	89.7
Cameroon	1987/88	--	--	45.7	59.8
Cape Verde	1988	--	24.2	27.7	51.8
Central African Rep.	1987	--	--	39.5	55.6
Chad	1988	--	--	48.3	48.3
Comoros	1988	--	--	85.1	85.1
Congo	1987	--	--	79.2	92.2
Côte d'Ivoire	1988	--	2.3	15.2	46.9
Equatorial Guinea	1988	--	--	54.5	92.7
Ethiopia	1988	--	1.2	57.8	72.3
Gabon	1988	--	--	62.0	75.5
Gambia	1987/88	--	--	78.8	88.9
Ghana	1988	--	--	52.5	71.6
Guinea	1987	--	--	82.1	92.3
Guinea-Bissau	1987	--	--	83.0	90.9
Kenya	1988	--	13.5	24.8	45.6
Lesotho	1988	64.0	--	64.0	81.0
Liberia	1988	--	--	47.4	71.6
Madagascar	1988	--	--	26.7	51.6
Malawi	1988	--	1.1	63.5	73.9
Mali	1988	--	--	41.8	71.3
Mauritania	1988	--	--	65.9	99.0
Mauritius	1988	61.9	--	61.9	96.3
Mozambique	1988	--	1.8	42.8	68.5
Niger	1988	--	--	73.7	84.6
Nigeria	1988	--	--	85.5	89.2
Rwanda	1988	--	--	81.0	96.1
Sao Tome	1988	--	--	88.2	90.7
Senegal	1988	9.1	--	24.6	41.2
Seychelles	1987	--	--	80.3	89.3
Sierra Leone	1987/88	--	--	32.3	50.1
Somalia	1988	--	40.4	40.4	78.9
Sudan	1987	--	--	33.2	47.4
Swaziland	1988	5.2	27.4	30.9	58.3
Tanzania	1988	19.5	--	25.9	46.1
Togo	1988	--	--	49.7	66.8
Uganda	1987/88	--	--	96.0	97.7
Zaire	1988	--	--	55.3	67.8
Zambia	1988	--	--	83.9	90.5
Zimbabwe	1988	20.8	--	20.8	39.1

Source: Data provided to the Fund by national authorities.

1/ Excludes cotton lint and fabrics.

2/ Includes bananas (Cape Verde and Somalia).

(Kox, 1990, p. 37). For most other primary commodities, there was no change. However, the countries where sugar, beef, coffee, groundnuts, and iron were among the top three exports decreased by two or more.

Since 1970, a few countries have succeeded in diversifying into non-traditional export products. For example, Mauritius' manufactures from the export processing zone have now surpassed sugar as the major source of export earnings. In Swaziland, processed fruit juice concentrates have also supplanted sugar as the leading export. Finally, in Kenya, where the most significant efforts to develop nontraditional horticultural exports, such as winter fruit and cut flowers, have been made, coffee and tea still account for nearly half the country's export earnings. More typical is the case of the Côte d'Ivoire, where exports of coffee, cocoa, and timber still account for more than half of its export earnings, despite the growth of a significant winter fruit and vegetable industry. Other countries that have successfully introduced major shifts in export products during the past two decades include Mauritania, where fish products have supplanted iron ore as the major export; Namibia, where exports have shifted from copper to other minerals; and Uganda, where coffee has supplanted cotton as the country's major export.

Why has Sub-Saharan Africa lagged in the growing industrialization of output and exports that has occurred among developing countries in many other regions? Many of the factors that have inhibited investment in the region have also discouraged export diversification. For example, in countries such as Zambia, the lack of adequate refrigerated storage facilities near airports has constrained the growth of a potentially lucrative fruit export industry. In Uganda, inadequate funding of veterinary extension services has made it difficult to control livestock infestation, precluding the growth of meat exports. Moreover, foreign exchange shortages attributable to inappropriate exchange rates and restrictive exchange practices have limited access to spare parts, intermediate goods, and investment capital. This has inhibited production at existing facilities and discouraged new investment in plant and equipment.

Also inhibiting investment in new industries is the accumulation of a massive debt burden, much greater in relation to export earnings than even the debt burdens of major Latin American debtors (Greene, 1989). Shortages of foreign exchange and declining domestic economies have also limited the ability of Sub-Saharan countries to maintain, let alone expand, existing infrastructure. The resulting rundown in equipment and production sites has led to a vicious circle of decreasing yields, declining export earnings, and lower resources for financing maintenance, investment, and ongoing production. Thus, despite many promising developments, few countries have been able to develop new export activities on a scale anywhere near what would be needed to provide the substantial new sources of export earnings, or to bolster stagnant or declining revenues from traditional export commodities.

c. Failure to diversify exports geographically

A further reason for the poor export performance of Sub-Saharan Africa is the failure of these countries to make major inroads into new geographical markets for their exports. There seems to be considerable potential for increased demand for non-fuel primary commodities in a number of developing countries, particularly the newly-industrializing economies of Southern and Eastern Asia and in certain other Asian and Latin American countries. Income elasticities of demand for such commodities as coffee, cocoa, tea, tobacco, and cotton appear considerably higher in these countries than in the industrial countries, because consumers there are just beginning to develop the taste for and the incomes to import such items on a large scale. By comparison, the growth in demand for these commodities in the region's main export markets--the EC countries--has been slow and variable, reflecting much lower income elasticities of demand and fluctuating income levels.

Thus far, however, most exports from Sub-Saharan Africa have gone to industrial countries, mainly the OECD nations. Kox (1990) has observed that for Africa as a whole, the percentage of non-fuel primary commodity exports going to industrial countries decreased only slightly, from 80 to 75 percent between the late 1960s and the mid-1980s. Over this period, the percentage of exports going to developing countries rose from 10 to 17 percent, while the proportion going to centrally planned economies (mainly China and Eastern Europe) showed little movement. For Sub-Saharan Africa, the concentration remained roughly unchanged. Moreover, as indicated in Table 11, the percentage of Sub-Saharan Africa's combined exports to developing countries apparently decreased between 1977 and 1987 for several of its leading commodities: tropical beverages (coffee, cocoa, and tea), vegetable oils and fats, and oil seeds. The percentage of the region's exports to developing countries of sugar, tobacco, crude rubber, and wood products apparently rose during this period, but these commodities represent only a small share of the region's total non-fuel exports.

d. The role of protectionism

One question often raised about exports from Sub-Saharan Africa concerns the effects of protectionism, particularly in the industrial countries. However, recent research suggests that, contrary to the experience of the newly-industrializing Asian countries, in Sub-Saharan Africa protectionism has had relatively little impact on aggregate export levels from the region (see Erzan and Svedberg, 1989). Applicable tariffs in the region's three major markets have typically been low, with the trade-weighted average tariff near zero in the European Community (EC), 0.5 percent in the United States, and 1.6 percent in Japan. This largely reflects the low duties on imports of primary commodities in most of these importing countries. It also reflects preferences for Sub-Saharan African exports under the Generalized System of Preferences (GSP) and the Lomé Convention. Thus, average duties for similar exports from developing

Table 11. Sub-Saharan Africa: Percentages of Exports to Major Markets
for Selected Commodities, 1977 and 1987

	1977			1987 (estimated)		
	Non- OECD	Total OECD	EC Countries	Non- OECD	Total OECD	EC Countries
Tropical beverages	21	79	59	6	94	64
Coffee	...	...	...	3	97	63
Cocoa	...	...	...	19	81	59
Tea	...	...	...	24	76	63
Textile fibers	58	42	37	59	41	31
Veg. oils and fats	58	42	42	21	79	79
Oil seeds	74	26	15	36	64	51
Sugar	11	89	81	31	59	51
Tobacco	8	92	68	72	28	24
Rubber	17	83	52	21	79	39
Timber	5	95	86	13	87	83
Iron ore	...	...	...	12	88	75

Source: Kox (1990), based on data from the UNDP and World Bank.

countries as a whole were slightly higher in the EC and the United States, but somewhat lower in Japan. Interestingly, the margins of preference in favor of Sub-Saharan African countries have declined as successive rounds of GATT negotiations have led to declining overall tariff levels.

The impact of nontariff barriers (NTBs) on Sub-Saharan Africa is harder to evaluate because of the large number of such measures. There is uncertainty about the effects of these measures, and doubts about their enforcement, particularly where the degree of enforcement is subject to administrative discretion. Nevertheless, studies indicate that the percentage of Sub-Saharan African exports to the above three industrial markets, which are affected by nontariff trade barriers, is also lower in general than for developing countries as a whole. This assessment reflects two different measures of the effects of NTB barriers. One, called the "frequency ratio," measures the ratio of tariff lines on which at least one NTB applies to the total number of tariff lines on which imports are registered. The other, called the "trade coverage ratio," records the percentage of imports (by value) affected by NTBs. ^{1/}

Using 1986 data, Erzan and Svedberg (1989) have calculated that both the frequency and trade coverage ratios for non-fuel exports from Sub-Saharan Africa were about 14 percent, compared with about 24 percent for all developing countries. For all exports, the same frequency ratios applied, although the difference in trade coverage ratios was smaller: 16 percent for Sub-Saharan Africa, compared with 18 percent for all developing countries. In certain sectors and markets, however, exports from Sub-Saharan Africa appear to be at a disadvantage. For example, the frequency ratios for mineral fuels imported by the EC and for ores and minerals imported by Japan appear to be higher for Sub-Saharan exports than for exports of developing countries generally. In addition, the trade coverage ratio for exports of mineral fuels and manufactures (other than chemicals) to the EC is higher for Sub-Saharan Africa than for developing countries as a whole. For Japan, it appears that both the frequency and trade coverage ratios are higher for Sub-Saharan Africa than for developing countries generally, although the latter is no longer true if only non-fuel exports are considered.

Protectionism could become a problem for Sub-Saharan Africa if non-traditional exports, particularly the labor-intensive manufactures, were to comprise a greater share of total exports. In recent years, the United

^{1/} Both measures have important limitations. The frequency ratio indicates the percentage of products affected by nontariff barriers and thus may not give a true picture of the percentage of total trade affected. The trade coverage ratio, which presents the percentage of imports (measured in value terms) affected by NTBs, can be influenced by exchange rate fluctuations and does not indicate the impact of NTBs in terms of the number of goods affected. For this reason, many analysts prefer to measure the effect of NTBs using both ratios.

States and other industrial countries have intensified nontariff barriers on exports of textiles, creating difficulties for some of the newly-industrializing Asian countries. The application of these barriers to Sub-Saharan Africa could limit the potential for increasing exports of manufactured products, particularly clothing. Likewise, the adoption by the United States of free trade agreements with Mexico and Canada and the absence of similar agreements with other countries could complicate the ability of Sub-Saharan Africa to break into the U.S. market for imported agricultural products.

III. The International Response to Commodity Problems

Since World War II, there have been two main types of international responses to the problems of producers of primary commodities: international commodity agreements and compensatory financing arrangements. The former represent agreements between producing and consuming nations, while the latter have involved assistance from the European Community (EC) or the International Monetary Fund. As will be seen, these schemes have traditionally been aimed at objectives other than product diversification, increased processing, or the promotion of sales in nontraditional markets.

1. International commodity agreements

The international commodity agreements of interest to Sub-Saharan Africa relate mainly to coffee, cocoa, and sugar. None of these agreements is now in effect, largely because of disagreements between consuming and producing countries, and among producer countries. ^{1/} The agreements had several characteristics in common: both the consuming and the producing countries were signatories; they essentially aimed at promoting consumption of the commodities involved; and they were intended to moderate international price fluctuations around targets acceptable to consumers and producers.

By far the most important function of the agreements was to establish a scheme to regulate market supplies at the margin. In the international coffee agreement, producers were assigned export quotas, which were periodically adjusted--whenever prices exceeded an upper threshold or fell below a lower threshold. The ex-post simulations of Akiyama and Varangis (1989) indicate that the operation of the quotas contributed to stabilizing prices in both directions and supported a higher average price than would have prevailed without the export quotas.

The sugar agreements, like the coffee agreements, employed export quotas. The sugar agreements, however, were less successful in raising average prices or in stabilizing prices (Gilbert, 1987). The segmentation

^{1/} See Gilbert (1987) for a review of the performance of international commodity agreements.

of the U.S. and EC markets and the emergence of the EC as a major exporter essentially made the market for sugar less amenable to price stabilization through export quotas.

The cocoa agreements initially employed both export quotas and buffer stocks, but since 1981 employed the latter only. While export quotas and buffer stocks were not expected to be able to stabilize prices, even less was expected of buffer stocks alone. The potential impact of the cocoa agreements was dealt a fatal blow when Côte d'Ivoire's refusal to join enabled the buffer stock manager to accumulate only 100,000 tons instead of the agreement's maximum of 250,000 tons. Thus, because of underfinancing, the capacity of the international cocoa agreement to influence prices was not tested.

2. IMF Compensatory Financing

The Fund provides compensatory financing for temporary shortfalls in exports and for temporary excesses in cereals and oil imports. Of principal importance for this paper is the mechanism for export shortfalls, whereby the Fund provides financing of the difference between actual total exports and a five-year geometric average of total exports centered on the shortfall year. Drawing members pay the rate of charge that applies to the use of Fund's regular resources, and the repayment period extends from 3 1/2 to 5 years after a drawing. Member countries requesting a drawing must prove that the shortfall be temporary and beyond their control, that they have a balance of payments need, and that they have cooperated with the Fund.

As a form of balance of payments assistance, the Fund's compensatory financing has no direct bearing on international demand for primary commodities, nor on the conditions of supply. Rather, its main objective has been to maintain a member's import capacity in the face of temporary adverse external shocks, so as to maintain the momentum of growth. In view of the non-concessional rate of charge and the relatively short repayment schedule, Sub-Saharan African countries have generally not requested compensatory financing, with the exception of three years. Drawings were made by 13 Sub-Saharan Africa countries in 1976 for a total of SDR 249 million, by 11 countries in 1979 for SDR 216 million, and by 14 countries in 1981 for SDR 424 million. Since 1983, however, less than five countries have requested compensatory financing during any one year.

3. The STABEX scheme

The EC's STABEX scheme is a compensatory financing scheme that limits its beneficiaries to selected African, Caribbean, and Pacific (ACP) countries covered by the various Lomé conventions, the vast majority of which are Sub-Saharan Africa countries. There are important differences in this scheme from the Fund's scheme. The central purpose of STABEX is to aid beneficiary governments in maintaining export capacity to the EC for selected products. Coverage is limited to few product groups, for which

supply access has been important to the EC. ^{1/} Coverage of eligible products is further restricted by rules of origin, some of which refer not only to the origin of inputs but also to the degree of processing involved (Kokole, 1982). The shortfall is calculated as the difference between actual exports to the EC in the shortfall year and the average of exports to the EC in the preceding four years; this formula avoids projections and does not allow for inflation. STABEX drawings are interest free and need only be repaid if export unit values and quantities exceed reference figures (the respective four-year averages preceding the drawing).

Between 1975 and 1990 STABEX transfers (combining all grants and loans) totaled EUA 2.56 billion, equivalent to about \$3.2 billion. Of this amount, EUA 2.36 billion (roughly \$2.9 billion), or more than 90 percent, went to Sub-Saharan Africa. However, STABEX drawings have been concentrated among a relatively few countries, with some 10 Sub-Saharan nations responsible for more than 40 percent of all drawings.

The EC created SYSMIN in 1979 to extend the same type of financing to the mineral sector, inasmuch as STABEX extended coverage to only one mineral (iron ore). SYSMIN coverage extended to copper, phosphates, manganese, bauxite and alumina, tin, iron ore, and roasted iron pyrites. ACP countries that were dependent on these products for at least 15 percent of their export earnings (10 percent in the case of the least developed countries) were eligible. During 1980-84, EUA 280 million was allocated. Unlike STABEX drawings, SYSMIN drawings had the character of a concessional long-term loan, with a 40-year maturity, 10 years grace, and a 1 percent interest rate. Moreover, drawings had to be related to a specific project (Hewitt, 1982).

Through 1982, no drawings were made. Between 1986 and 1990, six countries, all African, received SYSMIN funds, and drawings totaled EUA 117.8 million, or about \$145 million, less than 10 percent of total STABEX disbursements during the period. Two countries received nearly half of all drawings: Botswana (EUA 21.7 million) and Guinea (EUA 35 million).

IV. Prospects for Sub-Saharan African Exports

In the light of Sub-Saharan Africa's relatively poor export performance during the last twenty years, what are reasonable expectations for improvement in the future, particularly in the next two decades? Certainly significant improvement is needed if the region is to reverse its economic decline. Even if the annual rate of population growth were to decrease from

^{1/} These products include cocoa, coffee, coconut, cotton, cloves, fresh bananas, groundnuts, gum arabic, iron ore, palm, pyrethrum, raw hides and skins, raw sisal, tea, vanilla, wood, wool and mohair, ylang ylang, cashew nuts, cotton seed, oil seed cakes, peas and lentils, pepper, rubber, shrimp and prawns, and squid.

3.3 percent to 2.75 percent during the next decade, the World Bank estimates that the region's GDP would need to grow by 4-5 percent a year to avert hunger and to provide for adequate increases in incomes (World Bank, 1989). Underlying this scenario are annual growth rates of about 4 percent for agriculture, an initial 5 percent and an eventual 7-8 percent for industry, and 4-5 percent for other sectors. To achieve these growth rates, Sub-Saharan Africa will need to expand its export sector, which in the World Bank's scenario is targeted to grow from 19 percent of GDP in 1986-87 to 24 percent by the year 2000 and to 28 percent by 2020. This implies a real export growth rate of about 6.5 percent a year through the year 2000 and by about 6 percent a year thereafter--far above the growth rates of the past two decades.

Four general developments could help Sub-Saharan Africa attain the above export growth targets. They are (1) increased global demand for primary commodities; (2) higher real prices for these commodities, i.e., improvements in the region's terms of trade; (3) geographic diversification of exports toward faster growing markets; and (4) export product diversification to promote so-called nontraditional exports, such as high-value horticultural products, processed agricultural goods, and light manufactures. Unfortunately, the first three sources seem unlikely to generate substantial growth in export earnings, so the fourth (non-traditional exports) bears special attention. Even for these new products, however, there is reason to be circumspect about the magnitude of the additional earnings they may yield.

1. Global demand for primary commodities

In the long run, global demand for Sub-Saharan Africa's traditional non-fuel primary commodities is unlikely to provide much impetus toward export growth in the region. Given the relatively low income elasticities of demand for such commodities, the current range of assumptions about long-term real growth rates in industrial countries (up to about 4 percent annually) would not lead to significantly different forecasts of growth of the relevant commodity markets. Such markets may be expected to grow within the range of about 1-2.5 percent a year, all other things being equal. ^{1/} Even if Sub-Saharan African countries could at least maintain their market shares for each primary commodity export, thereby permitting real exports to grow at the same rate as the growth of the respective external markets, their export performance would still fall well short of the target in the World Bank scenario.

^{1/} Akiyama and Duncan estimated long-run world coffee demand to rise by about 1.2-1.4 percent per annum and world cocoa demand to increase by about 2 percent per annum (1981a, p. 39; 1981b, p. 42). The World Bank estimates that long-run demand for traditional metals (iron, lead, and copper) would grow at about 1.4-2.5 percent per annum (World Bank, 1989, p. 126).

Some of the structural factors underlying the weak world demand for primary commodities appear to be permanent in character. First, the underlying forces motivating substitution out of agricultural primary commodities would tend to frustrate efforts to promote consumption. The treatment of these commodities as inferior goods can be inferred from the low global elasticities of demand. The higher elasticities estimated for Eastern Europe are isolated cases and result mainly from restraints on consumption that are likely to disappear over time.

Second, the already low income elasticities of demand may decrease further over time because of increasing health concerns about certain commodities, particularly coffee, tobacco, sugar, and palm oil. Such concerns, which appear to be most advanced in the United States, are likely to spread to Europe and Japan. Substitutions out of sugar, particularly in industrial use, have been helped by the availability and consumer acceptance of alternative natural and synthetic sweeteners such as corn syrup, saccharin, and aspartame. Also encouraging the use of sugar substitutes have been the high prices resulting from protection in the EC market and high support prices for domestically produced sugar in the United States.

Third, the phenomenon called "dematerialization" is likely to continue to the detriment of demand for traditional minerals, such as iron, copper, and aluminum. Material-saving technologies in manufacturing, resulting either in miniaturization or in substitutions by plastics, ceramics, fiber optics, and other composites, are likely to spread over the coming decade. This development would be compounded by the falling share of manufacturing in the industrial economies, reflecting both the growing importance of services in national products and the approaching market saturation of material-intensive products such as automobiles in some large economies. The growing popularity of "in-time" inventory management, which serves to reduce stock accumulation, will also limit growth in demand. These trends would be mitigated somewhat by movements in developing countries, where the metal intensity of production is still increasing, mostly because of the still rising share of manufacturing in national output. Overall, however, these arguments suggest it is unlikely for global demand for Sub-Saharan Africa's traditional exports to expand quickly enough to generate major increases in export volume.

2. Real prices for agricultural commodities and the role of agricultural supply

An increase in the real prices of Sub-Saharan Africa's main agricultural commodities, i.e., an improvement in the region's terms of trade, would be another way to boost the real value of export earnings, even if total export volume does not grow substantially. Such an increase could come about cyclically or secularly, although cyclical increases in commodity prices are difficult to predict and tend to be short-lived. Unfortunately, a secular improvement in the terms of trade, at least for agricultural commodities, seems unlikely (cf. World Bank, 1989, p. 32). In a study on

trends in the relative prices of non-fuel primary commodities during the period 1854 to 1990, Boughton (1991) found a negative trend amounting to about 1/3 of one percent a year. For the period 1900-86, Grilli and Yang (1988, p. 13) found that all commodity subgroups except tropical beverages (coffee, cocoa, and tea) registered negative trends. For tropical beverages, the rate of change with respect to time was positive (0.68 percent a year), but the period includes times when export quotas under international agreements for coffee and cocoa were in effect.

Why is a long-term improvement in the relative prices of the region's traditional agricultural exports unlikely? One reason is the substantial worldwide capacity to expand production of these commodities that could be exploited if prices improve. For crops that require long gestation periods, such as coffee, cocoa, and tea, only a weak supply response is likely in the short run, mainly involving the rehabilitation of existing plants, increased fertilization, and more intensive harvesting. Over the long run, however, when acreage could be expanded, a more substantial supply response has been estimated. ^{1/}

The potential for large increases in supply creates an inherent barrier to significant long-term increases in the relative prices for the region's key commodities, because of low-income elasticities of demand. This is particularly true in the case of coffee and cocoa. Simulations by Akiyama and Duncan (1981a,b) indicate substantial decreases in real prices and real revenue when production rises at rates faster than demand as a result of population and income increases. Unexpected bumper crops of coffee in Brazil or cocoa in Côte d'Ivoire could lead to this result. Assuming stable production patterns, the World Bank (1990) estimates world coffee production to rise by about 1.4 percent a year through 2005. World demand is estimated to grow at a marginally higher rate, so that real prices would tend to

^{1/} Akiyama and Duncan (1981a, 1981b) estimated the short-run price elasticity of supply for cocoa to be 0.14 and for coffee to be 0.1 for the world as a whole. For a simulated period of 9 years for cocoa, the authors obtain elasticities of around 0.4 for the world as a whole and about 0.5-0.6 for Côte d'Ivoire, Cameroon, and Brazil. The estimated price elasticity of acreage is slightly higher, indicating a less than unit elasticity of production with respect to acreage, as would be expected when increasingly marginal land is used. In the case of coffee, the price elasticity of supply for all producers over the long run (10-13 years) was estimated at 0.7. Major producers, such as Brazil, Colombia, and Indonesia, had long-run elasticities estimated at unity, suggesting greater flexibility in crop-switching and relatively lower costs of production.

In their study of the tea market, Chung and Ukpong (1981) attributed the secular decline in the real price of tea also to tendencies toward oversupply. In their regressions, most of the variance in production is captured by a time trend (a proxy for acreage and technological change), leading to rather implausibly low estimates of short- and long-run price elasticities.

slowly recover to about the 1988 level. The World Bank anticipates a slightly faster recovery for cocoa, based on more world production rising at an average rate of about 1.5 percent a year, and world consumption rising at about 1.9 percent a year. For neither commodity, however, would the improvement in prices provide substantial gains in export earnings to Sub-Saharan Africa. Thus, the ability of Sub-Saharan African countries to control costs would be critical. In the case of coffee and cocoa, the lower price elasticities of supply and the lower yields per hectare recorded for these countries suggest higher and more sharply rising marginal costs than is true for the region's main competitors.

Sub-Saharan African countries, notably Mauritius, Sao Tome, Swaziland, and Zimbabwe, are relatively efficient producers of sugar, providing about 5-6 percent of the world export market. Increased production in these countries, most of which would go to other African countries, is not likely to have much impact on world market prices. However, the potential for large increases in output from other producers has a major influence on the market, particularly because sugar is an annual crop, and the supply response to changes in price is fairly rapid. Compounding this problem is the availability and acceptance of other natural and artificial sweeteners, and the production of sugar from beets in temperate zones. Thus, the EC and the United States, which are traditionally the largest export markets for most other primary commodities, are themselves major producers and maintain domestic sugar prices at levels substantially higher than world market prices through quantitative import restrictions. Overall, the World Bank projects a world consumption increase of about 1.7 percent a year and a gradual increase in real free market prices for sugar through 2005.

World demand for tea is projected by the World Bank to increase by 2 percent a year through 2005. Real prices are expected to improve only gradually over historically low levels in the face of adequate supply. Sub-Saharan Africa is likely to maintain its share in the world market for tea, mostly because Kenya's exchange rate policy and continuing gains in productivity have maintained its competitiveness. Indeed, for the five countries that account for nearly three quarters of world tea production, namely, China, India, Indonesia, Kenya, and Sri Lanka, productivity gains are likely to be a major source of output increases, as during the 1980s.

Real prices for cotton are expected to weaken moderately through 2005, continuing a trend observed since the early 1950s (World Bank, 1990). World cotton consumption is forecast to increase by about 1.7 percent a year, as demand in industrial countries eases and investment in man-made fibers in developing countries reduces the share of cotton in fiber consumption. On the supply side, productivity increases, primarily from switches to higher yield varieties, would exert downward price pressure. The World Bank notes that during 1960-90, the cotton indicator price declined by 1.9 percent a year, while world average cotton yields increased by about the same amount (World Bank, 1990, p. 269). In this weak price environment, Sudan,

Tanzania, and other producers would need to realize efficiencies in production in order to remain competitive.

Over the next 15 years, tobacco prices in real terms are expected to weaken or at best to level off. Because of growing health concerns and restrictions on smoking, consumption in industrial countries is likely to continue declining. However, the World Bank forecasts the total world demand for tobacco to rise by less than 1 percent a year, or at about half the rate of the 1980s, with growth reflecting mainly increased consumption in China, the former Soviet Union, and southern European countries. With world demand virtually at a standstill and real prices declining, Malawi and Zimbabwe, the leading Sub-Saharan Africa producers, would face substantial competitive pressures. Productivity gains in terms of increases in yield and quality would mitigate such pressures, however.

3. Diversifying exports toward faster growing markets

Although global demand and real prices for Sub-Saharan Africa's traditional exports appear unlikely to grow rapidly in the coming decade, export growth could accelerate if the region captures a larger share of total world supply of these commodities. Given the prospects for sluggish growth in demand in Western Europe, long the major market outlet for Sub-Saharan African products, a higher market share would require increasing sales to faster-growing markets that now represent only a small fraction of the region's total exports.

One such possibility is for Sub-Saharan countries to increase exports to certain developing countries in Asia that have been growing much faster than industrial countries in Europe and North America. ^{1/} As developing countries, many of these nations have not yet reached the saturation level for consumption of Sub-Saharan Africa's leading exports and thus could be expected to experience faster growth in consumption of these items. Traditionally, however, many of Sub-Saharan Africa's major agricultural exports, in particular coffee, cocoa, tea, sugar, palm oil, tobacco, and timber, have also been produced in Asia. Where international prices are broadly the same for relatively homogenous low value-to-weight products, high transport costs would imply lower f.o.b. values for exports of these products. Unless Sub-Saharan producers could offer unique or higher quality products that would command the higher prices needed to cover additional transport costs, it is difficult to see how Sub-Saharan countries could expect to increase significantly their exports of traditional products to Asia.

^{1/} There is also a possibility of increasing exports to Japan. This may require some reduction in current Japanese trade barriers, which have led to a higher level of effective protection for Sub-Saharan African products than for most other developing countries. See Section II for more details.

Even without competition from alternative sources, developing countries in Asia seem unlikely to provide substantial new export earnings for Sub-Saharan Africa because of the small base on which to expand exports from the region. During the mid-1980s, developing Asian countries have accounted for only about 7 percent of such exports, up 2 percentage points from 20 years earlier. This compares with about 75 percent of all non-fuel exports from Sub-Saharan African exports going to the industrial market economies. Thus, while greater market penetration of developing Asian countries would be helpful cumulatively, the absolute gains are likely to be modest in the absence of major breakthroughs in market penetration. Moreover, the increase in the share of developing Asian countries in African exports must be seen against the background of declines in the shares of Sub-Saharan Africa in the world markets for most primary commodities during the last two decades.

The socialist countries of Eastern Europe account for about the same share of African exports as developing Asian countries (Kox, 1990, p. 44). While demand in Eastern European countries is likely to be constrained in the near future by structural change and the need for economic adjustment, their markets could potentially be a fertile environment for Sub-Saharan African exports, particularly agricultural commodities. The relatively high income elasticities of demand estimated in these countries for cocoa and coffee suggest substantial repressed demand for agricultural consumer goods generally. Here again, however, Sub-Saharan African countries will still face competition from producers elsewhere. Unless the region can improve its competitiveness, it is uncertain how successful the region can be in boosting sales to the previously socialist economies as a way of raising total export earnings.

4. The outlook for mineral exports

The World Bank staff estimates that the value of mineral production (aluminum, copper, iron ore, zinc, nickel, lead, tin, bauxite, alumina, and gold) in Sub-Sahara Africa would decline to about \$3 billion (in 1985 U.S. dollars) in the year 2000, or under half of the 1970 figure (Fozzard, 1990). In contrast, production for the same minerals would rise to about \$14 billion in Latin America and \$12.4 billion in Asia, roughly double the respective 1970 figures. Underlying this pessimistic outlook for Sub-Saharan Africa are a number of major difficulties that must be overcome before the mineral sector could provide much growth in export earnings for the region as a whole.

Many of these problems stem from the characteristics of mineral production, where the barriers to entry are typically high. Fixed capital

costs predominate in the cost structure. ^{1/} In addition, the economies of scale favor large operations. The lead time from exploration to production are long (generally at least 5 years), and a number of years of production are required to show a profit. Moreover, the transportation and energy requirements often require the construction of sector-specific, even mine-specific, infrastructure. To increase output, investment must be sufficient to cover not only the depletion of existing mines but also the establishment of new ones. The exposure of large amounts of capital to risk over long periods of mine development inevitably restricts the investor pool to private companies with considerable expertise and capital, and to state enterprises. Because mineral resources exist in both developing and industrial countries, the location of private investment depends heavily on the comparative cost and regulatory structure, including the exposure to such political risks as expropriation or unanticipated unilaterally-imposed taxation.

The World Bank staff has identified two major problems facing the mineral sector in Sub-Saharan Africa: inadequate investment and poor enabling environments (World Bank, 1989; Fozzard, 1990). These problems are interrelated. With insufficient capital, the participation of foreign private capital is needed, but without attractive and competitive enabling environments such participation would not be forthcoming in adequate amounts. Fozzard (1990, p. 103) concludes: "The current stagnation in the mining industry of Sub-Saharan Africa has nothing to do with the lack of resource potential. It has to do with lack of investment, the absence of advanced technology, modern management and technical skills, inappropriate mining policy, and political interference."

What is a reasonable level of exploration investment? Research by Fozzard (1990) suggests something between 5 and 10 percent of total sales, based on the experience of several countries (Canada and Australia), regions (Nevada, in the United States), and individual mining companies during 1986-87. By this standard, exploration investment appears to be adequate in Ethiopia, Madagascar, Tanzania, Gabon, and Burkina Faso. In contrast, substantial underinvestment was observed in Zaire, Zambia, and Guinea, the major nondiamond mineral producers in the region, where the ratios of exploration investment to sales were in the range of 0.4-1.1 percent. The ratio in Zimbabwe, an intermediate case, was 2.5 percent. On the basis of 1987 sales of the region as a whole, Fozzard's suggested range is an annual exploration investment in the order of \$400 million to \$740 million. Actual investment in the region, where state enterprises predominate, is estimated to amount to only about \$115 million annually. The implication of this gap is that the depletion of known reserves would be outrunning the discovery of new deposits.

^{1/} It is estimated that exploration expenditures of \$90 million in Australia and \$130 million in Canada, for example, are necessary for 90 percent certainty of at least one economic mineral deposit (Fozzard, 1990).

Given the other demands on scarce domestic capital in Sub-Saharan Africa, the reinvigoration of the mineral sector will depend largely on the success of both the traditional and nontraditional mining countries in attracting foreign investment (see World Bank, 1989, p. 126). As these countries are competing in the international market for investment capital, the domestic investment climates must be continually adapted to remain competitive. Simply adopting variants of the mining regimes of attractive mining countries (e.g., Canada and Australia among the developed countries, and Brazil and Indonesia among the developing countries) is not likely to be enough. The political and economic circumstances of Sub-Saharan African countries differ from such countries and among each other, suggesting the need for further incentives. Possible incentives and the broader issues of developing a more favorable investment climate will be discussed in Section V.

If more enabling environments can be put in place, the World Bank staff predicts a fairly optimistic future for mineral production. If investment were to rise to \$1 billion a year from 1995 to 2005, over and above what is necessary to maintain present output, a growth rate rising to 5 percent a year is envisaged between 1995 to 2010, thereby raising the share of Sub-Saharan Africa in world production from about 5 percent to 8 percent (World Bank, 1989, p. 127). The investment figure proposed by the World Bank staff represents about ten times the estimated actual exploration investment. While such a sum is not impossible, it does not appear likely.

As for the real price of metals in the long run, Grilli and Yang (1988) found the relative price declined on average by 0.8 percent a year during 1900-86. The series appears to be divisible into several segments: a steep decline up to the onset of World War II; a rising trend thereafter up to the mid-1970s (which the authors attribute partly to the control by transnational companies over mining, smelting, and refining); and a declining trend up to 1986 (which is partly attributed to the proliferation of independent producers, including state-owned enterprises). Since then, the real price of metals has been generally rising, though for such metals as tin and iron ore, substantial stocks and supply potential in low-cost producing countries have prevented significant price increases.

Over the long run, the real prices of metals and minerals are likely to fare slightly better than real prices of agricultural commodities. Through the year 2005, the World Bank (1990) forecasts moderate annual growth rates of world demand for mineral products of importance to Sub-Saharan Africa: 1.8 percent for copper, 1.4 percent for iron ore, and 1.8 percent for bauxite (World Bank, 1990). The forecasted patterns of price developments largely depend on fluctuations in expected supply.

The real price of copper is expected to ease moderately through the mid-1990s, to rise moderately through to about 2000 as demand catches up with supply, and then to ease as the supply shifts again. While Zaire may be expected to maintain output over the medium and long term, the prospects

for Zambia are for declining production. The real price of bauxite is expected to improve slightly until about 2000, and to ease thereafter. Substantial increases in bauxite capacity are expected for Guinea, while capacity in Ghana and Sierra Leone is expected to remain broadly the same. Real prices for iron ore are likely to remain flat through 2005. In sum, no dramatic price increases are predicted for the main metals or minerals exported by or Sub-Saharan Africa. The long lags involved in increasing production, however, suggest continued high susceptibility of prices to cyclical changes in demand or disruptions in supplies.

5. Demand trends and market outlook for nontraditional exports

The past decade has seen an increasing interest in the possibilities for Sub-Saharan African countries to diversify into what are often termed "nontraditional" exports, in particular high-value horticultural items, fish, and light manufactures such as textiles. A favorable agricultural climate and the potential for low-cost labor give the region a potential comparative advantage in exporting these items. Thus far, only a few countries--notably Kenya and Mauritius--have succeeded in obtaining a large share of their export earnings from high-value horticultural goods and manufactures. However, several other African countries, including Burkina Faso, Cameroon, Côte d'Ivoire, Niger, and Senegal, have also begun exporting appreciable quantities of tropical fruit and off-season vegetables to Western Europe, while in Mauritania fish has already begun to displace iron ore as a principal export. Although a thorough analysis of diversification in these countries is beyond the scope of this paper, the experience of Kenya and Mauritius suggests that conscious efforts to create a suitable economic environment, including appropriate exchange rate policies, relevant structural reforms, and the creation of government agencies to facilitate the work of private producers, have played an important role (see World Bank, 1989).

A number of studies have appeared during the 1980s describing the demand for produce, tropical juices, and floriculture (flowers, cut foliage, and foliage plants) among the major importing countries (Joy, 1987; International Trade Center UNCTAD/GATT, 1987; and FAO, 1988). Although these studies do not provide estimates of the demand elasticities for these commodities, they provide more general information about the markets for them, including the prospects for market growth and for additional imports from new suppliers. As a whole, these studies indicate significant potential demand for nontraditional exports, particularly in Sub-Saharan Africa's long-standing export markets in Western Europe. At the same time, they identify a number of pitfalls that the region will need to surmount to expand exports of these products. Accordingly, the degree to which Sub-Saharan Africa can boost exports of these items will depend on the ability of producers to penetrate existing distribution networks and become reliable suppliers of high quality, competitively priced commodities, particularly during the winter months.

a. Produce

Recent studies indicate there is considerable potential for expanding off-season exports of certain fruits and vegetables to Western Europe, with the eventual possibility of exports to Eastern Europe. Because of high prices, off-season imports of strawberries have represented only about 20-25 percent of yearly imports in the European Community (less than 5,000 metric tons) and 10 percent of Canada's annual imports (FAO, 1988, p. 82), although Canada, like the United States, appears to be primarily an outlet for Latin American exports. There is also evidence of continuing growth in the demand for off-season melons, over and above the 60 percent rise observed in the European Community between 1980 and 1985 (FAO, 1988, p. 80). Prospects for off-season imports of other fruits are less certain. Off-season imports of tree fruits (such items as peaches, plums, nectarines, and apricots) represented only a small part of the annual total as of the mid-1980s (International Trade Center, 1987, p. 24), and there is no evidence of substantial untapped demand for these items. The potential for exporting more exotic fruits, such as guavas, mangoes, and passionfruits, to Europe is also uncertain, as the demand thus far has come mostly from African and Asian immigrants (Joy, 1987). On the other hand, imports of fresh pineapples to Western Europe and Japan grew by more than 40 percent between 1982 and 1985, and further increases in consumption in these markets seem plausible (FAO, 1988, p. 3).

Among vegetables, off-season imports of sweet peppers to Western Europe, which more than doubled between 1975 and 1985 and now represent more than \$200 million in value, may have prospects for further market expansion (FAO, 1988, p. 84). There has also been significant expansion in the demand for green beans, with off-season imports to the European Community rising by 40 percent between 1982 and 1985, although imports of so-called extra class "French beans" have been limited because of their relatively high prices (FAO, 1988, p. 87; International Trade Center, 1987, p. 21). There is also evidence of potential demand for luxury vegetables such as asparagus and artichokes, although again relatively high product prices limit the ultimate size of the market. By comparison, recent studies indicate only slow growth in the demand for imported eggplants (aubergines), okra, and cucumbers, and while there appears to be an excess supply of imported tomatoes, mostly in the form of canned peeled tomatoes and tomato paste. In addition, demand in the industrial countries for more exotic vegetables, such as hot peppers, has thus far been limited to ethnic populations accustomed to these items.

Recent studies also indicate increasing consumption of nuts, which have the advantage of being capable of production in fairly dry, difficult environments. There appears to be strong demand for cashew nuts, especially in the United States, as a substitute for more expensive nuts, such as almonds, in baking and confectionery. Interestingly, during the mid-1980s, Brazil and India gained an increasing share of this market, as production in Tanzania and Mozambique, traditionally two of the major suppliers, fell sharply in response to low producer prices and other adverse circumstances

(FAO, 1988, p. 67). There is also the potential for increased imports of high-value macadamia nuts, which have only recently been introduced into European markets but have attained large sales in the United States.

Although there appears to be considerable demand for increased supplies of off-season produce and tropical horticultural items, new suppliers face significant barriers in entering these markets. Consumers have become accustomed to obtaining high-quality produce. Accordingly, new exporters must be capable of attaining high quality control and performing satisfactory grading of produce, two tasks that have proved hard to achieve in some African countries. At the same time, consumer resistance to paying higher prices has made it critical for off-season suppliers to develop more efficient ways of growing and transporting goods. One reason for Mexico's domination of the United States market for off-season produce has been the combination of low wage costs and inexpensive transport made possible by geographic proximity and, in recent years, the sharp depreciation of the Mexican peso. Most African countries, by comparison, are located far from their natural export markets in Europe and the Middle East and must rely on costly and sometimes inconvenient transport services. Given the large risks involved in produce sales, developing close relationships with large-scale importers is also important for successful penetration of export markets. At the same time, the produce industry has traditionally been quite competitive, and existing suppliers such as Spain, Portugal, Morocco, and Israel, are likely to respond vigorously to attempts by other countries to expand their export share in markets where existing suppliers' products now dominate. Close links between communities in Kenya and several European countries have probably played a role in the growth of Kenya's horticultural industry. The lack of similar ties may have limited the growth of produce exports by other African countries.

b. Juices

Except perhaps for pineapple and grapefruit juice, the market for new imports of fruit juices appears less than promising. Although consumption of orange juice, the leading juice import, has been growing in Europe, analysts contend that supplies from the leading exporter, Brazil, and from other countries that have recently expanded production, are likely to satisfy demand over the foreseeable future (FAO, 1988, pp. 53-54). In addition, countries interested in penetrating new markets will have to contend with Brazil's highly sophisticated transport facilities and the ability to withstand major swings in the market price for frozen concentrated orange juice (FAO, 1989, pp. 40, 46).

Demand has been growing for more novel tropical juices, such as guava, mango, and passionfruit juice, but total demand for these products remains marginal compared to orange juice. As for grapefruit juice, the main market has been the United States, which relies mostly on domestic production and imports from nearby Latin American countries. Although there appears to be potential for developing exports of these products, considerable marketing

might be needed to develop significant demand in Europe and the Middle East.

c. Floriculture

The last decade has witnessed a significant increase in exports of flowers and plants to the industrial countries, with Kenya playing a major role in supplying cut flowers to European markets in part because of the success of its Horticultural Crops Development Authority in facilitating the output of private producers (World Bank, 1989, p. 92). Exports to the United States in particular have shown spectacular growth, more than doubling between 1981 and 1985 to \$366 million (FAO, 1988, p. 113). Opportunities for new entrants to the U.S. market appear uncertain, however, as there is intense competition among existing suppliers: Colombia supplies about two thirds of all imported roses, the major floral import, the Netherlands supplies the bulk of all other cut flowers; and Latin American countries are the major suppliers of decorative cut foliage and foliage plants. Inroads are likely only if exporters can offer significant price or quality advantages over existing suppliers (FAO, 1988, p. 129). Although per capita expenditures for flowers is considerably higher in Europe than in the United States, there may still be room for further growth, and thus opportunities for additional exports to European countries. Much will therefore depend on the ability of African countries to provide attractively priced items of high quality. This in turn will depend on these countries' access to reliable transportation at competitive costs, which in some countries has been a problem because of limited air freight capacity along existing air routes.

d. Light manufactures

The world market for light manufactures, in particular clothing and other textiles, appears highly competitive. Distributors generally search for reliable, low-cost suppliers, and finding a niche in the market may depend on producing a unique product that satisfies a heretofore unmet demand. The success of Madagascar in developing a market for exports of embroidered children's clothing (World Bank, 1989, p. 115), and of Mauritius in developing an export zone that provides opportunities for low-cost manufacturing (World Bank, 1989, p. 111), offer models for other Sub-Saharan African countries. At the same time, there are considerable risks in terms of start-up costs and competition from other developing countries. Many manufactures, in particular, clothing, also face significant trade barriers in the industrial countries under the Multi-Fiber Agreement. Thus, it may be more attractive to aim at markets in nearby countries, a strategy that one Zambian firm has successfully followed.

e. Processed agricultural and mineral products

Another conceivable source of additional export earnings for Sub-Saharan Africa involves exporting and increasing percentage of processed, rather than raw, primary commodities, to increase the domestic value added.

For certain commodities, such as copper, a substantial portion of export activity already involves finished and semi-finished goods. Most primary products, including fuels, continue to be exported primarily in raw rather than processed form.

A recent analysis of the region's export prospects by Kox (1990) suggests that the likelihood for exporting a greater percentage of processed primary commodity products is slim. The reason is that most of the markets for Sub-Saharan Africa's exports of primary commodities involve a limited number of suppliers whose processing facilities are located elsewhere. Given the fairly limited growth prospects for most of the region's traditional primary exports, processors based in industrial countries would need strong economic reasons to build additional processing facilities in or to transfer existing processing operations to Sub-Saharan Africa. However, the same problems that have discouraged direct investment in the region--inadequate infrastructure, uncertain economic prospects, difficulties in expatriating earnings and investment capital, substantial regulatory burdens, and high costs owing to overvalued exchange rates--have also made it very expensive for the purchasers of Sub-Saharan African exports to relocate existing or to establish new processing operations there. Accordingly, the prospects for increasing the export of processed items appear small until these countries succeed in reducing the costs and in increasing the reliability and quantity of processing activities.

V. Conclusions

During the past two decades, the performance of the Sub-Saharan Africa's export sector has been disappointing. Total export earnings, after rising sixfold from 1970 to 1980, fell by 40 percent between 1980 and 1988. In real terms, export earnings in 1988 were no higher than at the start of the 1970s. Because developing countries as a whole experienced much larger gains in the 1970s and smaller declines during the 1980s, Sub-Saharan Africa's share of total developing country exports fell by more than half during this period, reaching 4.2 percent in 1988. Although weak prices for the region's major exports and factors tending to limit volume growth have both contributed to this result, slow volume growth appears to have been the major reason for the region's loss in market share for most of its exports.

The region's poor export performance reflects a variety of factors that are common to many Sub-Saharan African countries. In addition to weak demand (and thus poor market prices) for non-fuel primary commodities, these factors include inappropriate economic policies that have decreased the competitiveness of producers and discouraged both new investment and the maintenance of existing farms, plantations, fisheries, and mines. Inflationary macroeconomic policies, the failure to maintain real producer prices in agriculture, and, in some cases, inappropriate exchange rates, have discouraged agricultural production. Economic uncertainty, excessive regulation, cumbersome investment codes, inadequate support of domestic

infrastructure, and a lack of modernization have similarly encouraged mining companies to limit African operations and to focus new investments elsewhere. While traditional export industries have stagnated, most Sub-Saharan African countries have also been slow to diversify their exports, to develop new export products, and to increase sales to markets outside their traditional bases in Western Europe. To some extent, the failure to diversify export production into manufacturing has been affected by protectionism in the industrial countries. For the most part, however, protectionism has played only a small role in the relative decline of the region's export earnings, because unprocessed agricultural products facing relatively low tariffs represent the preponderance of Sub-Saharan Africa's exports.

To date, international efforts to address the problems affecting the region's traditional exports have had limited impact. Commodity agreements aimed at stabilizing the prices of coffee, sugar, and cocoa have succeeded only in the case of coffee, and then only marginally, as evidenced by the collapse of coffee prices since 1989. The Fund's compensatory and contingency financing facility, which can assist countries experiencing temporary shortfalls in export earnings, has assisted a number of Sub-Saharan countries during particular years. However, this facility is not intended to be a source of continuing financial support for the region. The EC's STABEX scheme has provided some assistance to Sub-Saharan African countries producing commodities of particular concern to the EC. Access to funds has been limited to a few commodities, however, and the bulk of all funds have gone to a very few Sub-Saharan African countries.

The prospects for Sub-Saharan Africa's exports are uncertain. Most of the region's traditional agricultural and mineral exports are characterized by low income elasticities of demand, reflecting market saturation in most industrial countries, health concerns that limit further consumption growth for such products as coffee, tea, and tobacco, and the growing availability and acceptance of substitute products and new technologies, for example, corn syrup and aspartame in place of sugar and fiber optics in place of copper wire. Accordingly, global demand is unlikely to show much acceleration from past growth rates of 1-3 percent a year. Similar reasons and the potential for significant increases in supply of most commodities also rule out the likelihood for a significant rise in real commodity prices during the next decade. There is also uncertainty about the region's ability to boost export earnings by increasing sales to faster growing Asian and Eastern European markets, because of competition from much closer suppliers in the former countries and the prospects for economic adjustment and thus slow growth in the latter. Accordingly, the region's best chance to accelerate export growth may be through the promotion of nontraditional agricultural goods, fishing, and light manufacturing. While there appears to be considerable potential to expand sales of off-season produce, floriculture, meat products, and textiles to Western Europe and the Middle East, success in these markets will depend on the ability of Sub-Saharan African producers to penetrate existing distribution channels and to become

a reliable source of high quality, competitively priced items. Thus far, only a few Sub-Saharan countries, notably Kenya and Mauritius, have demonstrated their ability to compete in these markets and to make nontraditional exports a substantial percentage of total export earnings.

If Sub-Saharan Africa is to boost its sales of nontraditional exports and reverse the decline in the market shares of its traditional export commodities, both the international community and countries in the region will need to undertake concerted action. A full discussion of the kinds of measures involved is beyond the scope of this paper; these measures are discussed in detail in the recent Fraser report on Sub-Saharan exports (United Nations, 1990). Nevertheless, it is worthwhile touching briefly on measures that Sub-Saharan African nations themselves can take to increase export earnings. These include a variety of activities aimed at raising domestic production and improving competitiveness. These goals in turn will require structural and macroeconomic reforms to increase investment, including direct foreign investment. Much of this will turn on the ability of the countries to develop what might be called an "enabling environment" for new investment, i.e., one characterized by macroeconomic and political stability and a regulatory environment that facilitates productive activities, including the transfer of technology from abroad.

A desirable enabling environment would have several general characteristics. Laws relating to investment, mining, and taxation must be transparent and not subject to arbitrary changes. In particular, host countries should avoid the temptation to increase taxation when production is greater or when mineral deposits are richer than anticipated. Instead, countries should rely on measures such as the advance negotiation of state equity participation or taxes that escalate with production, to assure the state a share in windfalls while preserving the investment climate. In the regulatory area, government-imposed controls should be supportive of the mineral and other export sectors. Trade and payments regimes should facilitate the importation of capital equipment and related materials. Licensing, environmental controls, and labor regulations should be coordinated to minimize impediments to mining while safeguarding legitimate state interests. The establishment of a single body, such as the Minerals Commission in Ghana or the Investment Commission in Zimbabwe, with which investors could deal in respect of regulations applying to mining and to other export industries, could be a substantial factor in the attractiveness of the investment climate.

The repatriation of profits is a sensitive issue in many countries. It serves as a lightning rod for complaints against perceived exploitation and neo-colonialism. Without guarantees about the repatriation of earnings, however, high-risk private capital will not be ventured. To assure some retention of such earnings, the host country may be better served by offering incentives for reinvestment rather than by imposing obstacles to profit repatriation.

Finally, it is critical that countries pursue macroeconomic policies that are conducive to investment and economic growth. These include macroeconomic measures that are conducive to price stability and an exchange and trade regime that is characterized by openness, ready access to foreign exchange, and an appropriate exchange rate. This in turn requires the pursuit of prudent fiscal and monetary policies, including measures to keep government expenditure in line with available revenues. It is also important for countries to maintain regular relations with external creditors and avoid arrears on external debt service or commercial obligations, to prevent disruptions in imports. At the same time, because of the dire financial circumstances facing many countries in the region, the international financial community must maintain its efforts to keep the region's debt service obligations within realistic limits. In this regard, recent initiatives in the Paris Club to provide more favorable debt rescheduling terms to low-income, debt-distressed countries are and will continue to be important (see Greene, 1991).

The success of Mauritius and, to a lesser extent, Kenya, in developing a strong, nontraditional export sector suggests the potential for other Sub-Saharan African countries to do the same. Achieving this objective, however, will require continuing efforts at structural reform, so as to encourage the necessary investment and facilitate the resulting production. Despite years of reform initiatives, many Sub-Saharan countries still have outdated investment and tax codes and restrictive exchange rate systems. They also lack the physical infrastructure--in particular, roads, storage and cargo facilities--needed to attract more investment, particularly from abroad. Programs to remedy these problems would go far toward improving Sub-Saharan Africa's investment climate. Accordingly, such programs should be high on the agendas of more comprehensive efforts at economic and structural reform in the region.

References

- Akiyama, Takamasa and Ronald C. Duncan, "Analysis of the World Cocoa Market," World Bank Staff Commodity Working Paper No. 8, June 1982..
- _____, "Analysis of the World Coffee Market," World Bank Staff Commodity Working Paper No. 7, June 1982.
- Akiyama, Takamasa and Donald F. Larson, "Recent Trends and Prospects for Agricultural Commodity Exports in Sub-Saharan Africa," unpublished, World Bank PPR Working Paper, WPS 348, International Economics Department, December 1989.
- _____ and Panayotis N. Varangis, "Impact of the International Coffee Agreement's Export Quota System on the World's Coffee Market," unpublished, World Bank PPR Working Paper, WPS 148, International Economics Department, January 1989.
- _____ and Pravin K. Trivedi, "Vintage Production Approach to Perennial Crop Supply: An Application to Tea in Major Producing Countries," Journal of Econometrics, Vol. 36 (September/October 1987), pp. 133-61.
- Boughton, James, "Commodity and Manufactures Prices in the Long Run," unpublished, IMF Working Paper, WP/91/47, May 1991.
- Chung, Choeng-Hoy and Godwill Ukpog, "The World Tea Economy: An Econometric Model of its Structure, Performance, and Prospects," in World Bank Commodity Models, Vol. 1, World Bank Commodity Working Paper No. 6, June 1981.
- Erzan, Refik and Peter Svedberg, "Protection Facing Exports from Sub-Saharan Africa in the EC, Japan, and the United States," unpublished, World Bank PPR Working Paper, WPS 320, International Economics Department, November 1989.
- Food and Agriculture Organization (FAO), The World Market for Tropical Horticultural Products (Rome: Food and Agriculture Organization, 1988).
- _____, Citrus Juices: Trends and Prospects in World Production and International Trade (Rome: Food and Agriculture Organization, 1989).
- Fozzard, Peter M., "Mining Development in Sub-Saharan Africa," Natural Resources Forum, Vol. 14 (May 1990), pp. 97-105.
- Gilbert, Christopher L., "International Commodity Agreements: Design and Performance," World Development, Vol. 15 (May 1987), pp. 591-616.

Greene, Joshua, "External Debt Problem of Sub-Saharan Africa," IMF Staff Papers, Vol. 36 (December 1989), pp. 836-74.

_____, "The Sub-Saharan African Debt Problem: The View at End-1991," unpublished paper, IMF, presented to the 34th annual meeting of the African Studies Association, St. Louis, Mo., November 1991.

Grilli, Enzo, and Maw Cheng Yang, "Primary Commodity Prices, Manufactured Goods Prices, and the Terms of Trade of Developing Countries: What the Long Run Shows," World Bank Economic Review, Vol. 2 (January 1988), pp. 1-47.

Hesp, Paul, Producer Prices in Tropical Africa: A Review of Official Prices for Agricultural Products, 1960-80 Research Report No. 23/1985, (Leiden, Netherlands: African Studies Center, 1985.)

Hewitt, Adrian, "Complementary Facility for Commodity-Related Shortfalls in Export Earnings: Review of STABEX and SYSMIN," Trade and Development Board, UNCTAD, TD/B/C.1/237, November 22, 1982.

International Monetary Fund, International Financial Statistics/Yearbook: 1991 (Washington).

_____, World Economic Outlook, October 1991 (Washington: IMF, 1991).

International Trade Center - UNCTAD, Tropical and Off-Season Fresh Fruits and Vegetables: A Study of Selected European Markets (Geneva: International Trade Center-UNCTAD/GATT, 1987).

Joy, Corinne, Selected European Markets for Specialty and Tropical Fruit and Vegetables (London: Tropical Development and Research, 1987).

Koester, N., Schafer, H., and Valdes, A., "External Demand Constraints for Agricultural Exports: An Impediment to Structural Adjustment Policies in Sub-Saharan Africa?" Food Policy, Vol. 14 (August 1989), pp. 274-83.

Kokole, Omari H., "Stabex Anatomized," in A. Ganhar, ed., South-South Strategy (London: Third World Foundation, 1983).

Kox, Henk L.M., "Export Constraints for Sub-Saharan Growth; the Role of Non-Fuel Primary Commodities," unpublished research memorandum (Amsterdam, Netherlands: Vrije Universiteit, December 1990).

Powell, Andrew, "Commodity and Developing Country Terms of Trade: What Does the Long Run Show?" Economic Journal, Vol. 101 (November 1991), pp. 1485-96.

Rao, Jo Mohan, "Agricultural Supply Responses: A Survey," Agricultural Economics, Vol. 3 (March 1989), pp. 1-22.

United Nations, Secretary General's Expert Group on Africa's Commodity Problems, Africa's Commodity Problems: Toward a Solution (Geneva, UNCTAD Secretariat, Task Force on UN-PAAERD), 1990.

World Bank, Price Prospects for Major Primary Commodities, Vols. I and II (Washington: World Bank, December 1990).

World Bank, Sub-Saharan Africa: From Crisis to Sustainable Growth (Washington: World Bank, 1989).

