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GROWTH IN IMPORTS AND INCOME

CONSIDERATIONS FOR AFRICA

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Summary

A question that African policymakers have faced in the 1980s is how to make economic growth more import efficient. Given depressed income levels in Africa, an immediate problem is encouraging growth without increasing import requirements substantially. This paper explores the relationship between imports and incomes, focusing on the effects of recent policy reforms in eight African countries (Côte d'Ivoire, Ghana, Kenya, Madagascar, Nigeria, Tanzania, Zaire, and Zambia).

Major policy reforms discussed include: (i) altering the sectoral composition of growth by diminishing disincentives against agriculture; (ii) macroeconomic changes that affect aggregate spending and real exchange rates. The paper suggests that public expenditure is more import-intensive than private consumption but less import-intensive than investment. A depreciation of the exchange rate in real terms decreases the import-intensity of growth. Reducing biases against agriculture is consistent with reducing the import-intensity.

The study indicates that, at this stage, in Nigeria and Kenya (Madagascar and Zambia to a lesser extent), expenditure cuts are most likely to reduce import coefficients. Expenditure cuts seem less likely to affect the import-growth relationship further in Ghana, Tanzania, and Côte d'Ivoire. In this connection, exchange rate adjustment may be effective in Kenya, Madagascar, Nigeria, Zaire and Tanzania at this stage, but less effective in Ghana and Zambia.

In the short-to-medium-term, economic growth is likely to be less import-intensive with policies that: shift growth toward agriculture and food manufacturing; control the growth of absorption or aggregate spending; and adjust real exchange rates. On the other hand, industrial restructuring and import reforms are consistent with substantial increases in imports. Moreover, since all eight countries have already cut imports to the bone, any acceleration of growth will probably require and induce a sizable increase in imports, even while domestic policies are cognizant of import-growth efficiency.

I. OVERVIEW

The lack of foreign exchange has become a more important constraint to growth in developing countries during the 1980s than in the past. Developing countries have suffered increasing difficulties in raising funds in the international capital markets and in servicing their debts, which absorb large proportions of their foreign exchange receipts. This problem is particularly serious in Africa where most countries have experienced a dramatic slowdown in their economic performance during the eighties. Given this situation, a closer look at how growth interacts with imports can shed light on policies that can spur growth without increasing the dependence on imports.

Import financing during the 1980s has been tight, due to Africa's weak export prospects and to the unavailability of foreign savings. Depreciating real exchange rates, continuing exchange controls, quantitative restrictions and import tariffs reflect these resource constraints.

If foreign exchange remains tight, import compressibility and the import requirements for growth -- especially intermediate inputs and raw materials -- become more important. In coming years, annual import volume growth in Sub-Saharan Africa might not exceed 3 percent. GDP growth has been projected at about 4 percent. The implied composite elasticity of less than one is below past long-term estimates for Africa.

This paper concerns the import-GDP relationship in the context of Africa's financing constraints, focusing on Côte d'Ivoire, Ghana, Kenya, Madagascar, Nigeria, Tanzania, Zaire, and Zambia in the quantitative

analysis, and Ethiopia and Zimbabwe elsewhere. While the paper mainly deals with Africa, it also raises broader issues of import projections.

Behavioral models explaining import growth rely on income and price elasticities of import demand to capture the effects of changes in income and prices. Econometric analysis reveals strong relationships between incomes and imports, with income elasticities well above one for Africa. Accounting models, on the other hand, rely on estimates of the import-GDP ratio. Such retroactive "composite" elasticities relating imports to income can be useful because they are the result of income and price effects, as well as other factors such as foreign exchange constraints and quantitative restrictions.

For Sub-Saharan Africa, the lack of external assistance and foreign exchange have limited import growth in recent years. So, in the short term, composite elasticities have tended to be less stable than income elasticities. Sudden reductions in composite elasticities, however, are not permanent, since they generally recover their previous levels and stabilize in the long term. Thus, long-term import-GDP ratios are fairly stable.

This paper considers the likely evolution of these elasticities in the future and whether the past can be used to predict import dependence. Composite elasticities summarize actual past behavior by considering constraints (such as QRs) and flexibility in importation. The import-GDP relationship can be assessed in the light of the favorable external conditions of the 1970s and the unfavorable external conditions of the 1980s. Short-term flexibility in import-GDP ratios is most relevant where policy changes seem appropriate, especially when easy import financing implied considerable "fat" in imports. Elasticities will likely rise in

view of the import compression and income declines that have prevailed during the 1980s. On the other hand, the import requirements of adjustment, industrial restructuring, and growth must all be taken into account. Historically, imports have grown whenever financing was available. Work on import dependency and inefficiency implies need for redirection, independent of financing availability, which will affect import composition.

Key questions are:

-- What are the long- and short-term import elasticities in the African experience?

-- How consistent are output growth rate predictions with the import outlook? To what extent should the past be used as a guide for future possibilities?

-- To what extent do fixed coefficients determine import demand. How and to what extent is the flexibility in the import (and export)-GDP relationship affected by structural and policy adjustment? How much can import-GDP ratios be lowered on a sustained basis?

-- What are the tradeoffs between the adjustment needs for high quality imports and the need to maintain elasticities to spur exports and financing?

The findings reported here can suggest only partial answers to these questions. First, poor data limit the accuracy of the figures used in the paper and bias in reporting may not be systematic. Second, non-price and institutional dimensions, which are so important to Africa, are

beyond the scope of this paper. Infrastructure quality plays an important part in determining the relationships between imports and GDP. Third, the paper does not analyze other potentially important variables, such as urbanization, aid financing, and export potential. Finally, the paper remains aggregative despite its application of elasticities to the regional and selected country-group levels. For individual countries, reference to the estimates in this paper provide no more than a cross-check to country-specific judgements. With these caveats in mind, the paper makes some generalizations and suggests ways to classify countries by the way policies have affected import dependency.

II. MEASURES OF THE IMPORT-GDP RELATIONSHIP

Partial vs. Composite Elasticities

World-wide estimates predict that income elasticities of import demand over a long period of time will exceed one by a wide margin. Pritchett (1986) found that for 28 developing countries, income elasticities were substantially greater than one. The mean of the 28-country sample of income elasticities was 1.33. Only two countries had income elasticities much less than one, but 12 of the 28 (43 percent) had income elasticities much greater than one. Such results seem to also hold on average for a sample of 15 African countries examined. Results for the eight African countries show that the average value of income elasticities was more than 1. Moran (1987) obtained OLS estimates of long-term income elasticity for developing countries ranging from 0.7 to 1.5. The estimates did not take into account foreign exchange constraints which can reduce

import responsiveness. Disaggregated import elasticities were calculated by Agbonyitor (1986) for Tanzania, Zaire, Somalia, Côte d'Ivoire, and Sudan: the elasticity for petroleum imports ranged from 1.4 to 2.9, for investment imports from 1 to 2.5, and for intermediate imports from 0.8 to 2.1.

Pritchett's cross-country estimates (op. cit.) also suggest an inverted U curve relating income elasticity to per capita income and a positive relation between income elasticity and income growth. Although the poorest countries have the smallest income elasticities, even these are usually close to one. For example, one country with US$300 per annum per capita income has a predicted elasticity of 0.9. Growing economies, especially those approaching middle income levels, often have income elasticities that exceed those of the rest of the world. These economies typically grow 6-7 percent annually, 4 percent faster than industrial economies. If import demand were actually translated into imports, these countries would run trade deficits. Although a normal part of development in today's international environment, trade deficits are potentially problematic, depending on their size and on the availability of capital to finance them.

Pritchett's price elasticities (1986) for all developing countries are significant but less than unity. The average was -0.57. All but one of the six Sub-Saharan Africa countries, however, had price elasticities greater than one. Import demand elasticities with respect to the exchange rate and dollar import prices also average more than one. These estimates suggest import levels are sensitive to changes in relative price. Despite these effects, foreign exchange constraints remain important in the African context.

Flexibility in the Imports-GDP Ratio

Composite elasticities for Africa during the high growth period 1965-81 are above one (Table 1). Including Nigeria, African imports grew more than twice as fast as GDP in the 1970s, while both imports and GDPs have declined during the 1980s. The long-term trend in Africa's import GDP ratio is flat except for Ghana and Zambia where the import GDP ratio declined by 0.9 percent and 0.2 percent respectively; most other countries show no long-term trend. In fact, periods of import reduction have been followed by periods of import expansion. If composite elasticities of more than one hold during 1982-90 for Africa as a whole, the import compression in 1982-86 would call for a high and positive elasticity during 1986-90 to produce the same growth in GDP.

While the import-GDP ratio is relatively stable over the long term, it has varied significantly for shorter time periods. During 1962-83, the coefficient of variation (standard deviation/mean) of imports-GDP for the eight countries fluctuated between 20 and 40 percent. Figure 1 implies that while long-term import-GDP ratios were stable, during shorter periods GDP has not always risen and fallen with import fluctuations. Import compressibility is evident in capital goods behavior. Fluctuations of fuel and capital goods imports account for a high proportion of total import variability. Sub periods of low composite elasticity (1968-72) witnessed low capital goods imports, while high composite elasticity subperiods (1972-82) demonstrated the opposite trend. The 1982-86 average import composition for the eight countries was heavily weighted toward capital goods (36 percent), intermediates (31 percent), and fuels (12 percent), while finished consumer goods and food accounted for about 7 percent and 14 percent respectively (Table 2). The fact that over 75

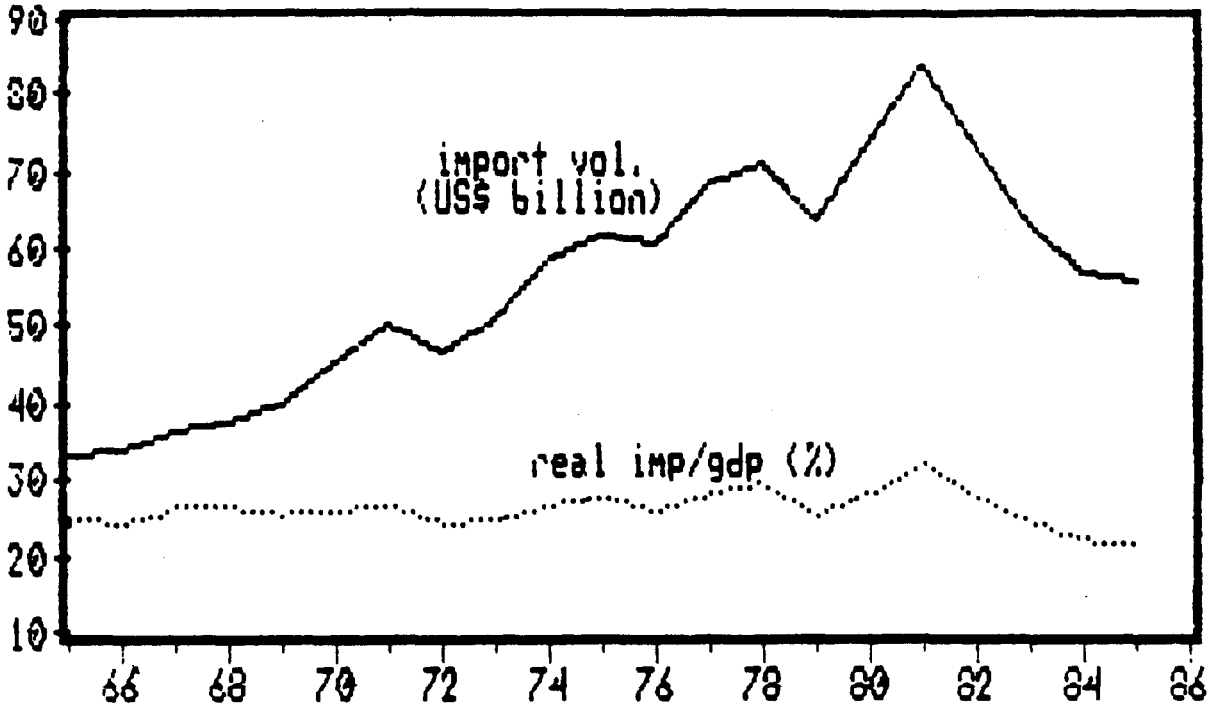
Table 1: GDP GROWTH AND IMPORT GROWTH /a (%)

	1965-73			1974-81			1982-86			1965-81			1965-86		
	GDP	Import	Imp/GDP	GDP	Import	Imp/GDP	GDP	Import	Imp/GDP	GDP	Import	Imp/GDP	GDP	Import	Imp/GDP
Developing Countries	6.2	7.3	1.2	5.1	7.3	1.4	3.9	0.8	0.2	5.7	7.3	1.3	5.3	5.8	1.1
Africa /b	5.3	5.7	1.1	3.2	6.9	2.2	-0.7	-9.6	13.7	4.3	6.3	1.5	3.2	3.2	1.0
Africa (excl Nigeria) /b	4.5	5.2	1.2	3.4	3.3	1.0	0.3	-5.9	-19.7	4.0	4.3	1.1	3.1	2.4	0.8
Asia	6.5	11.1	1.7	5.8	10.8	1.9	6.9	7.0	1.0	6.2	11.0	1.8	6.3	10.1	1.6
EMENA /c	6.0	8.9	1.5	5.4	4.7	0.9	2.9	1.7	0.6	5.7	6.9	1.2	5.1	5.7	1.1
Latin America	6.3	7.9	1.3	5.0	6.8	1.4	1.3	-7.7	-5.9	4.7	7.4	1.6	4.7	4.0	0.9
Sub-Saharan Africa	5.4	5.6	1.0	3.1	9.3	3.0	-0.3	-10.8	36.0	4.3	7.3	1.7	3.3	3.2	1.0
SSA (excl Nigeria)	4.0	4.7	1.2	3.2	3.9	1.2	1.7	-3.9	-2.3	3.7	4.3	1.2	3.2	2.4	0.7
Low Income Countries	5.4	1.7	0.3	4.6	6.2	1.3	7.6	9.1	1.2	5.0	3.8	0.8	5.6	5.0	0.9
High Indebted Countries	6.3	8.1	1.3	4.9	7.6	1.6	0.9	-8.6	-9.6	5.7	7.9	1.4	4.6	4.1	0.9
35 SAL Countries	6.5	8.8	1.4	5.2	7.3	1.4	2.2	-3.1	-1.4	5.9	8.1	1.4	5.1	5.6	1.1
15 Major SAL Countries	6.4	8.5	1.3	5.9	8.0	1.4	2.3	0.1	0.0	6.2	8.3	1.3	5.3	6.4	1.2
8 African Countries /b	6.4	7.2	1.1	2.6	10.3	4.0	-1.6	-14.5	9.1	4.6	8.6	1.9	3.2	3.3	1.0
Memo Item:															
Cote d' Ivoire	7.1	6.7	0.9	6.4	7.6	1.2	-0.7	-2.5	3.6	6.8	7.1	1.0	5.1	4.9	1.0
Ghana /b	2.4	0.1	0.0	-0.5	-2.8	5.6	1.5	-5.0	-3.3	1.1	-1.2	-1.1	1.2	-2.0	-1.7
Kenya	8.5	5.3	0.6	4.8	1.1	0.2	2.9	-1.1	-0.4	6.8	3.3	0.5	5.9	2.3	0.4
Madagascar /b	2.5	0.8	0.3	0.3	-0.9	-3.0	0.7	-6.5	-9.3	1.5	0.0	0.0	1.3	-1.2	-0.9
Nigeria	7.9	10.2	1.3	3.0	21.5	7.2	-3.1	-21.9	7.1	5.6	15.5	2.8	3.6	7.0	1.9
Tanzania	5.8	8.8	1.5	2.3	7.5	3.3	1.4	2.6	1.9	4.2	8.2	2.0	3.5	6.9	2.0
Zaire	3.8	12.4	3.3	-0.8	-0.1	0.1	0.7	-3.4	-4.9	1.7	6.5	3.8	1.4	4.3	3.1
Zambia	3.6	6.4	1.8	1.6	-5.7	-3.6	-0.6	-3.9	6.5	2.7	0.7	0.3	1.9	-0.4	-0.2

Notes: /a Import includes goods and non factor services.
/b Data is up to 1985 only.
/c Includes Europe, Middle East, and North African countries.

Source: BESD, IBRD.

Figure 1: IMPORT VOLUME AND REAL IMPORT SHARE IN AFRICA
(includes goods & non-factor services)



Source: BESD, IBRD.

Table 2: IMPORT COMPOSITION

	Seven Countries a/		Eight Countries	
	1965-81	1982-86	1965-81	1982-86
Food	12.2	12.1	13.0	14.3
Non-food	6.5	8.0	6.9	6.9
Intermediates	32.9	28.3	33.0	31.3
Fuel	15.4	21.6	9.1	11.7
Capital Goods	33.0	31.0	38.0	36.1
Total Goods	100.0	100.0	100.0	100.0

a/ Excluding Nigeria.

Notes: These shares are calculated at current prices.

According to SITC one-digit codes, the above import categories are defined as follows: Food = SITC 0 (food and live animals) + 1 (beverages and tobacco) + 4 (animal and vegetable oils and fats). Non-food consumer goods = SITC 8 (miscellaneous manufactured goods) + 9 (goods not classified by kind). Intermediates = SITC 2 (crude materials, excluding fuels) + 5 (chemicals) + 6 (basic manufactures). Fuel = SITC 3 (mineral fuels). Capital goods = SITC 7 (machines, transport equipment).

Data sources 1975-83 imports data are taken from UNCTAD tapes, accessed through the TARS software (World Bank). 1984-86 imports data come from World Bank country division files, CEM's, RED's, as well as country statistical reports, GDP data are from the BESD tapes (World Bank).

percent of the imports are intermediates, fuels, and capital goods indicates that long-term growth depends on imports and that long-term import-GDP flexibility would depend on flexibility in the production sector rather than in consumer demand.

Use of imported inputs by sector varies widely. The ratios of imported inputs (i.e., capital goods, intermediates and fuels) to output intensities within major sectors were subjected to input-output analysis for Côte d'Ivoire (1985), Kenya (1976), Madagascar (1983) and Zambia (1980). Broadly speaking, agriculture, mining, food manufacturing and services are the least import-intensive and non-food manufacturing and utilities the most. The 1985 input-output matrix for Côte d'Ivoire contains disaggregated data on input requirements by subsistence and export agriculture. Subsistence agriculture is much less import intensive than export agriculture, which in turn is less import intensive than other sectors. Relative import intensities in agricultural value added are also far less than the rest of the economy (Table 3). However, these coefficients do not reflect indirect imports and should be interpreted cautiously. If indirect imports are considered, import-output ratios in mining and perhaps agriculture would likely increase. Nonetheless, African agricultural sectors universally use capital and manufactured intermediate inputs sparingly, so agriculture logically would remain less import-intensive than manufacturing. Surprisingly, services are often more import-intensive than agriculture and sometimes more import-intensive than food manufacturing. The explanation is that services include transportation, a highly import-intensive sector. If transportation were included, the import-intensities of all sectors would be higher than those of non-transportation services.

Table 3: RELATIVE IMPORT INTENSITY IN AGRICULTURAL VALUE ADDED
(1981-84 Average)

Country	Share of Agriculture in Total Value Added	Capital Import Intensity: Rest of Economy/ Agriculture	Intermediate Import Intensity: Ratio of Intermediate Inputs Intensity in Rest of Economy/ Agriculture
Côte d'Ivoire	0.29	27.8	7.9
Ghana	0.54	18.1	24.3
Kenya	0.29	9.3	2.2
Nigeria	0.30	16.7	28.2
Tanzania	0.45	20.2	11.4
Zaire	0.31	54.0	51.8
Zambia	0.15	4.4	.81

Source: Value added in agriculture and GDP are extracted from BESD.

Past Experience vs. Future Outlook

The 1965-81 weighted average elasticity for the eight countries was 2.0 (1.3 without Nigeria). Available projections recognize to some extent both flexibility in import-GDP ratios and the limits to such flexibility over time (Table 4). In some countries, elasticities that are high by historical standards are expected to follow the acute import reduction of the 1980s. Other countries will not exhibit this trend. The weighted average of the elasticities in country projections -- 0.3 for 1986-95 and 0.9 if Nigeria were excluded -- are lower than long-term historic trends and much less than what would be needed to permit catching up. The issue of import-GDP consistency should be reviewed in light of changing structures and policy. It will remain pertinent even if the import financing picture improves.

Table 4: PROJECTED GDP AND IMPORT GROWTH RATES

	1986-90			1991-95		
	GDP	Imports	Imports/GDP	GDP	Imports	Imports/GDP
Ghana	5.0	8.1	1.6	4.0	3.2	0.8
Côte d'Ivoire	2.7	4.0.	1.5	5.0	5.1	1.0
Kenya	5.1	2.4	0.5	5.1	4.8	0.9
Madagascar	3.3	4.2	1.3	3.8	3.8	1.0
Nigeria	1.6	-8.5	-5.3	4.5	6.4	1.4
Tanzania	3.8	4.4	1.2	4.2	2.9	0.7
Zaire	3.3	1.6	0.5	4.1	2.8	0.7
Zambia	2.9	5.3	1.8	4.1	3.3	0.8

Source: Preliminary projections by Bank country economists, January 1988.

The extent to which the future can be different from the past depends on several factors. Import "excess" associated with aid financing was already mentioned. Reducing past disincentives to agriculture might encourage growth in agricultural production which could lower import-GDP ratios. Industrial restructuring would change, if not reduce, imports. The public sector can also influence import levels, since spending is not import-neutral. Better public sector management could lead to greater import efficiency. Trade reforms that promote free trade can affect import-GDP ratios in contradictory ways. On one hand, trade reform lowers import demand by shifting output composition toward sectors that are less import intensive and that have suffered negative protection (especially agriculture). Also reforming trade may contribute to lowering the overall capital-labor ratio of the economy, since industry that has been protected is likely to be relatively capital-intensive and dependent on imported

intermediates. If trade reform is combined with domestic reforms that encourage more efficient labor and capital markets their mutual import-reducing effect will be reinforced. Bringing exchange rates and fiscal deficits into line will work to lower import demand and the import-GDP ratio. On the other hand, expanding export production often requires imported inputs, so increasing exports often implies increasing imports.

Illustrative figures calculated from indices of trade liberalization (estimated by Papageorgiou, Michaely, and Choksi (1986)) for seven non-African countries for the period 1960-83 show the relationship between trade liberalization, real exchange rates and import intensities. In general, a positive correlation exists between import intensity and trade liberalization. (The coefficient of the trade liberalization variable is highly significant for three of the seven countries and mildly significant in another two.) However, trade reform is two-sided. Increasing trade liberalization by 10 percent without adjusting real exchange rates increases import intensity (import-GDP ratio) by an estimated 2 to 12 percent. On the other hand, this effect is considerably dampened if trade liberalization is combined with a real devaluation. A 15 percent real devaluation more than offsets the effect of 10 percent increase in the trade liberalization for all the countries considered. Thus, countries currently undergoing trade reforms can expect a moderate increase in their import dependence, but exchange rate depreciation and reductions in the fiscal deficit might reduce or eliminate such effects.[1]

1/ It should be noted, however, that import-financing has often gone hand in hand with trade reforms, producing this correlation.

Most of the African countries examined here have recently implemented trade reforms in varying degrees. Zaire has abolished import licenses for most imports, simplified its tariff structure and reduced its variance. Madagascar has removed import permits from 25 percent of total imports, plans to extend the free import regime to about 75 percent of the import bill in the near future, and is unifying the tariff structure. Côte d'Ivoire has begun replacing import licenses with tariffs. While import reforms have been less pronounced in other countries, export reforms have been even more widespread than import reforms. For example, Zaire has begun to eliminate export taxes and licenses on manufactured goods as well as agricultural products. However, certain mineral and agricultural products can be exported only by state agencies. Ghana has abolished export permits, and has replaced export taxes on natural resources with extraction taxes. Tanzania has eliminated export taxes that affect major agricultural commodities such as cotton, coffee, tobacco and sisal.

These reforms do not necessarily imply dramatic increases in imports, but they rationalize trade regimes. In most cases, the import-GDP ratio has actually fallen during the reform process. As shown in Table 1 import growth has been negative during 1982-86 for most country groups and for most of the 8 African countries in question. Significant increases have occurred only in Asia. Africa's long-term import-GDP ratio is considerably above the developing country average. Whether future import-GDP relationships can be more flexible than they have been in the past will depend on how further structural and policy changes affect imports.

III. POLICY IMPLICATIONS

Many researchers would agree that imports grow at least as fast as output during long periods of sustained income expansion.[2] The income elasticity of demand for imports for the eight African countries examined is generally above one. The price elasticity of demand is more than minus one. Thus the partially measured impact of income and of relative price changes on imports over the long-term has been more than proportionate. The estimates also indicate significant country differences in their income and price effects.

At the same time, variations in import levels observed in Africa may reflect fluctuations in aid financing and export levels. Actual import figures may depend largely on foreign exchange availability. Even so, the composite elasticities regularly exceeded one during the 1970s, but varied widely in the 1980s, given reductions in imports and GDP. The 1965-81 import-GDP ratio for Africa (and for the eight countries in question) was about 24 percent, above that of other developing countries (Table 5). In addition, import dependency of production in some African countries is higher than the developing country average. Smaller country sizes and less diversified economies partially explain the higher import ratios in Africa. On the other hand, exchange rate overvaluation may have understated the past ratios.

2/ This is particularly true in the case of the income effect on import demand, by holding other factors constant. See Ramón López and Vinod Thomas, "Imports and Growth in Africa," PPR Working Paper No. 20 (World Bank, 1988) for econometric estimates of imports and growth by sector.

Table 5: IMPORT SHARES OF GDP (INCLUDE GOODS AND NON-FACTOR SERVICES)
(percent)

	1965-73	1974-81	1982-86	1965-81	1965-86
Developing Countries 1/	14.4	20.1	21.1	17.1	18.0
Africa 6/	22.9	26.9	23.7	24.8	24.6
Africa (excl. Nigeria) 6/	24.0	28.2	27.2	26.0	26.2
Asia	13.1	21.5	26.5	17.1	19.2
EMENA	22.0	29.7	31.1	25.6	26.9
Latin America	12.1	15.0	13.1	13.5	13.4
Sub-Saharan Africa	22.5	26.7	23.0	24.5	24.1
Sub-Saharan Africa (excl. Nigeria)	24.2	28.7	28.8	26.4	26.9
Low Income Countries 2/	7.5	10.8	13.0	9.0	9.9
High Indebted Countries 3/	12.8	16.6	14.2	14.6	14.5
35 AL Countries 4/	13.8	18.1	18.2	15.9	16.4
15 Major AL Countries 5/	15.0	20.3	22.0	17.5	18.5
8 African Countries 6/	21.8	25.6	19.1	23.6	22.6
Memo item:					
Côte d'Ivoire	29.2	38.3	34.6	33.4	33.7
Ghana 6/	20.2	12.9	7.9	16.8	15.1
Kenya	30.2	35.6	27.9	32.7	31.6
Madagascar	23.4	25.7	19.9	24.5	23.5
Nigeria	17.4	23.8	15.9	20.4	19.4
Tanzania	27.7	27.4	16.6	27.6	25.1
Zaire	16.5	20.0	31.2	18.2	21.1
Zambia	38.3	42.1	36.8	40.1	39.4

Definition

1. Based on World Development Report 90 countries.
2. Based on WDR 30 low income countries
3. Based on WDR 17 high debt countries
4. Based on the World Bank's adjustment lending countries.
5. Chile, Colombia, Côte d'Ivoire, Jamaica, Kenya, Korea, Malawi, Mauritius, Mexico, Morocco, Panama, Philippines, Senegal, Thailand, and Turkey.
6. Data is up to 1985 only.

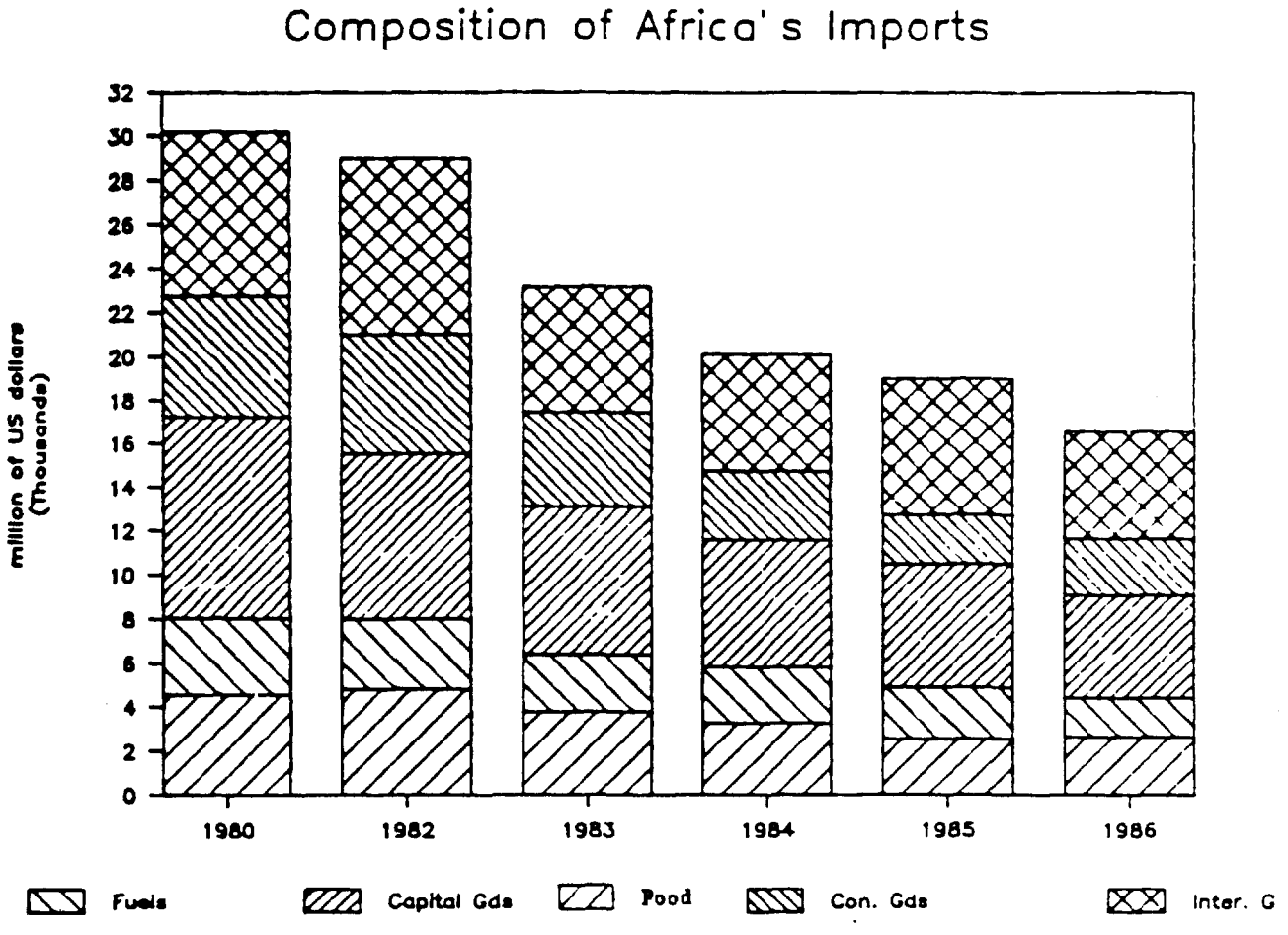
Source: World Bank data.

Financing imports needed for growth deserves special attention. Acute reductions in imports of intermediate and capital goods during the 1980s implies a need to catch up -- to rehabilitate and rebuild productive capacity (Figure 2). Assuming elasticities of over one hold during the 1980s, the acute import reductions in the early 1980s imply sharp rises in elasticities for the rest of the decade. For Sub-Saharan countries targeting GDP growth of 4 percent over a decade or more, expectations of long-term elasticities much less than one would not be realistic based on past patterns of growth. This hypothesis is strengthened if long-term elasticities are qualified by recent reductions in imports. So optimism regarding future import-GDP ratios appear justified.

One may ask whether the past is a good guide for the future, and how the degree of dependence of growth on imports is likely to change. Considering that African import-GDP ratios exceed those of other developing countries the historically high import elasticities with respect to income of the 1970s do not necessarily imply that 1980s import compression is a short-term obstacle to fast growth. More significant for the medium-term are structural and policy changes that influence imports. Some of these effects may be one shot, whereas others are more sustained. Substantial short-term variations in import-GDP ratios already observed highlight the flexibility inherent in this relationship. But structural and policy redirection in the future can alter import dependency, reducing or increasing it, but changing import compositions and quality of use compared with the past.

Table 6 provides an overview of selected areas of change which affect imports, and a description of their expected effects on import-GDP coefficients. GDP growth is usually import intensive. In general,

Figure 2



Source: Based on data provided by IECSE

countries with 4 percent annual growth need to expect a significant increase in import coefficients. The severe import compression of the 1980s accentuates this need. In addition, changes in GDP composition can also affect import demand. The estimates in the aforementioned PPR Working Paper suggest that a one percentage point increase in agricultural growth (holding GDP growth the same) can result in a median deceleration of import growth by 0.3 percent. The range for this potential effect is fairly large -- low in Zambia, Kenya and Nigeria, moderate in Côte d'Ivoire and Zaire, and high in Madagascar, Ghana and Tanzania. Increases in the industrial share of GDP growth would normally raise import coefficients. However, industrial restructuring and lowering protective trade barriers can actually lower import-GDP ratios. Such prospects are particularly strong in Ghana, Tanzania, and Ethiopia, and moderate in Kenya; the opposite is true in Zimbabwe, which needs capital rehabilitation.

Structural changes typically affect import coefficients over time. Macroeconomic adjustments such as devaluing the real exchange rate, are likely to have quicker but more limited effects. For the eight countries, a 10 percent real devaluation lowers import demand by about 10 percent, depending both on the existing degree of currency overvaluation (high in Tanzania, low in Zambia), and on having complementary macroeconomic policies in place. Trade liberalization raises the import share in GDP, especially in the beginning as imports needed in export production become available.

Reducing aggregate spending absorption also reduces import-GDP ratios. The scope for reduction in absorption-GDP ratios is mixed, however. Changing the composition of absorption may be a more potent and more realistic way of reducing pressure on imports. Given the relatively

Table 6: SUMMARY OF LIKELY EFFECTS ON THE IMPORT-GDP RELATION

(in percent)

Selected Areas	Type of Change	Expected Effect on Import-GDP	Additional Factors	Further Effect on Import-GDP
1. Overall Growth	Acceleration	Positive	a. Recent dip in imports	More positive
			b. FE constraint	Less positive
2. Agriculture	Increase in relative share	Negative	a. Reduced subsistence production	Less negative
			b. Major reversal of past disincentives	More negative
3. Industry	Increase in relative share	Positive	a. Restructuring	Less positive
			b. Rehabilitation	More positive
			c. Less protection	Less import-dependent
4. Exchange Rate	Devaluation	Negative	Large overvaluation	More negative
5. Import Regime	Mild liberalization	Positive	a. Tariffs in place of QRs	No effect
			b. Pent up demand	More positive
6. Export Policy	Reduce anti-export bias	Positive	Non-traditional exports	More positive
7. Factor Markets	Reform	Negative	a. Labor market reform	Lower cap-labor
			b. Interest reform	Lower cap-labor
8. Absorption	Reduction	Negative	Less capital-intensive expenditure	More negative
9. Public Investment	Reorientation	Negative	a. Restructuring	More negative
			b. Rebuilding	Less negative

a/ The expected effect is based on estimations and impressions for the eight African countries.

high import intensities of government consumption, country analysis of public expenditure programs would be worthwhile. Factor market reforms might also reduce import-GDP coefficients. The overall effects of the foregoing analysis should be aggregated to assess whether structural and policy changes will disturb the historic trend of import elasticities that exceed one.

As previously noted, the discussion has ignored some important areas. First, how much of the import-GDP picture in Africa is adequately captured by the variables considered thus far and by available data? What about the effects of population, urbanization and foreign aid? Second, data problems deserve special attention. Smuggling and border trade figures are crucial for import estimates, as informal sector and subsistence agriculture data are for output measures. One might also investigate import reporting (currency overvaluation, transport availability, recording capacity; political factors). Overvaluing the local currency and devaluation create biases in the import-GDP ratio. Third, the import requirements of growth merit much greater disaggregation. At a minimum, food and nonfood elasticities should be separated in the analysis. Much greater country specific discussion of import-related growth bottlenecks would be useful.

Fourth, at a more general level, some analysis of the interrelationships between exports, foreign aid, foreign exchange constraints and import restrictions is crucial. Recent work that has begun to examine the role of foreign exchange availability and quantitative restrictions in import-GDP determination deserves to be pursued further. More empirical work on the effect of import policy on export response would

also be valuable. Fifth, more study is needed on the relationship between trade reforms, parallel markets, import intensities and income distribution. With LSMS data coming on stream in several African countries, these aspects deserve special attention given the emphasis on trade reform and the existence of large parallel markets in several countries. Finally, a special effort to relate public investment to imports would be worthwhile. Historically, high elasticities have often been caused by particular projects. Changing the sectoral emphasis of proposed investments can generate information about increases or decreases in future import demand.

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