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The Liberalization of Foreign Exchange Markets and Economic Growth in Sub-Saharan Africa

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UNU World Institute for
Development Economics Research
(UNU/WIDER)

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This study has been prepared within the UNU/WIDER project on the Impact of Liberalization on Key Markets in Sub-Saharan Africa, which is co-directed by Professor Giovanni Andrea Cornia and Professor Nguyuru H. I. Lipumba.

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FOREWORD

African countries have undertaken extensive liberalization of their foreign exchange markets. They have removed foreign exchange restrictions on their current account transactions, signed Article VIII of the International Monetary Fund that commits countries not to impose payment restrictions on current account transactions, and devalued their exchange rates or adopted freely floating exchange rate regimes that resulted in large nominal and real depreciations. Despite the increasing liberalization of the foreign exchange market and enormous depreciation of the real exchange rate, the balance of payment positions of African countries continues to be unsustainable, and external debts cannot be serviced. The share of African exports in world trade continues to decrease, and African dependence on foreign aid is growing even during a period of drastic reduction in global aid flows.

This paper offers an historical rationale for intervention in foreign exchange markets to promote long-term development. It points out that successful intervention requires the existence of a development promoting state with effective administrative machinery to select productive investment projects. African countries have lacked effective development-oriented states with efficient administrative apparatuses for the allocation of foreign exchange to the most productive projects.

In addition, the paper critically reviews exchange rate theory and balance of payments management and their application to African countries. It empirically estimates the impact of the real exchange rate and terms of trade on the current account balance and real exports of goods and services. The impact of real exchange rate depreciation on the current account and exports performance is relatively small compared to the impact of terms of trade. Given the existing structure of African economies, real exchange rate depreciation may be necessary, but it is certainly not sufficient to improve export performance and the balance of payments. Investment in infrastructure and supporting services and institutions is a pre requisites for initiating and sustaining the growth of exports and improving the balance of payments. The depreciation of the nominal exchange rate is, however, inflationary. Countries which have adopted floating exchange rates tend to experience rates of inflation that are higher than those experienced in countries with fixed exchange rates.

The paper concludes with a recommendation concerning a crawling peg exchange rate regime. A floating exchange rate has the political advantage of relieving authorities from the responsibility of adjusting the exchange rate. However, a serious African government which wants to provide strong and stable incentives to private investors in the tradable goods sector to produce exports and import substitutes will not permit the exchange rate to fluctuate widely at the whim of donors and unstable commodity markets. Pegging the exchange rate to the currency of a developed economy, which faces different terms of trade, different productivity growth and a different investment

climate, is unlikely to promote growth and structural transformation. A government promoting growth and structural transformation is likely to pursue an active exchange rate policy which aims at the maintenance of stable incentives for private sector investment in the tradable goods sector. A system based on a crawling peg or band that takes into consideration expected changes in terms of trade, aid flows, external debt servicing, and relative productivity growth in determining the central rate seems to be more appropriate than a freely floating or a fixed exchange rate system.

This study is part of the UNU/WIDER research project to analyse the impact of the liberalization of the key markets in Sub-Sahara Africa. The project is directed by Professor Lipumba and myself. The key objective of this project is to examine in detail and in the least doctrinaire way, the actual changes in these markets in the aftermath of liberalization, so as to achieve a better understanding of the sources of success and failure in the establishment of efficient markets to promote broad based economic growth and structural transformation.

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Director, UNU/WIDER
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ABSTRACT

This paper analyses the rationale of interventions in foreign exchange markets in Sub-Saharan Africa and reviews exchange rate theory and balance of payments management and its application to African countries. It analyses the liberalization of foreign exchange markets and the impact of these markets on real exchange rates and parallel market premiums. It provides empirical estimates of the impact of real exchange rate depreciation on the current account balance and export performance. The depreciation of the real exchange rate improves the current account balance, but terms of trade movement has a larger impact on the balance of payment than it does on the real exchange rate. The depreciation of the nominal exchange rate is, however, associated with increases in inflation. The paper argues that the appropriate exchange rate system is a crawling peg which allows adjustments in the exchange rate to take into consideration actual and expected changes in terms of trade, aid flows, external debt servicing, and productivity growth relative to trading partners.

I INTRODUCTION

In the late 1970s and early 1980s devaluation of African currencies was a contentious issue. The major point of disagreement between African policy makers and the International Monetary Fund (IMF) was devaluation. President Nyerere's 1980 New Year's message to diplomats accredited to Tanzania captured the feeling of most African policy makers. He argued that 'Tanzania is not prepared to devalue its currency just because this is a traditional free market solution to everything and regardless of the merits of our position. It is not prepared to surrender its right to restrict imports by measures designed to ensure that we import quinine rather than cosmetics, or buses rather than cars for the elite .... Our price control machinery may not be the most effective in the world, but we will not abandon price control; we will only strive to make it more efficient .... When did the IMF become an International Ministry of Finance? When did nations agree to surrender to it their power of decision making?' (Nyerere 1980:7).

The battle on exchange rate policy has been decisively won by the IMF and other proponents of the liberalization of foreign exchange markets. Many African countries, often under pressure, have accepted the recommendations of the IMF on liberalizing foreign exchange markets. Post-Nyerere Tanzania has a freely floating exchange rate regime and was the first and at the time of writing the only Sub-Saharan African country legally to remove all foreign exchange surrender requirements on exporters. At the end of 1985 only Uganda, Zaire and Zambia, countries with very high rates of inflation, had adopted an independently floating exchange rate. Only Djibouti, Seychelles and South Africa were signatories of Article VIII of the IMF committing themselves not to impose 'restrictions on the making of payments and transfers for current international transactions or from engaging in multiple currency practices or discriminatory currency arrangements'. By the beginning of July 1996, 19 African countries had adopted independently floating exchange rates (Table 1). The 14 CFA franc zone countries devalued their currency which continued to be convertible to French francs. At least 29 African countries are formal signatories of Article VIII of the IMF. (CFA zone countries accepted Article VIII obligations in June 1996 and thereby formally ended the special relationship with the French franc that discriminated against other currencies.)

Despite the increasing liberalization of the foreign exchange market, the balance of payment positions of African countries continues to be unsustainable, and external debts cannot be serviced. The share of African exports in world trade continues to decrease, and African dependence on foreign aid is growing even during a period of drastic reduction in global aid flows.

TABLE 1
FOREIGN EXCHANGE ARRANGEMENTS AS OF JULY 1996

			Article VIII Status
Angola	other managed floating	current account restrictions	
Benin	CFA		YES 1 June 1996
Botswana	peg to a basket of currencies		YES 17 November 1995
Burkina Faso	CFA		YES 1 June 1996
Burundi	other managed floating	current account restrictions	
Cameroon	CFA		YES 1 June 1996
Cape Verde	peg to a basket of currencies	current account restrictions	
Central African Republic	CFA		YES 1 June 1996
Chad	CFA		YES 1 June 1996
Comoros	CFA		YES 1 June 1996
Congo	CFA		YES 1 June 1996
Côte d'Ivoire	CFA		YES 1 June 1996
Djibouti	peg to US dollar		YES 19 September 1980
Equatorial Guinea	CFA		YES 1 June 1996
Ethiopia	independently floating	current account restrictions	
Gabon	CFA		YES 1 June 1996
Gambia, The	independently floating		YES 21 January 1993
Ghana	independently floating		YES 2 February 1994
Guinea	independently floating		17 November 1995
Guinea-Bissau	other managed floating	current account restrictions	
Kenya	independently floating	current account restrictions	YES 30 June 1994
Lesotho	peg to South African rand		
Liberia	peg to US dollar		
Madagascar	independently floating	current account restrictions	
Malawi	independently floating	current account restrictions	YES 7 December 1995
Mali	CFA		YES 1 June 1996
Mauritania	peg to a basket of currencies	current account restrictions	
Mauritius	other managed floating		YES 29 September 1983
Mozambique	independently floating	current account restrictions	
Namibia	peg to South African rand		
Niger	CFA		YES 1 June 1996
Nigeria	peg to US dollar	current account restrictions	
Rwanda	independently floating		
Sao Tome and Principe	independently floating	current account restrictions	
Senegal	CFA		YES 1 June 1996
Seychelles	peg to a basket of currencies		YES 3 January 1978
Sierra Leone	independently floating		YES 4 December 1995
Somalia			
South Africa	independently floating		YES 15 September 1973
Sudan	independently floating	current account restrictions	
Swaziland	peg to South African rand		
Tanzania	independently floating	current account restrictions	
Togo	CFA		YES 1 June 1996
Uganda	independently floating		YES 5 April 1995
Zaire	independently floating	current account restrictions	
Zambia	independently floating	current account restrictions	
Zimbabwe	independently floating	current account restrictions	YES 5 February 1995

Source: IMF (1996a).

The liberalization of foreign exchange markets, including the removal of restrictions on foreign exchange retention, has *de facto* liberalized capital outflows even before improving export performance. Allowing the exchange rate to float introduces potentially damaging instability in nominal and real exchange rates because foreign exchange markets are inherently thin: they are dependent on foreign exchange earnings from unstable commodity markets and aid flows, particularly balance of payments support which partly depends on the implementation of IMF conditionalities. A floating

exchange rate has the political advantage of relieving the authorities from the responsibility of adjusting the exchange rate. However, a serious African government which wants to provide strong and stable incentives to private investors in the tradable goods sector to produce exports and import substitutes will not permit the exchange rate to fluctuate widely at the whims of donors and unstable commodity markets. Pegging the exchange rate to the currency of a developed economy, which faces different terms of trade, productivity growth and investment climate, is unlikely to promote growth and structural transformation. A government promoting growth and structural transformation is likely to pursue an active exchange rate policy which aims at the maintenance of stable incentives for private sector investment in the tradable goods sector. A system based on a crawling peg or band that takes into consideration expected changes in terms of trade, aid flows, external debt servicing, and relative productivity growth in determining the central rate seems to be more appropriate than a freely floating or a fixed exchange rate system (Williamson 1985, 1991, 1996).

For an evaluation of the impact of exchange rate adjustments and the liberalization of foreign exchange markets, part II of this paper offers a discussion of the rationale of intervention in foreign exchange markets for long-term development objectives and the African practice of this intervention. Part III provides a review of exchange rate theory and balance of payments management. Part IV supplies an analysis of the extent of foreign exchange market reforms and their impact on real exchange rates and parallel market premiums. Part V presents empirical estimates of the impacts of the real exchange rate on the current account balance and of the nominal exchange rate on inflation. Part VI furnishes a discussion of an alternative foreign exchange management system for the promotion of growth and structural transformation.

II FOREIGN EXCHANGE CONTROL REGIMES AND ECONOMIC DEVELOPMENT

The current wave of liberalization of foreign exchange markets and the critical assessments of state interventions, controls and administrative allocations of foreign exchange tend completely to ignore the economic rationale behind the imposition of controls in foreign exchange allocations. The ahistorical assertion that the necessary and sufficient condition for the initiation and acceleration of economic growth and structural transformation is to have sound money, open markets and the protection of property rights (Sachs and Warner 1995, 1996) ignores the historical experiences of both developed market economies and the newly industrialized countries (Bairoch and Kozul-Wright 1996, Chang and Rowthorn 1995). Historical evidence does not show automatic economic development once a country has adopted a free market regime. *Laissez faire* free markets are neither necessary, nor sufficient for triggering and sustaining economic growth and structural transformation. If the objective of a less developed agrarian society is to undertake industrialization and the transformation of its economy to a modern one with high labour productivity and good standards of living, it should not expect that market forces will accomplish this objective. If economies of scale are important and imperfect information abounds, the market cannot allocate resources efficiently to promote structural transformation (Stiglitz 1990).

Chenery and Bruno (1962) argued that a small open economy such as Israel can fail to achieve a high rate of growth of output because of a shortfall in the savings to finance investment or a shortage of foreign exchange to finance imports of capital goods and intermediate inputs. A country facing an effective foreign exchange constraint may fail to transform potential domestic savings into actual investment because of a lack of foreign exchange to import capital goods. Theoretically, a small economy which faces world market prices can transform domestic output into exports at given world market prices and does not, therefore, have to face a foreign exchange constraint. Investment is constrained by inadequate saving and not a foreign exchange constraint, and hence such an economy cannot fail to transform domestic savings into investment. In reality not all the output of even a small economy is tradable. Time and investment are required to reallocate labour which was producing nonexportables so that it can start producing for the export market. It is therefore possible for even a small economy to face a Chenery/Bruno foreign exchange constraint, at least in the short and medium run, particularly at the early stages of economic development.

The necessary though not sufficient condition for the promotion of growth and structural transformation is an increase in the capital stock, both human and physical. Investment in physical capital, particularly in equipment and machinery, which has been shown to promote long-term growth (de Long and Summers 1991), is dependent on imports of capital goods. If foreign exchange is in short supply and investment is import dependent, foreign exchange controls and the administrative allocation of foreign exchange can be utilized to promote investment and discourage the consumption of imported goods. At

the early stages of development, investment in manufacturing may be perceived as particularly risky compared to investment in traditional exports in the agricultural sector. An overvalued exchange rate and an administrative allocation of foreign exchange can be used to reduce the cost of and increase the return on investments in manufacturing.

At an early stage of development, when primary export production is well established, but primary export supply is price inelastic, a multiple exchange rate system can be used to promote investment and production in other sectors such as manufacturing. Imports of capital goods for investment in the manufacturing sector may be priced at a low exchange rate (domestic currency per unit of foreign exchange), and exports of manufactured goods can be priced at a high exchange rate.

The success of an administrative system for the allocation of foreign exchange for the promotion of productive investment which over time can be competitive in the world market depends on the possession by a country of a state that promotes development through an efficient bureaucratic apparatus, the existence of an entrepreneurial class and effective sanctions against failure. At the early stages of their economic development until the 1980s, neither Taiwan, nor Korea allowed unrestricted access to foreign exchange for the importation of consumer goods. Their successful industrialization is partly explained by the existence of an effective system to channel the use of foreign exchange for the importation of intermediate inputs, capital goods and essential consumer goods which could not be domestically produced, such as food grains in Korea. If a necessary condition for industrialization in the 20th century for latecomers is systematic and well-coordinated government intervention to promote manufacturing investment, as pointed out by Amsden (1989) and Wade (1990), a liberalized foreign exchange regime cannot attain the objective of industrialization. A liberalized import regime for consumer goods tends to have a demonstration effect which promotes consumption and discourages saving. The corporate saving rate is likely to be high in an import regime which promotes investment in equipment and machinery, but discourages the importation of consumer goods. The ethos of an emerging industrial bourgeoisie could be influenced by public policy which promotes investment and discourages conspicuous consumption.

Successful interventionist governments have understood the critical role of international trade in economic growth and structural transformation. International trade offers opportunities which complement domestic resources in both consumption and production. These include access to cheaper sources of the products needed for development and profitable markets for goods which can be produced at home. For small economies, international trade provides opportunities for the establishment of industries with large economies of scale that would not be viable in a closed economy. International trade also facilitates access to technology and factor markets which boost the growth potential of a given economy.

The role of international trade as an 'engine of growth' was recognized by classical economists. However, in the 1950s and 1960s, because of the perceived secular tendency of the terms of trade to decline due to low income and the price elasticities of demand for primary commodities, a lively debate questioned the positive role of trade in

the economic development of the latecomers which were specializing in the production of these commodities (Singer 1950, Prebisch 1959).

It was also argued that a manufacturing industry could not be established in less developed countries because of the competition of the well-established low-cost industries of Europe and North America. In order to grow and transform their economies, less developed countries require conscious efforts by governments to encourage and protect investment in industries and utilize scarce foreign exchange prudently by allocating it to the importation of capital goods and intermediate inputs. Protection and import substituting industrialization was a common policy recommendation emanating from diagnoses of the economic problems facing the countries of Africa, Asia and Latin America (Hirschman 1958).

The pendulum of intellectual opinion swung to the other extreme in the 1980s. The dominant view among neoclassical and development economists is that experience and empirical evidence over the past three decades have firmly established that an 'outward looking' development strategy which aggressively takes advantage of the opportunities offered by international trade is superior to an 'inward looking' import substituting industrialization (Krueger 1978, 1983a, Balassa 1981, Bhagwati 1978, 1986, 1988, Edwards 1993, World Bank 1991, 1993, 1994). It has been argued that countries which do not discriminate against exports *vis-à-vis* production for the domestic market and largely allow market forces to allocate resources achieve higher rates of economic growth because resources are utilized more efficiently by profit maximizing enterprises facing domestic and external competition.

The efficiency of market oriented open economies is exemplified by higher total factor productivity, the tapping of economies of scale and a greater utilization of the installed capacity. Buoyant export performance eases the foreign exchange constraint and allows *ex ante* saving to be realized as *ex post* investment. Current production is not restricted by a lack of intermediate imports. In addition, a strong balance of payments position not only avoids stop-and-go policies to correct balance of payments which hinder sustained high investment levels, but also raises the credit worthiness of a country and offers better access to international capital markets that allows investment to exceed domestic saving.

The empirical evidence showing causality between exports and economic growth on the one hand and exports and a 'free market' trade oriented policy on the other is still a debatable issue (Helleiner 1988, Rodrik 1995). First, there is a problem in the identification of causality. Is it exports which cause a high growth rate of output or vice versa? Investment effort and the effective utilization of the installed capital are likely to be the cause of both growth of output and exports.

Second, successful exporters have not necessarily pursued a liberal trade policy on the import side. With the exception of England in the 19th century and the 'city-state' of Hong Kong since the early 1960s, no country has successfully industrialized without significantly protecting its domestic industry (Bairoch 1993). The success of countries such as Taiwan and South Korea has not been determined by liberal trade policies which

do not discriminate between imports of consumer goods that can be domestically produced and imports of intermediate and capital goods. Their success has been determined because they first established an industrial base by mastering industrial technology through import substitution and subsequently pursued a conscious and 'strategic' trade policy which promoted exports. This 'demonstrates the practical distinction between export promotion and liberalization, i.e., laissez faire policies.' Their 'experience suggests that export promotion policies can be pursued (and may be best pursued) by a dirigiste government, and even in the presence of tight import controls and tight regulations in the capital markets' (Sachs 1987:293).

Sachs' (1996) recent rediscovery of the Adam Smith adage 'Little else is requisite to carry a state to the highest degree of opulence from the lowest barbarism, but peace, easy taxes and tolerable administration of justice' contradicts his earlier, correct analysis. The Sachs' story of sound money, free and open markets, and small government as both a necessary and a sufficient condition for initiating and sustaining broad-based growth and structural transformation in any country, including African countries, is simplistic and ahistorical. Market oriented development requires effective states not only for the establishment of the rule of law, political stability and macroeconomic stability, but also in order make markets work more effectively, for example, by regulating financial markets, creating markets where they do not exist and helping to direct investment towards those areas which promote the most economic growth, such as diversified exports as opposed to real estate (Stiglitz 1990, 1994, 1996).

Trade theorists emphasize the allocative efficiency which could be achieved if 'free' market transactions that are not thwarted by direct controls (including foreign exchange restrictions) dominate in the economy. They advocate trade liberalization, which is interpreted as an approach that aims at a trade system which is completely neutral and does not discriminate between production for the domestic market and production for foreign markets and permits consumers to choose between domestic and foreign products (Micheely, Choksi and Papageorgio 1989).

In a world of increasing returns to scale and learning by doing, the role of allocative efficiency in the achievement of growth and structural transformation should not be exaggerated. It is more important to attain technical efficiency through the mastery of technology than it is to get the prices right (Pack and Westphal 1985, Fagerberg 1994). For latecomers, the accumulation of technological capacity depends on the ability to acquire foreign technology, the investment in education, training and research, the maintenance of incentives for innovation and imitation, the avoidance of economic slumps to sustain continuous growth in demand, and the establishment of an institutional framework and policies which motivate firms to develop technological capability (Bell and Pavitt 1993).

The efficacy and optimality of market interventions to promote growth and structural transformation are related to the size of the economy and the existence of domestic economic agents who are able to learn by doing. A large domestic market is necessary in order to reduce the cost of protection and attain comparative advantage in a relatively short time, particularly in those industries characterized by significant economies of

scale. Small economies, such as those of most Sub-Saharan African countries, with the possible exception of South Africa, are unlikely to succeed in establishing industries with dynamic comparative advantage by initially depending on the domestic market alone. The direct and indirect impacts of industrialization strategy on export promotion must be immediately taken into consideration.

Over the past decade less developed African countries, facing severe balance of payments and debt crises, have been confronted with relentless pressure from the IMF and the World Bank to liberalize their trade regimes in the midst of large budget deficits financed by bank borrowing, high rates of inflation and severe shortages of foreign exchange. (The CFA zone countries did not have the inflation problem, but were in the throes of similar balance of payments and debt crises.) Common sense suggests that a country suffering from high rates of inflation and shortages of foreign exchange should not liberalize its import regime before attaining some degree of macroeconomic stability and improved incentives for exportation.

The structural adjustment policies recommended by the IMF and the World Bank require that stabilization and trade liberalization be carried out simultaneously. A country which has a high rate of inflation, large budget deficit and debt overhang is likely to exacerbate the foreign exchange shortage when it liberalizes all import trade. The excessive demand will exhaust foreign exchange reserves, and even a large devaluation or a freer floating exchange rate is unlikely to be an adequate policy instrument to conserve and increase foreign exchange reserves. A large pent-up demand for consumer imports that has been created during the control regime makes imports highly profitable relative to production for domestic markets or export. Even if export-supply elasticity with respect to the real exchange rate is significantly positive, there is a long time lag before exports can effectively respond to a real depreciation of the domestic currency. Moreover, nominal devaluation may not lead to a significant real depreciation followed by the stability of the real exchange rate if a large government budget deficit persists.

Across-the-board import trade liberalization in countries facing macroeconomic instability is likely to worsen the economic situation without boosting exports. The first step in the sequence of policy reforms for the restoration of macroeconomic stability and the promotion of growth should be to achieve fiscal balance and control inflation, while saving foreign exchange by using both administrative controls and a depreciated real exchange rate to foster the production of exports and encourage efficient import substitution. It is necessary to have strategic government interventions which provide easy access to imported inputs for exporting and efficient import substituting industries, while conserving foreign exchange through the strict control of 'luxury' consumer goods and protecting potentially efficient domestic industries. It is only when the manufacturing industry has been firmly established, exports have been increased and foreign exchange reserves have become adequate that across the board import trade liberalization should be contemplated.

Among trade policy analysts, tariffs are considered lesser evils relative to quotas and other quantitative restrictions, including the administrative foreign exchange allocation

system, because they are more market oriented and less prone to administrative abuse. Tariffs and exchange rate adjustments are not adequate measures to control the potentially disastrous haemorrhaging of foreign exchange in an economy experiencing severe foreign exchange shortages. A direct foreign exchange allocation mechanism can accurately monitor the use of foreign exchange not only to equate demand and supply, but also to distribute the scarce resource to socially optimal activities.

In the analysis of the causes of the failure of foreign exchange allocation systems in Africa, there is an identification problem which implicates the overall thrust of development policy, as well as the capability of the state and its administrators to manage effectively a foreign exchange allocation system.

Successful state intervention to promote industrialization requires a strong state and a Weberian bureaucracy. It requires a state which seeks to complement, not replace, markets. The interventions of socialist oriented governments in Africa aimed at replacing the market and stifling private enterprises. 'Capitalist' oriented governments tended to use the allocation system mainly as a source of political patronage and personal enrichment. African governments did not design their foreign exchange systems to reduce the avenues for rent seeking or to enhance the government's ability to adapt to changing economic environments. Recipients of foreign exchange did not have to attain specific export targets. The failures to initiate and sustain growth and structural transformation are explained by the absence of a flexible and effective state machinery that focuses on promoting broad based growth and structural transformation rather than by the inherent inefficiency of the administrative system in the allocation of foreign exchange.

In countries characterized by 'soft states', government failure is likely to be worse than are the market failures of free trade. Crude protectionism and overvalued exchange rates are likely to kill the export sector and favour inefficient import substituting industries which will be operating at very low levels of capacity because of the lack of foreign exchange. Stable macroeconomic policies – mainly taking the form of measures to control government expenditure within the limits of government revenue and noninflationary seigniorage and measures to direct government expenditure towards improvements in physical and social infrastructure, while letting the market operate under stable 'rules of the game' – are likely to achieve higher growth in the economy. Market liberalization is, however, not a solution to the problem of a soft state, as clearly exemplified by Mobutu's Zaire, which was among the first major African countries to liberalize the foreign exchange regime.

A simple but crude empirical test to determine the existence of a binding foreign exchange constraint is to compare realized saving and exports or imports and investment as a percentage of GDP. If export production is not import intensive, an export-GDP ratio which is significantly larger than the domestic saving-GDP rate indicates that foreign exchange is not a binding constraint on investment. Table 2 shows the saving-GDP ratio and export-GDP ratio for Sub-Saharan Africa over 1970-93. With the possible exceptions of Nigeria, South Africa and Zimbabwe, no other SSA country can be considered to have been confronted by a potential foreign exchange gap which

TABLE 2
AVERAGE ANNUAL GROSS DOMESTIC SAVINGS RATE AND EXPORTS AS A PERCENTAGE OF GDP

	Savings 1970-93	Exports 1970-93	Savings - Exports
Angola (1985-90)	22.3	32.4	-10.1
Benin	2.2	24.1	-21.9
Botswana	28.1	51.1	-23.0
Burkina Faso	-0.7	11.2	-11.9
Burundi	1.8	10.7	-9.0
Cameroon	19.1	23.3	-4.2
Cape Verde	-11.4	17.6	-29.1
Central African Republic	0.3	22.0	-21.7
Chad	-5.0	20.8	-25.8
Comoros (1980-93)	-3.8	15.0	-18.8
Congo	20.8	45.3	-24.5
Côte d'Ivoire	22.1	36.7	-14.6
Djibouti (1984-93)	-7.0	57.7	-64.7
Equatorial Guinea (1985-93)	-8.7	35.6	-44.4
Ethiopia	5.5	11.7	-6.2
Gabon	48.1	53.8	-5.7
Gambia, The	4.0	43.5	-39.5
Ghana	5.5	14.1	-8.6
Guinea (1986-93)	13.9	26.8	-12.9
Guinea-Bissau	-6.0	8.8	-14.8
Kenya	19.9	27.8	-7.9
Lesotho	-61.6	14.8	-76.4
Liberia (1970-86)	26.5	53.8	-27.3
Madagascar	3.6	14.9	-11.3
Malawi	11.9	24.5	-12.6
Mali	1.4	14.8	-13.4
Mauritania	9.2	44.9	-35.7
Mauritius	20.9	53.4	-32.4
Mozambique (1980-93)	-9.3	15.2	-24.5
Namibia (1980-92)	12.2	63.5	-51.3
Niger	7.3	18.9	-11.5
Nigeria	19.5	21.0	-1.5
Rwanda (1970-92)	5.3	11.3	-6.0
Sao Tome and Principe	-6.6	33.1	-39.6
Senegal	6.0	30.2	-24.2
Seychelles (1976-93)	28.0	49.2	-21.1
Sierra Leone	9.4	21.5	-12.1
Somalia (1970-89)	0.9	16.0	-15.1
South Africa	28.0	28.2	-0.2
Sudan (1970-91)	7.0	10.1	-3.1
Swaziland	18.8	70.4	-51.6
Tanzania (1970-92)	11.2	16.5	-5.3
Togo	21.0	44.2	-23.2
Uganda (1980-93)	1.2	9.1	-8.0
Zaire	na	na	na
Zambia	22.0	38.9	-16.9
Zimbabwe	20.6	22.8	-2.3

Source: Computed on the basis of World Bank (1995).

constrained the domestic savings to be realized as investment. The share of exports exceeded the gross domestic savings rate by more than 3 per cent. Nigeria cannot be considered to have faced a foreign exchange constraint, because of a large drop in the volume of nonoil exports, particularly during the 1970-86 period. Zimbabwe's saving-GDP rate exceeded the export-GDP ratio before the independence period partly because of trade sanctions. During 1980-93, the average saving rate was similar to the average export-GDP ratio. Among SSA countries, only South Africa could have experienced a Chenery-Bruno foreign exchange constraint.

The misuse of the foreign exchange allocation system in many less developed countries is well documented (Bhagwati 1978, Krueger 1978). Korea and Taiwan, however, were able to employ a system of foreign exchange and credit allocation to promote investment in export oriented manufacturing. The economic bureaucracies of these countries were relatively autonomous and able to impose concrete performance standards which were in most cases related to successful exporting. If foreign exchange is allocated without enforceable performance standards, it is likely to promote rent seeking.

In many African countries economic growth and structural transformation were not the overriding objective of governments and ruling elites. Foreign exchange controls and allocation systems did not concentrate on investment in manufacturing industries which possessed dynamic comparative advantage. Foreign exchange was squandered in white elephants, including new capital cities, international conference centres and unviable industrial projects in the public and private sectors that were selected because, among other reasons, of the '10 per cent' disease. In a political regime which does not prioritize economic development, an administrative foreign exchange allocation system is likely to be misused, and a freely floating exchange rate regime may be a lesser evil. A freely floating exchange rate regime is, however, not a solution to the soft state problem. The Zaire currency has floated the longest among African currencies, but given the macroeconomic mismanagement, particularly the huge fiscal deficits financed by money printing, the exchange rate policy of Mobutu's Zaire cannot be considered appropriate for the promotion of growth and structural transformation.

A dual exchange rate regime can be an appropriate exchange rate arrangement for a country with traditional exports which are price inelastic or which meet limited prospects on the world market, such as in the case when the country has a large share of the world market of a commodity with low price and income elasticity of demand. An overvalued exchange rate can be used for traditional exports and imports of capital goods and intermediate inputs. For countries which cannot be self-sufficient in food production, the overvalued exchange rate can be employed for basic food grains both to improve nutrition intake and to reduce domestic labour costs. To promote nontraditional exports, particularly manufactured goods, an undervalued exchange rate will be appropriate. The undervalued exchange rate should be used for the importation of nonessential commodities. The rationale of the dual exchange rate is to foster export diversification, discourage the allocation of resources for traditional exports which do not enjoy good prospects in foreign markets, discourage frivolous imports, and promote investment.

An alternative to the dual exchange rate is to tax traditional exports and nonessential imports and subsidize nontraditional exports and imports of capital goods and intermediate imports (Dornbusch 1986). Politically and administratively, the imposition of taxes and subsidies may be more difficult than the management of a dual exchange rate system.

The use of a dual exchange rate does have risks. The low price of foreign exchange for the importation of capital goods and intermediate imports may encourage the establishment of capital and import intensive investment projects which worsen the foreign exchange shortage and reduce employment generation. High priced nonessential imports may attract domestic investment. A shortage of foreign exchange may, ironically, lead to an expansion of capacity and a fall in capacity utilization as firms increase capacity in order to qualify for larger allocations of foreign exchange (Bhagwati 1978). Traditional exports are likely to be overtaxed, and a country can lose its world market share. Strong administrative capacity and state autonomy are required to manage a dual foreign exchange regime so as to support structural transformation objectives.

Unfortunately, the African nations were not effective developmental states with strong and autonomous administrative machinery. The foreign exchange and price control regimes caused the widespread emergence of parallel markets not only for goods, but also for foreign exchange. Table 3 presents parallel market premiums as a percentage of official exchange rates for the Sub-Saharan African countries for which information is available. The foreign exchange restrictions which characterized most of the Sub-Saharan African countries outside the CFA franc zone led to large, parallel market premiums. Angola, Ethiopia, Ghana, Madagascar, Malawi, Mauritania, Mozambique, Nigeria, Sierra Leone, Sudan, Uganda, Zaire and Zambia had parallel market premiums of over 50 per cent. Sales in the parallel markets generated large profits. They promoted overinvoicing of imports and underinvoicing of exports to finance capital flight.

The overvalued exchange rates and administrative foreign exchange control regimes pursued by many African countries before the adoption of liberalization policies in the 1980s were not part of a well-articulated development strategy to channel investment to export oriented activities which have high income and price elasticities of demand. The exchange rate policy discouraged exports, favoured unsustainable, highly import intensive manufacturing industries and encouraged capital flight.

TABLE 3
PARALLEL MARKET PREMIUM ON THE OFFICIAL EXCHANGE RATE

	1980	1985	1990	1991	1992	1993
Angola		5415.1		2085.5	138.0	556.9
Benin	-0.9	-1.0	3.5	2.4	2.0	1.7
Botswana	0.6	61.6	-1.6	26.5	18.4	25.7
Burkina Faso	-0.9	-1.0	3.5	2.4	2.0	1.7
Burundi	17.8	16.0	8.7	48.4	49.3	52.7
Cameroon	0.1	-5.6	-6.3	7.6	-3.7	8.5
Cape Verde				23.2	16.9	8.2
Central African Republic	-0.8	-1.0	3.5	2.4	2.0	1.7
Chad	-0.8	-1.0	3.5	2.4	2.0	1.7
Comoros	-0.8	-1.0	3.5	2.4	2.0	13.1
Congo	-0.8	-1.0	3.5	2.4	2.0	1.7
Côte d'Ivoire	-0.9	-1.0	3.5	2.4	2.0	1.7
Djibouti		9.0	7.9	20.3	15.8	19.3
Equatorial Guinea		-1.0	3.5	2.4	2.0	1.7
Ethiopia	35.3	131.9	189.9	223.7	358.9	211.5
Gabon	-0.9	-1.0	3.5	2.4	2.0	1.7
Gambia, The	-3.1	-25.8	4.5	-3.7	30.0	-4.0
Ghana	64.9	72.4	10.6	3.9	3.3	2.6
Guinea	119.8	1178.6	5.0	5.2	78.1	21.0
Guinea-Bissau				14.0	-12.4	-2.0
Kenya	10.5	5.3	1.7	9.1	37.8	58.1
Lesotho		7.7	4.4	3.6	5.2	7.2
Liberia						
Madagascar	25.4	4.4	6.4	12.9	19.9	15.3
Malawi	97.0	45.4	20.9	39.1	27.7	34.1
Mali	-0.8	-1.0	3.5	2.4	2.0	1.7
Mauritania	41.6	116.6	-100.0	160.3	154.7	104.9
Mauritius		-6.8	5.6	9.3	8.0	9.4
Mozambique	146.9	3952.7	-100.0	46.4	15.1	6.1
Namibia						
Niger	-0.8	-1.0	3.5	2.4	2.0	0.5
Nigeria	64.6	325.2	15.7	-32.4	26.6	157.4
Rwanda	23.9	36.6	26.2	67.1	79.2	106.2
Sao Tome and Principe				10.2	12.4	0.6
Senegal	-0.8	-1.0	3.5	2.4	2.0	0.5
Seychelles			10.6	8.0	7.4	3.8
Sierra Leone	33.4	111.6	386.9			19.9
Somalia	-65.6	5.3	4.5			
South Africa	15.6	7.7	4.4	5.0	5.2	7.1
Sudan	100.0	44.1	257.4		-10.1	
Swaziland		8.0	4.4	12.5	15.8	16.4
Tanzania	156.2	280.7	49.9	59.0	36.3	9.4
Togo	-0.9	-1.0	3.5	2.4	2.0	1.7
Uganda	7470.0	9048.2	20.3	3.2	20.4	26.8
Zaire	128.6	2.1	2.7	23.9	17.2	
Zambia	64.8	52.9	251.6	106.2	-41.8	17.3
Zimbabwe	71.2	48.7	34.9	54.6	31.2	17.0

Source: Computed on the basis of World Bank (1996).

III EXCHANGE RATE AND BALANCE OF PAYMENTS MANAGEMENT: THEORETICAL ISSUES

Countries which maintain an overvalued exchange rate over a long period of time tend to experience persistent and unsustainable balance of payments deficits. An overvalued exchange rate makes imports less expensive and production for export unprofitable. Manufactured exports which are usually cost-plus priced lose external competitiveness. Domestic demand for traded goods is high because the relative prices of these goods are low, but the production of traded goods is discouraged because of low prices and low profitability. This leads to losses in domestic production and employment. Cheap foreign exchange encourages the selection of capital and import intensive production techniques which worsen the balance of payments position and discourage the use of labour (Krueger 1983b, Dornbusch 1988). Private firms and public enterprises borrow abroad because in domestic currency terms the loans seem to be relatively cheap, thus encouraging the accumulation of foreign debt. The purchase of foreign assets is encouraged because they are cheaper in domestic currency, and this promotes capital flight in the form of the overinvoicing of import payments and the underinvoicing of export receipts.

Sustained overvaluation must be accompanied by foreign exchange payment controls because the demand for foreign exchange exceeds the supply. The classification of imports as either essential, or nonessential is common (Bhagwati 1978). Official restrictions are imposed on imports of 'nonessential' commodities. Even for essential commodities, cumbersome procedures accompany foreign exchange applications. Controls invariably lead to corruption in the official system and the development of parallel foreign exchange markets, on which dollars are sold at a large premium. Exporters and tourists prefer to use the parallel market to get more domestic currency for their foreign exchange. The share of foreign exchange supplied to official custodians decreases over time, and thus the share and quantity of foreign exchange earned or received by the residents of the country and allocated by the government shrinks.

Excessive overvaluation and foreign exchange controls not only cause the misallocation of resources in production, but also foster the investment of resources in rent seeking and socially unproductive but privately profitable activities. The misallocation of resources in unproductive activities reduces the growth rate of output.

Before the wave of liberalization and the adoption of floating regimes, African countries suffering from current account deficits were usually advised to devalue so as to correct the deficits. A real devaluation boosts the profitability and external competitiveness of exports and raises the cost of imports. Resources are expected to shift towards the production of tradable goods, while consumption shifts away from tradable goods which cost more. According to Marshall-Lerner textbook conditions, for industrialized countries which mainly export manufactured goods, the trade balance will improve after a devaluation if the absolute sums of the elasticity of demand for imports in the

domestic market and the elasticity of demand for exports in the world market exceed the value of 1. In the past, the criticism of devaluation as a policy tool to correct a current account deficit was based on elasticity pessimism, particularly in the short run. It was argued that the price elasticity of demand for imports is low because the bulk of imports consists of essential intermediate and capital goods which are necessary for domestic production and the growth of output. On the export side, export volumes do not respond quickly to increases in the real prices of exports. Thus, the sum of demand elasticities is unlikely to exceed 1. The empirical evidence on the long-run demand elasticities of manufactured goods indicates that they are large enough to satisfy the Marshall-Lerner conditions even in developing countries. Moreover, in theory, for small primary commodity exporting countries which are price-takers in the world market for both exports and imports, a devaluation will improve the trade balance if the sum of the absolute price elasticity of demand for imports and the price elasticity of supply of exports exceeds 0. Thus, for a small country, devaluation necessarily improves the trade balance. The larger the elasticities, the more quickly and the more significant is the improvement in the trade balance (Williamson 1983).

Analyses of the impact of devaluation on the trade balance usually assume that the effects of devaluation on prices are passed on to the producers of exports and the users of imports. A monopolistic market structure, whether private or public, is likely to prevent price rises for the output of smallholder producers of agricultural exports. Without effective pass-through, no supply response will occur. In countries in which state interventions in the agricultural sector have depressed real producer prices or in which private trading monopolies dominate, significant real devaluation is unlikely to stimulate production for export unless marketing reforms which remove the institutional taxation or monopolistic exploitation of the agricultural sector are implemented simultaneously (Krueger, Schiff and Valdes 1991).

The effectiveness of exchange rate adjustment in spurring exports depends on the pass-through of the exchange rate to producer prices and the responsiveness of supply to producer price rises. Regression estimates of single crop supply functions in many African countries show that supply elasticities with respect to producer prices are positive and significant (Oyejide 1988). However, the responsiveness of the aggregate supply function of agricultural exports is smaller. Technical change is more important than price changes in increasing aggregate supply in agriculture. High productivity technical packages are likely to be adopted if they are profitable for farmers. Improved incentives and the adoption of more effective agricultural methods should be seen as complements rather than substitutes.

The future of tropical agricultural exports, particularly tropical beverages and hard fibres, is limited in the world market because of the low growth in the world demand for these products (Maizels 1992). African countries have not yet exhausted the potential of the expansion of agricultural exports, but they also need to diversify away from tropical beverages without losing market share.

The key determinants of the volume of manufactured exports are production and trade policy. Manufactured output provides the base for exportation, while, given the cost of

production, trade policy influences the relative profitability of selling in the domestic market and exportation. The manufacturing sector is highly import dependent in terms of both capacity expansion through investment and capacity utilization through reliance on imported inputs. Import capacity and its allocation have influenced substantially the volume and the extent of the utilization of available capacity.

The relative profitability of locally manufactured commodities in domestic and external markets depends heavily on the exchange rate and on trade policy. If local firms can only earn domestic currency, it does not matter to them whether they earn it through selling on the domestic market or selling on the external market. The market which offers the most profitability will be favoured. A study on manufacturing for exports in the developing world has noted that, in the promotion of manufactured exports, 'appropriate exchange rate policy played a major role in every export "success story" studied' (Helleiner 1995:9).

A unified foreign exchange market at which all buyers and sellers of foreign exchange encounter a more or less similar price in current account transactions can reduce bias and encourage efficiency in resource allocation. However, it should be emphasized that export diversification and, particularly, a climb in nontraditional primary exports, such as manufactured goods, depend not only on an appropriate real exchange rate, but also on efficient infrastructural, investment and institutional support for exportation.

3.1 Devaluation and inflation

The common argument against devaluation in Africa is that devaluation pushes up the cost of the imported inputs which are necessary for the nascent manufacturing sector and the modernization of the agricultural sector. Agricultural export producers rely on fertilizer and chemicals for which the cost will rise *pari passu* with a devaluation. If there is an effective pass-through of the effects of devaluation on producer prices, the producers of exports will be net gainers because imported inputs are only a fraction of the total inputs of these producers. The land and labour of the producers are not directly affected by devaluation. The return on these resources used in the production of exports will mount. Moreover, the substitution of available domestic resources for imported inputs should not be ruled out completely. One of the objectives of exchange rate adjustment is to improve the efficiency of resource allocation and reduce the use of more expensive imported inputs.

The main problem of a large real devaluation will occur in manufacturing. Most African countries have established import intensive manufacturing sectors. The output of these industries is sold in protected domestic markets at prices higher than those ruling on the world market. A devaluation will boost the cost of imported inputs, and this will be passed on to consumers, but at the expense of a reduction in the level of output because of the drop in demand. Furthermore, devaluation raises the working capital requirements. If devaluation is accompanied by an increase in interest rates, the cost of working capital will climb, generating higher prices and a reduction in output (Krugman and Taylor 1978). The stagflationary effects of a devaluation cannot be resisted. The rise

in the prices of imports after a devaluation may lead to an inflationary spiral, particularly if declines in real wages are successfully held off and monetary policy accommodates mounting nominal wages. In countries with significant wage labour and strong trade unions, such as Zambia, the increases in the cost of living caused by devaluation may initiate a wage-price spiral. If wage demands can be contained, a large devaluation which is not followed by expansionary monetary policy is likely to lead to a one-time rise in prices. The on-going devaluation of a currency, such as in the case of a crawling peg or a floating exchange rate regime, will have an inflationary impact on an import dependent economy as the prices of imports are continually adjusted upwards.

A devaluation will have a direct impact on price levels if the official exchange rate is the effective price of foreign exchange for imported goods. In most African countries which have persistent balance of payment deficits and overvalued currencies, the effective prices of imports were higher than the official prices. Those who received official allocations of foreign exchange earned rents because they could sell imports at market clearing prices. Moreover, in countries with extensive foreign exchange controls, parallel markets for foreign exchange develop, and the marginal cost of imports tends to reflect the parallel foreign exchange rate. The main impact of a devaluation will be a drop in the rents earned by those who receive official allocations of foreign exchange. Official devaluation will *ceteris paribus* reduce the premium of parallel market exchange rate and not necessarily lead to a rise in price levels.

3.2 The determination of the appropriate exchange rate

The determination of the appropriate exchange rate is a very important macroeconomic policy task, particularly in economies with managed exchange rate regimes. Even floating exchange rate regimes are not necessarily capable of settling on an appropriate exchange rate because of the prevalence of exchange rate overshooting and the instability of the real exchange rate (Dornbusch 1976).

The appropriate exchange rate for developing countries is that rate which will result in the simultaneous attainment of internal and external equilibrium in the medium and long run and promote growth and structural transformation. Internal equilibrium implies the full employment of domestic resources without excessive demand leading to inflation. External equilibrium relates to the balance of payments position. The current account balance should be compatible with medium and long-term capital flows and reasonable foreign exchange reserves for the financing of normal current account transactions.

In the determination of the appropriate exchange rate, it is important to distinguish between the nominal exchange rate and the real exchange rate. The exchange rate which is more familiar to everyone is the nominal exchange rate, which is the relative price of two moneys, such as the official price of the dollar in Ugandan shillings. The real exchange rate measures the relative price of two goods: the foreign good and the home good. There is no consensus on the choice of relative prices. The most general measure of the real exchange rate will be the exchange rate deflated by the overall price of the foreign good relative to that of the home good.

$$R = E*TGDP/PGDP$$

where R = the real exchange rate, E = the nominal exchange rate in the domestic currency per unit of foreign currency, TGDP = the trade share weighted GDP deflator of trading partners, and PGDP = the GDP deflator of the home country.

This formula might be used to measure the value of real Ugandan shillings per unit of foreign currency. An increase in the index corresponds to a depreciation of the domestic currency because the cost of the foreign currency rises. Conversely, a decrease in the index corresponds to an appreciation of the local currency.

The IMF gauges the real exchange rate in terms of real units of foreign currency per unit of domestic currency.

$$R\ (IMF) = PGDP/(E'*TGDP)$$

where E' = units of foreign currency per unit of domestic currency.

In principle, 'R' is the inverse of 'R(IMF)' when geometric means are used to compute the weighted average nominal exchange rate. An increase in R(IMF) implies an appreciation, and a decrease, a depreciation. In empirical work, it is important to explain clearly which real exchange rate measure has been used because, if the expected sign of R is positive, it will be negative for R(IMF).

The measure of the real exchange rate using GDP deflators is appropriate for large countries which influence the prices of both tradables and nontradables. For a small country like most African countries, the prices of tradables are set exogenously. The only endogenous prices are the prices of nontradables. For these countries, the appropriate relative price is the price of tradables relative to nontradables.

$$R = Pt/Pn$$

where Pt = the price of tradables, and Pn = the price of nontradables.

In simple macro-models which assume that an economy produces one good which can be domestically consumed or exported, and imports are different goods which cannot be produced in the domestic economy, the real exchange rate collapses to the country's terms of trade.

The real exchange rate (RER) definition appropriate for African countries is the price of tradable goods divided by the price of nontradable goods. This measures the cost of the domestic production of traded goods in terms of the cost of nontraded goods. An appreciation of the RER means that the cost of producing tradable goods is climbing, and hence the country is losing competitiveness in international markets. *The appropriate real exchange rate* is that price of tradables relative to nontradables that will assure the full employment of domestic resources and equilibrium in the balance of

payments in the medium and long run and promote growth and structural transformation, given other macroeconomic policies and growth promoting institutional arrangements. The appropriate exchange rate is a normative concept and therefore not necessarily similar to acclaimed positive concepts of Edward's long-run equilibrium real exchange rate or Stein's (1994) natural real exchange rate. It has to be analysed in the context of other growth promoting policies.

The appropriate real exchange rate which will attain the objective of internal and external equilibrium with desired growth is obviously not a single number which does not change overtime. Changes in any other variable which influences internal and external balance will influence the appropriate real exchange rate. For example, a permanent fall in the terms of trade will change the appropriate real exchange rate necessary to attain internal and external balance. A depreciation of the real exchange rate will be required to raise export volumes and diversify production into new export lines. Rapid technical progress in the traded sector is likely to lead to an appreciation of the appropriate real exchange rate.

3.3 Fundamental determinants of the appropriate exchange rate

The fundamental determinants of the real exchange rate are those real variables which, in addition to the real exchange rate, play an important role in determining a country's internal and long-run sustainable external equilibria. These variables can be classified into two broad categories: external fundamentals and domestic fundamentals (Edwards 1988, 1989).

The external real exchange rate fundamentals include (a) the international terms of trade, (b) capital flows, including foreign aid, and (c) real interest rates on the world market.

A long-term deterioration in the terms of trade will require depreciation of the real exchange rate so as to attain external equilibrium. Conversely, sustained improvement in the terms of trade will generally require an appreciation in order to provide adequate resources for the nontraded sector. Greater sustained net capital inflows will lead to an appreciation of the real exchange rate so as to boost net imports, while a decline in foreign aid will require a depreciation of the real exchange rate in order to promote net exports. For debtor countries, higher real interest rates push up debt service obligations, and this will require greater net exports and hence the need for a depreciation of the real exchange rate.

The domestic real exchange rate fundamentals can be divided into those which are directly affected by policy and those which are not. The most important real exchange rate fundamental which is not directly affected by policy is technical progress, though it can be argued that the adaptation of more productive technologies is influenced by the policy environment, particularly the existence of competitive markets which promote efficiency.

The policy related real exchange rate fundamentals include (a) trade regime-import tariffs, import quotas and export taxes, (b) the foreign exchange payment regime, that is, foreign exchange and capital controls, and (c) other taxes and subsidies and the composition of government expenditure.

The permanent increase in restrictions on imports, such as a rise in tariffs, will reduce imports and add to the demand for nontradable goods. The appropriate real exchange rate to maintain external equilibrium will appreciate because the current account balance will improve. Conversely, trade liberalization in the form of a reduction of effective tariffs and the removal of quotas will generally augment the demand for imports and will require a depreciation of the real exchange rate in order to attain external equilibrium. A relaxation of capital controls that expands capital outflows will require a depreciation of the exchange rate so as to generate more net exports to finance the capital outflows. If the relaxation of capital controls leads to an upsurge in capital inflows, then the appropriate exchange rate should appreciate.

If the composition of government expenditure changes in favour of nontradable goods, then prices of these goods will increase and the real exchange rate will appreciate. Conversely, a rise in the share of traded goods in aggregate government expenditure will require a depreciation in the exchange rate so as to reduce the imports of the private sector and boost exports in order to attain external equilibrium.

3.4 Misalignment of the real exchange rate

The level of the appropriate real exchange rate which will assist in the achievement of internal and external equilibrium is influenced by the real variables discussed above. The actual real exchange rate, however, is determined not only by real variables, but also by monetary variables, including the nominal exchange rate, credit expansion and fiscal deficit, that are financed through borrowings from the banking system. In a small country with a unified foreign exchange market the domestic prices of tradables are largely determined by the world market price, the nominal exchange rate and trade taxes. Excess demand generated by expansionary fiscal and monetary policies will raise the prices of nontradables and hence lead to an appreciation of the actual real exchange rate.

A misalignment of the real exchange rate exists when the actual real exchange rate is significantly and persistently out of line with the appropriate real exchange rate. The main causes of the misalignment of the real exchange rate are usually inconsistencies in macroeconomic policies, particularly expansionary fiscal and monetary policies. Unsustainable short-term capital flows can also lead to a misalignment of the real exchange rate. A predetermined nominal exchange rate regime, including fixed, managed and crawling rates, requires the avoidance of expansionary fiscal and monetary policies that will generate domestic inflation which will push up the prices of nontraded goods relative to those of traded goods and hence reduce the country's competitiveness on international markets.

The problem of exchange rate misalignment is not solved through freely floating nominal exchange rates. Under a floating exchange rate regime, changes in fiscal and monetary policies will directly affect the exchange rate. Domestic prices and the nominal exchange rate will adjust to macroeconomic and other shocks at different speeds. The exchange rate will adjust more quickly than will the prices of goods. There is a possibility of exchange rate overshooting. Monetary and fiscal expansion may lead to a depreciation in the real exchange rate that is larger than appropriate for the maintenance of external and internal equilibrium. Moreover, the real exchange rate may record wide swings, and this is not appropriate for economic stability and planning by economic agents, particularly in the area of investment. The adoption of a floating exchange rate does not mean that discipline in fiscal and monetary policies is no longer required.

3.5 The estimation of the appropriate exchange rate

There is no easy and obvious way to determine the appropriate exchange rate which in theory can be solved through an optimizing dynamic general equilibrium model. There are indicators which show misalignment of the real exchange rate. The obvious indicator is the unsustainable current account deficit and the depletion of foreign exchange reserves. Persistent current account deficits and the depletion of reserves indicate misalignment of the real exchange rate. The larger the current account deficit which cannot be financed by normal capital inflows, including sustainable foreign aid, the greater the misalignment. In a world of liberalized short-term capital flows, however, foreign exchange reserves can be quickly exhausted if there is a stampede of capital outflows and a run on the domestic currency. However, there is no technical formula for the determination of the rate of devaluation needed to correct balance of payments disequilibria. Moreover, nominal devaluation without appropriate fiscal and monetary policies is unlikely to have the intended effects if it does not lead to a real depreciation.

The key policy question revolves around the nature of the exchange rate regime which, in conjunction with other policies, is likely to establish a growth promoting real exchange rate. Freely floating foreign exchange markets in Africa are unlikely to determine a growth promoting real exchange rate. Even in industrialized countries, floating exchange rates have caused volatility in the real exchange rate that is far greater than the volatility in underlying economic fundamentals (Krugman 1989, Obstfeld 1995, Williamson 1994). Foreign exchange markets treat the exchange rate as an asset price which will fluctuate with economic news and rumours. For development policy objectives, one needs an attractive but relatively stable real exchange rate as an anchor for medium and long-term investment decisions.

The empirically based approaches for the determination of the appropriate exchange rate include the following.

(a) *The purchasing power parity approach* uses a base year in which the balance of payments position is considered to be in equilibrium and resources are closer to full employment and therefore the real and nominal exchange rates are appropriate and

international competitiveness satisfactory. The policy objective would be to restore the real exchange rate to the base year, with the external and internal sectors in equilibrium. According to the rationale behind this method, which is used when the exchange rate has been fixed, the cause of the misalignment in the real exchange rate is domestic inflation which is higher than the inflation among trading partners. The nominal exchange rate should be depreciated to compensate for inflationary differentials. Usually a weighted wholesale price index of the trading partners is employed. The weights are the trade shares of the major trading partners. The purchasing power parity exchange rate index is calculated as follows:

$$PPPER_t = \frac{NEER_0 \times CPI_t}{WPI_t}$$

where $PPPER_t$ = the purchasing power parity exchange rate in year t, $NEER_0$ = the nominal exchange rate in the base year, when the balance of payments position is considered sustainable, WPI_t = the trade share weighted wholesale price index of the trading partners in year t, and CPI_t = the country's consumer price index.

The use of the purchasing power parity exchange rate is based on the 'disarmingly simple empirical proposition that, once converted to a common currency, national price levels should be equal' (Rogoff 1996). Its use can therefore be justified if the misalignment of the real exchange rate is due only to inflation differentials and the base year real exchange rate is still appropriate. If the appropriate exchange rate has changed because of a change in fundamentals, such as a change in the terms of trade or a change in debt servicing obligations, a larger depreciation of the exchange rate may be required so as to depreciate even the base year real exchange rate.

(b) *The modified purchasing power parity approach.* In order to take into account changes in the fundamental determinants of the appropriate exchange rate since the base year and to anticipate expected future shocks which may alter the appropriate real exchange rate required to attain internal and external equilibrium, a nominal exchange rate devaluation which is larger or smaller than that determined by the simple PPP may be required. A sophisticated method for gauging the path of the equilibrium exchange rate involves the estimation of the parameters of both the fundamental determinants and the policy determinants of the actual real exchange rate, then the use of the parameters of the fundamentals to adjust the base year equilibrium exchange rate so as to take into consideration the subsequent changes in the terms of trade, world interest rates, changes in external debt, and changes in productivity growth (Edwards 1988, Elbadawi 1994).

(c) *The internal competitiveness approach* is based on theoretical frameworks which are similar to those of the purchasing power parity, but relies only on domestic price indices. The real exchange rate is measured in terms of the price of tradable goods relative to that of nontradable goods. The objective of the exchange rate action is to restore the relative price of tradables to nontradables that prevailed during a base year when the balance of payments and the real and nominal exchange rates were in equilibrium. Instead of employing the price indices of trading partners and the country

we are interested in, we use the domestic price indices of traded and nontraded goods. Government statisticians usually do not compute separate price indices for tradable goods and nontradable goods. It is possible to estimate these indices by way of the raw data used to compute the CPI by reclassifying the various groups of goods as tradable and nontradable. Difficulties may emerge in the classification of goods which are in effect not traded mainly because of trade and foreign exchange restrictions. The market prices of traded goods are influenced by trade policies. For example, the prices of staple foods may be lower because of adequate allocations of foreign exchange for the importation of food or because of ample supplies of food aid.

It may be necessary to construct a relative price index of exports relative to nontraded goods. If the price of exports relative to that of nontraded goods has decreased, then an exchange rate action will be taken to restore the price of exports relative to that prevailing in the base year. The implicit objective of such an exchange rate action is to restore not only the balance of payments equilibrium of that year, but also the base year trade structure.

The fundamental determinants of the real exchange rate may have changed significantly, and the base year real exchange rate may no longer be appropriate. The changes in the terms of trade, the trade regime, external indebtedness, and so on will require an alteration in simple internal competitiveness measures similar to those discussed under the modified purchasing power parity exchange rate. Milner and McKay (1996) have used relative domestic prices to compute the real exchange rate for exportables and importables for Mauritius that offers a better and more concrete understanding of the impact of trade liberalization than that obtained by reliance on purchasing power parity measures of the real exchange rate.

(d) *Microeconomic cost benefit analysis.* Existing and potential export activities may be analysed in detail to determine the exchange rate which will render them viable and profitable. Exchange rates which make export activities profitable may serve as guidelines in the selection of the appropriate exchange rate. The microeconomic cost benefit analysis may include estimates of the domestic resource costs of earning or saving a unit of foreign exchange so as to exclude from policy considerations those exchange rates which will make grossly inefficient activities profitable.

(e) *The foreign exchange parallel market premium.* In economies with strict official foreign exchange controls largely caused by exchange rate overvaluation, a parallel market for foreign exchange usually develops and may become a significant source for the financing of imports. The premium of the parallel rate over the official rate is an indicator of the degree of overvaluation. Some economists have argued that the parallel market should be viewed as the appropriate exchange rate. The conservative thinktank The Heritage Foundation employs the black market premium as one of ten criteria for the measurement of the index of economic freedom that is now widely used in econometric work purporting to explain differences in economic performance (Sachs and Warner 1995). However, it is obvious that, if restrictions on foreign exchange transactions are removed, the market exchange rate is likely to reside somewhere between the official rate and the parallel market rate. The larger the share of the parallel

market in trade financing and the greater the government tolerance of the parallel market, the closer is the unified free market rate to the parallel rate. The thinner the parallel market and the more strict the crackdown on the parallel market, the greater the risk premium. The parallel market rate will not be closer to a unified free market exchange rate.

The parallel market may be used significantly to finance capital flight. The appropriate exchange rates for developing countries largely refer to current account transactions. Restrictions on capital account transactions are generally considered appropriate at lower levels of development. Thus, the exchange rate generated by capital flight transactions cannot be considered as the appropriate exchange rate. Moreover, parallel market transactions are generally extremely volatile and are thus characterized by real exchange rate overshooting. Both rumours and correct economic information will influence the parallel market rate.

The objectives of foreign exchange action include the attainment not only of internal and external equilibrium, but also of microeconomic efficiency in resource allocation. A unified exchange rate in which all users and earners of foreign exchange face the same price promotes the efficient earning and utilization of foreign exchange. One of the goals of exchange rate adjustment is to bring parallel market foreign exchange transactions into the official open system. Given such a goal, the parallel market rate cannot be ignored. However, it is important clearly to establish the motives of the economic agents relying on the parallel market. If the main motive of the sellers of foreign exchange is to earn a premium and of the buyers to have access to foreign exchange which is difficult to acquire through official channels, an appropriate devaluation and the removal of foreign exchange restrictions will substantially reduce the parallel market. If the parallel market is also used for the purpose of tax evasion, it is likely to remain active even after significant devaluation of the official exchange rate. Appropriate tax reforms and improvements in tax administration may be necessary in order to unify the foreign exchange market.

IV THE LIBERALIZATION OF FOREIGN EXCHANGE MARKETS

African countries have implemented far-reaching reforms in the way they manage foreign exchange regimes. Table 1 shows the foreign exchange management arrangements of the Sub-Saharan African countries. Eighteen countries are independently floating, with no or only limited restrictions on current account transactions. The CFA zone countries, which have historically maintained a convertible currency, devalued by 50 per cent in foreign currency terms or 100 per cent in local currency terms in 1994. By June 1996 at least 27 of the 49 Sub-Saharan African countries had become formal signatories of Article VIII of the IMF, thereby making a commitment not to restrict foreign exchange payments for current account transactions. At least eight other countries – Cape Verde, Sao Tome and Principe, Madagascar, Lesotho, Namibia, Swaziland, Tanzania and Zambia – qualify to join the formal club of current account convertible currencies.

Many countries have massively depreciated their nominal exchange rates and attained large real depreciation. The World Bank has computed trade weighted real effective exchange rates for 36 Sub-Saharan African countries for the period 1980-93. Table 4 classifies countries according to the annual trend depreciation of their real exchange rates. During 1985-93, 21 African countries out of the 36 for which data are available substantially depreciated their real exchange rates. Ghana, Mozambique, Nigeria, Sierra Leone, Tanzania and Uganda depreciated their real exchange rates at an average of over 10 per cent per annum. The only countries which had significant real exchange rate appreciation were Côte d'Ivoire and South Africa.

Côte d'Ivoire's trend depreciation rate was an average 2.2 per cent per year. However, it should be noted that Côte d'Ivoire's real exchange rate depreciated by an average 6 per cent per annum during 1980-85. A significant appreciation of the real exchange rate was not recorded for Côte d'Ivoire over the whole period 1980-93. The CFA countries resisted currency devaluation partly because their real effective exchange rates had not appreciated.

Another indicator of the liberalization of foreign exchange markets is the erosion of parallel market premiums. Before 1985, only the CFA zone countries, Mauritius and South Africa and its enclave Lesotho showed hardly any parallel market foreign exchange premium. By 1994, many more countries, including Botswana, the Gambia, Ghana, Guinea, Guinea Bissau, Madagascar, Malawi, Mozambique, Seychelles, Sierra Leone, Swaziland, Tanzania and Zaire, had more or less unified their foreign exchange markets, with parallel market foreign exchange premiums of less than 10 per cent. By 1995, Kenya and Uganda had also unified their foreign exchange markets and had very small parallel market premiums. Angola, Burundi, Ethiopia and Nigeria were among the only countries which had large parallel market premiums. Before 1993, Nigeria had been proceeding towards the unification of the foreign exchange market. After the

TABLE 4
CLASSIFICATION OF COUNTRIES ACCORDING TO REAL EXCHANGE RATE MOVEMENT

1980-93 DEPRECIATION					1980-93 APPRECIATION				
SUPER LARGE over 10%	LARGE 5-10%	MODERATE 2-5%	SMALL less than 2%	STATISTICALLY INSIGNIFICANT	SUPER LARGE over 10%	LARGE 5-10%	MODERATE 2-5%	SMALL less 2%	STATISTICALLY INSIGNIFICANT
Ghana	Burundi	Chad	Botswana	Ethiopia				Cameroon	Cape Verde
Nigeria	Mauritania	Gambia, The	Central African Rep.	Rwanda					Congo
Tanzania	Madagascar	Kenya	Gabon	Senegal					Côte d'Ivoire
Uganda	Mozambique	Mali	Lesotho	Ethiopia					
Zaire	Niger	Mauritius	Malawi						
	Zimbabwe	Sierra Leone	Swaziland						
		South Africa							
		Togo							
		Zambia							

1985-93 DEPRECIATION					1985-93 APPRECIATION				
SUPER over 10%	LARGE 5-10%	MODERATE 2-5%	SMALL less than 2%	STATISTICALLY INSIGNIFICANT	SUPER over 10%	LARGE 5-10%	MODERATE 2-5%	SMALL less 2%	STATISTICALLY INSIGNIFICANT
Ghana	Burundi	Gabon	Mauritius	Cameroon			Côte d'Ivoire		Botswana
Mozambique	Chad	Kenya	Seychelles	Cape Verde			South Africa		Malawi
Nigeria	Madagascar	Mali	Swaziland	Congo					Zambia
Sierra Leone	Niger	Senegal		Ethiopia					
Tanzania	Rwanda	Togo							
Uganda	Zimbabwe	Zaire							

annulment of the presidential election in 1993, the official exchange rate was fixed at naira 22 per dollar, and this generated a large premium on the parallel market.

In order to cover more African countries and analyse the movement of real exchange rates over a longer period, 1970-95, we have estimated an SDR-based real exchange rate index for the countries in the region that have published consumer price indices using the following formula.

$$RERi = OERi \times \frac{WPI}{CPIi}$$

where RERi = the real exchange rate of country i, OERi = the official exchange rate SDR per unit of local currency, and WPI = the SDR geometrically weighted wholesale price index with the following weights.

US	40 per cent
Germany	32 per cent
Japan	17 per cent
UK	11 per cent

The SDR is a composite currency composed of the US dollar (40 per cent), the German mark (21 per cent), the Japanese yen (17 per cent), the French franc (11 per cent), and the pound sterling (11 per cent). There are no published wholesale price indices for France. We have therefore added the weight of the French franc to the German mark, and this will slightly reduce our SDR inflation rate because the inflation rate in France was higher than that in Germany.

This index will tend to overestimate the depreciation of the real exchange rate compared to trade weighted measures particularly for countries which have significant shares of trade with countries with higher levels of inflation than those in the US, Germany, Japan and the UK. However, it is a useful index because the US, Europe and Japan are the major markets for both traditional and nontraditional exports. In order to be competitive in the global market, producers of tradable goods have to be competitive in these markets. The movements of the SDR-based real exchange rate can be considered an indicator of movements of relative competitiveness in these important markets. Table 5 shows the SDR-based real exchange rate for Sub-Saharan African countries from 1970 to 1995. The SDR-based real exchange rate is, in general, highly correlated with the real exchange rate computed by the World Bank and the IMF (Tables 6A and 6B). We can therefore use the SDR-based exchange rate to analyse the movement of the real exchange rate among African countries.

TABLE 5

SDR REAL EXCHANGE RATE INDICES BASED ON WHOLESALE PRICE INDICES FOR THE US, GERMANY, JAPAN AND UK

	1970	1975	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Burundi	114.2	104.5	118.4	136.3	148.3	159.3	143.1	147.0	143.1	127.6	111.2	110.0	100.0	101.0	88.4	83.4	89.2	99.5
Burkina Faso	109.7	105.5	116.4	100.4	95.6	91.0	84.5	88.3	99.3	101.0	99.9	93.7	100.0	96.8	97.3	91.8	56.8	62.6
Botswana		105.0	113.2	126.2	117.6	123.4	116.5	85.5	85.2	94.5	89.1	90.5	100.0	100.7	106.7	108.0	104.4	103.0
Central African Rep.				98.5	94.9	95.5	86.8	93.6	110.5	107.4	98.1	92.9	100.0	91.8	93.2	84.9		
Chad						87.1	92.8	95.3	95.7	94.0	103.2	92.3	100.0	98.4	97.8	85.2	59.2	66.2
Côte d'Ivoire	72.0	72.2	103.3	90.1	82.2	76.5	70.6	70.3	86.7	96.9	98.6	93.7	100.0	96.0	102.0	98.4	61.4	71.9
Cameroon	58.8	67.8	74.5	66.1	63.4	65.0	64.1	69.9	86.9	102.5	92.0	91.3	100.0	94.5	96.9	88.0	58.8	68.7
Congo	85.5	87.4	90.8	85.2	81.7	77.3	77.5	80.0	94.5	100.4	100.0	97.6	100.0	103.0	108.0	103.2		
Algeria	115.7	100.5	117.9	123.4	127.2	131.7	139.3	152.4	164.0	155.2	127.9	109.1	100.0	60.0	63.3	71.6		
Egypt	102.7	82.0	54.9	62.2	73.4	86.9	103.5	115.9	128.7	139.8	154.8	162.6	100.0	56.1	54.8	61.1	63.5	67.6
Ethiopia	79.8	61.7	83.9	91.4	99.4	100.7	111.1	132.2	106.8	94.6	95.3	103.7	100.0	132.7	120.6	60.9	58.3	52.3
Gabon	67.6	77.6	94.6		81.5	79.2	74.3	63.2	95.7	99.0	85.9	86.3	100.0	94.7	97.1	82.9	55.9	63.0
Ghana	111.1	115.5	428.0	951.2	1195.8	2166.9	300.4	216.4	146.6	112.1	102.3	96.4	100.0	102.4	92.1	78.1	63.6	75.0
Guinea-Bissau										147.8	90.1	100.4	100.0	94.5	80.9	82.2	71.9	69.2
Gambia, The	105.0	107.7	119.7	113.5	111.7	109.2	102.0	109.6	86.9	94.1	104.4	101.2	100.0	95.5	98.8	103.2	96.9	96.0
Kenya	124.0	109.6	130.1	122.9	125.8	117.1	122.0	121.8	114.3	110.1	107.0	105.4	100.0	97.8	104.5	89.4	112.2	112.6
Liberia																		
Lesotho		101.3	122.4	126.2	117.1	136.4	119.2	88.5	90.4	102.2	96.5	96.5	100.0	107.9	118.0	117.8	112.9	111.4
Morocco	130.5	125.3	134.1	118.3	115.1	106.2	97.6	91.7	98.8	100.3	98.4	99.0	100.0	100.0	103.9	100.7	103.8	109.4
Madagascar	160.1	174.5	180.0	188.3	199.4	196.3	164.2	156.6	158.4	111.1	94.7	90.8	100.0	86.7	93.9	101.0	92.6	84.2
Mali											98.2	92.4	100.0	96.1	92.5	86.5	52.7	
Mozambique								268.6	0.0	177.7	91.7	93.1	100.0	87.2	69.0	65.6	63.5	62.0
Mauritania								104.6	104.3	102.9	96.5	97.9	100.0	101.1	103.7	82.0		
Mauritius	115.1	101.9	113.2	113.0	107.7	107.9	100.3	95.3	99.3	94.8	93.5	93.5	100.0	99.3	100.6	98.5	100.6	101.7
Malawi			97.7	101.6	97.8	101.4	102.9	93.8	88.2	84.4	91.7	96.3	100.0	107.2	101.2	96.7	72.6	
Namibia			127.3	134.1	128.1	142.3	122.2	89.7	88.0	100.3	95.9	96.2	100.0	102.6	112.7	107.2	105.9	105.2
Niger	101.7	102.4	134.7	132.7	126.0	107.9	103.6	100.3	112.1	109.3	102.4	93.7	100.0	87.1	85.3	79.1	53.2	60.3
Nigeria	144.7	172.5	268.7	296.7	299.5	350.1	470.8	432.8	271.7	92.2	119.9	110.9	100.0	89.9	75.8	88.6	135.2	216.4
Rwanda	60.2	67.5	75.5	82.5	95.5	102.2	103.1	103.8	106.3	110.7	111.5	108.4	100.0	77.6	77.2	70.6		
Senegal	77.7	102.2	94.1	79.9	79.7	78.2	77.4	85.5	104.8	105.0	98.0	92.6	100.0	92.8	95.1	88.6	58.0	64.2
Sierra Leone	122.6	92.2	99.6	114.3	139.6	176.9	200.6	187.8	171.4	119.4	145.6	128.3	100.0	104.2	91.9	98.8	115.0	106.7
Somalia																		
Sudan	36.1	40.3	42.8	51.2	37.7	36.2	49.5	40.8	41.7	40.5	39.3	66.0	100.0	181.1	29.7	27.0		
Swaziland	125.3	102.7	122.0	134.4	123.2	136.3	121.1	96.0	94.2	108.1	102.8	97.1	100.0	101.6	102.5	105.3	107.2	111.1
Seychelles	57.1	69.0	79.9	91.7	90.1	94.3	95.8	95.6	99.2	101.8	101.5	99.1	100.0	100.6	103.1	103.9	105.2	102.7
Togo	95.1	105.2	115.7	111.0	104.9	100.8	86.1	82.6	99.3	103.9	98.6	92.0	100.0	94.8	98.6	91.6		
Tanzania	224.6	220.7	241.7	308.5	366.0	399.5	408.6	464.1	358.9	179.1	142.1	125.0	100.0	106.7	93.5	85.3	92.5	96.7
Tunisia						109.1	105.8	105.4	105.6	98.9	96.6	94.6	100.0	100.3	106.5	98.2		
Uganda			1040.4	995.6	271.2	221.5	139.2	188.9	200.4	272.9	247.4	165.1	100.0	74.2	69.1	69.5	91.0	91.4
Zaire	124.2	157.8	249.7	233.8	234.2	303.2	104.4	94.0	103.1	96.7	100.4	99.6	100.0	249.9	267.4	288.4		
South Africa	123.6	101.4	109.3	115.6	109.7	122.1	107.2	81.7	83.9	98.6	94.2	94.2	100.0	105.7	112.3	108.1	105.0	102.9
Zambia	122.8	103.6	112.3	118.0	129.0	116.7	99.4	90.1	45.5	48.6	76.8	112.6	100.0	88.3	100.1	102.8	89.2	97.9
Zimbabwe	165.7	143.7	133.8	144.9	149.9	141.0	140.1	117.2	116.2	118.9	110.9	107.6	100.0	86.1	79.3	80.0	75.3	80.2

Source: Computed based on IMF (1996b).

TABLE 6A
CORRELATION COEFFICIENTS OF SDR REAL EXCHANGE RATES AND IMF TRADE WEIGHTED REAL EXCHANGE RATES, 1979-95*

	CPI OF SDR FIVE	WPI OF SDR FOUR
Burundi	0.97	0.98
Central African Rep.	0.86	0.89
Côte d'Ivoire	0.86	0.98
Cameroon	0.95	0.86
Gabon	0.89	0.67
Gambia, The	0.96	0.91
Lesotho	0.55	0.70
Morocco	0.97	0.90
Malawi	0.95	0.84
Nigeria	0.98	0.98
Sierra Leone	0.98	0.97
South Africa	0.99	0.76
Togo	0.96	0.78
Uganda	0.98	0.98
Zaire	0.74	0.58
Zambia	0.54	0.91
Malaysia		0.94

'SDR Five' = US, Germany, Japan, France and UK. 'SDR Four' = US, Germany, Japan and UK.

TABLE 6B
CORRELATION COEFFICIENTS OF SDR REAL EXCHANGE RATES AND WORLD BANK TRADE WEIGHTED REAL EXCHANGE RATES, 1980-93

Algeria	0.98
Botswana	0.95
Burundi	0.98
Cameroon	0.92
Central African Rep	0.87
Chad	0.84
Congo	0.38
Côte d'Ivoire	0.70
Ethiopia	0.98
Gabon	0.70
Gambia, The	0.94
Ghana	0.84
Kenya	0.96
Lesotho	0.76
Madagascar	0.99

TABLE 6B (continued)

Malawi	0.93
Mali	0.93
Mauritania	0.95
Mauritius	0.94
Mozambique	0.98
Niger	0.95
Nigeria	1.00
Rwanda	0.96
Senegal	0.77
Seychelles	0.70
Sierra Leone	0.99
South Africa	0.99
Sudan	0.99
Swaziland	0.95
Tanzania	1.00
Togo	0.95
Tunisia	0.96
Uganda	0.98
Zaire	0.70
Zambia	0.98
Zimbabwe	0.98

Table 7 classifies countries according to the magnitude of the movements of the SDR real exchange rate. In the 1970s Ghana and Zaire were super appreciators of the real exchange rate. The major CFA countries, including Côte d'Ivoire, Cameroon, Niger, Senegal and Togo, experienced an annual appreciation of 2-5 per cent. The main cause of exchange rate appreciation in the 1970s was the 1973-75 and 1977-78 commodity booms. When commodity prices collapsed in the early 1980s, the profitability of exports was affected by both the low world market prices and the decreased purchasing power of the CFA franc caused by the high levels of inflation in the 1970s. The overvaluation of the CFA franc was not due to the policies of the 1980s, but to the commodity booms of the 1970s. The management of commodity booms is thus an important aspect of exchange rate policy.

Purchasing power parity has been used to determine the appropriate level of exchange rate adjustment. We can assume that African countries had real exchange rates closer to the equilibrium level in the early 1970s, before the 1973 oil crisis and subsequent commodity boom, because they did not have unsustainable balance of payments deficits. With a few exceptions, such as Ghana, African countries did not have any standby arrangements with the IMF.

TABLE 7
REAL EXCHANGE RATE MOVEMENTS BASED ON THE SDR REAL EXCHANGE RATE

		1970-80	REAL APPRECIATION				1970-80	REAL DEPRECIATION	
SUPER	LARGE	MODERATE	SMALL	INSIGNIFICANT	SUPER	LARGE	MODERATE	SMALL	INSIGNIFICANT
over 10% Ghana Zaire	5-10% Nigeria	2-5% Côte d'Ivoire Cameroon Ethiopia Gabon Niger Rwanda Senegal Sudan Seychelles Togo	1- 2% Gambia, The Lesotho	less than 1% Burundi Burkina Faso Botswana Congo Kenya Madagascar Mauritius Tanzania	over 10%	5-10%	2-5% Sierra Leone South Africa Zimbabwe	1- 2%	less than 1% Swaziland Zambia
		1980-85	REAL APPRECIATION				1980-85	REAL DEPRECIATION	
SUPER	LARGE	MODERATE	SMALL	INSIGNIFICANT	SUPER	LARGE	MODERATE	SMALL	INSIGNIFICANT
over 10% Nigeria Sierra Leone Tanzania	5-10% Ethiopia Rwanda	2-5% Burundi Chad Seychelles	1- 2%	less than 1%	over 10% Ghana Zaire Uganda	5-10% Burkina Faso Cote D'Ivoire Gabon Namibia Niger Togo	2-5% Botswana Congo Gambia, The Lesotho Madagascar Mauritius Swaziland South Africa Zambia Zimbabwe	1- 2% Cameroon Kenya Senegal Sudan	less than 1%
		1985-93	REAL APPRECIATION				1985-93	REAL DEPRECIATION	
SUPER	LARGE	MODERATE	SMALL	INSIGNIFICANT	SUPER	LARGE	MODERATE	SMALL	INSIGNIFICANT
over10%	5-10% Zambia	2-5% Botswana Côte d'Ivoire Congo Lesotho Namibia South Africa	1- 2% Cameroon Malawi	less than 1% Burkina Faso Mauritius Swaziland Seychelles Togo	over10% Mozambique Nigeria Tanzania Uganda	5-10% Burundi Ghana Guinea-Bissau Madagascar Rwanda Sierra Leone Zimbabwe	2-5% Ethiopia Kenya Niger Sudan	1- 2% Central African Rep Mali Mauritania	less than 1% Chad Senegal

Table 8 compares the average SDR real exchange rate index for two periods, 1970-72 and 1991-93. In 1991-93, Burundi, Burkina Faso, Ghana, the Gambia, Kenya, Madagascar, Mauritius, Niger, Nigeria, Sierra Leone, South Africa, Swaziland, Tanzania, Togo, Zambia, and Zimbabwe had an average real exchange rate which was depreciated relative to the average rate of 1970-72. Côte d'Ivoire, Cameroon, Congo, Ethiopia, Gabon, Rwanda, Senegal, and Sudan had an average real exchange rate in 1990-93 that had appreciated compared to the rate 1970-72. It is interesting to note that, among the CFA zone countries, Côte d'Ivoire, Cameroon, Gabon and Senegal showed an appreciated rate, while Burkina Faso, Niger and Togo recorded a depreciation. The 50 per cent devaluation of the CFA franc seems to have been aimed at correcting the cumulative overvaluation in Côte d'Ivoire and Cameroon.

The use of the 1970-72 purchasing power parity exchange rate as the equilibrium exchange rate ignores changes in the fundamental determinants of the equilibrium real exchange rate, such as the terms of trade, external indebtedness, world interest rates and changes in productivity differentials with trading partners. The terms of trade of almost all African countries deteriorated by an average 2-3 per cent per year during 1970-92. Some countries experienced improvement in the terms of trade in the 1970s, but almost all countries suffered large declines in the terms of trade in the 1980s (Table 9). African countries also showed large increases in external indebtedness. In 1970-72, only Mali and Madagascar had an average total external debt-export ratio that exceeded 200 per cent, which is currently considered the threshold of an unsustainable debt burden. By 1990-93, almost all African countries, with the exception of Botswana, Cape Verde, Djibouti, Gabon, Lesotho, South Africa, Seychelles, Swaziland, and surprisingly Zaire, registered external debt-export ratios greater than 200 per cent. Both the deterioration of the terms of trade and the climb in external indebtedness mean that the average real exchange rate of 1970-72 is no longer the equilibrium real exchange rate. Moreover, overall total factor productivity dropped relatively more in African countries than it did in other countries, and this would tend to depreciate the equilibrium real exchange rate.

TABLE 8
REAL EXCHANGE RATE MOVEMENT, 1970-72 AND 1991-93

	1970-72	1991-93	Depreciation(-)
Algeria	115.8	65.0	-43.9
Botswana		105.1	
Burkina Faso	107.0	95.3	-11.0
Burundi	111.5	90.9	-18.4
Cameroon	60.2	93.1	54.8
Central African Rep.		90.0	
Chad		93.8	
Congo	88.1	104.8	18.9
Côte d'Ivoire	69.3	98.8	42.5
Egypt	99.3	57.3	-42.3
Ethiopia	75.9	104.7	37.9
Gabon	68.1	91.6	34.4
Gambia, The	105.5	99.2	-6.0
Ghana	105.6	90.9	-13.9
Guinea-Bissau		85.9	
Kenya	121.7	97.2	-20.1
Lesotho		114.5	
Liberia			
Madagascar	164.1	93.9	-42.8
Malawi		101.7	
Mali		91.7	
Mauritania		95.6	
Mauritius	112.3	99.5	-11.4
Morocco	131.9	101.5	-23.0
Mozambique		73.9	
Namibia		107.5	
Niger	104.8	83.8	-20.0
Nigeria	156.4	84.8	-45.8
Rwanda	58.9	75.1	27.4
Senegal	79.0	92.2	16.6
Seychelles	64.1	102.5	59.9
Sierra Leone	118.0	98.3	-16.7
Somalia			
South Africa	120.2	108.7	-9.6
Sudan	35.7	79.3	122.2
Swaziland	117.9	103.1	-12.5
Tanzania	223.0	95.2	-57.3
Togo	98.9	95.0	-3.9
Tunisia		101.7	
Uganda		70.9	
Zaire	127.3	268.6	111.0
Zambia	122.0	97.0	-20.5
Zimbabwe	164.8	81.8	-50.4

Source: Computed based on Table 5.

TABLE 9
TRENDS IN THE TERMS OF TRADE, 1970-92 (IN PERCENTAGES)

	1970-92	1970-80	1980-92
Angola	-2.0	6.2	-8.2
Benin	-3.2	-0.8	-3.6
Botswana	-0.5	-6.4	4.7
Burkina Faso	-4.0	-5.4	-3.0
Burundi	-5.3	0.6	-10.3
Cameroon	-4.0	0.7	-7.8
Cape Verde	3.8	2.2	2.2
Central African Republic	-2.3	1.1	-5.6
Chad	-1.8	-3.6	-1.7
Comoros	-4.1	0.3	-6.6
Congo	-0.6	1.4	-6.4
Cote d'Ivoire	-2.1	2.6	-4.4
Djibouti	0.3	-0.2	-1.4
Equatorial Guinea	1.3	1.7	4.2
Ethiopia	-2.9	-0.1	-2.9
Gabon	2.6	11.7	-6.0
Gambia, The	-2.6	-4.1	0.0
Ghana	-3.5	3.2	-6.7
Guinea	-2.6	0.4	-4.6
Guinea-Bissau	2.5	-7.1	6.5
Kenya	-2.1	2.2	-4.9
Lesotho	-3.8	-3.1	-6.7
Liberia	-2.7	-5.2	-0.4
Madagascar	-0.9	0.1	0.1
Malawi	-3.8	-3.2	-4.0
Mali	-3.7	-6.0	-1.5
Mauritania	-2.7	-7.3	-0.1
Mauritius	-0.4	0.9	1.6
Namibia	-1.4	1.0	-0.7
Niger	-2.6	-4.0	-1.0
Nigeria	2.9	16.2	-8.8
Rwanda	-3.2	-1.1	-4.4
Sao Tome and Principe	-2.3	4.3	-2.5
Senegal	-0.7	-0.9	0.2
Seychelles	0.8	5.5	-4.4
Sierra Leone	-1.9	-1.0	-2.1
Somalia	-2.9	-5.9	-2.1
South Africa	-2.8	-3.4	-1.9
Sudan	-2.9	-4.6	-2.1
Swaziland	-1.3	-2.2	1.7
Tanzania	-2.0	1.2	-2.8
Togo	-2.1	0.6	-3.2
Uganda	-4.7	4.4	-10.3
Zaire	-4.0	-6.1	-2.3
Zambia	-4.1	-11.0	1.9
Zimbabwe	-2.7	-5.2	-0.3

Source: Computed based on World Bank (1996).

V THE IMPACT OF EXCHANGE RATE ADJUSTMENT ON ECONOMIC PERFORMANCE

The major real exchange rate depreciators during 1985-93 appeared to have benefited from a turnaround in economic growth. Table 10 indicates that Ghana, Nigeria, Mozambique, Tanzania, and Uganda showed the largest positive turnaround. The turnaround cannot be attributed mainly to exchange rate depreciation. In the 1970s a number of countries with large exchange rate appreciations, such as Côte d'Ivoire and Cameroon, were among the economies with the highest growth.

The casual association of turnaround in growth and real exchange rate depreciation can be misleading. First, the real exchange rate is not strictly a policy determined variable. A commodity boom in terms of both an increase in volume and an improvement in the terms of trade caused an appreciation of the real exchange rate in the 1970s. The appreciation of the real exchange rate was associated with high growth in output. Second, the above analysis does not take into account other factors which affect growth, such as the terms of trade, official capital inflows, the ending of civil wars or the establishment of political stability. The restoration of political stability in Uganda after Museveni's NRM had won the civil war and the adoption of the peace accord in Mozambique between FRELIMO and RENAMO contributed to the initiation of growth in these countries. In Uganda, output has not yet recovered to the level of 1971-72, when Field Marshall Idi Amin Dadah took power from a civilian government.

The extensive empirical literature on growth convergence tends to indicate that real exchange rate misalignment accounts for the poor performance of African economies. Elbadawi and Ndulu (1994) show that terms of trade shocks and real exchange rate misalignment are the main contributors to the poor performance of African economies. Easterly and Levine (1996) argue that one of the three explanatory variables which account for the largest growth differential between Africa and East Asia is the foreign exchange black market premium. The other two are poor infrastructure and low institutional quality. The correct testing of the impact of the real exchange rate on growth requires an understanding of the channels through which growth is affected by the exchange rate. Does the depreciation of the real exchange rate improve the effectiveness of resource allocation in areas such as the promotion of export production and efficient import substitution? Does the level of the appropriate real exchange rate have a positive impact on private saving and investment?

This paper focuses on the analysis of the impact of the real exchange rate on the current account balance. It is argued in part II that a depreciation of the real exchange rate will increase exports and discourage imports. A depreciation of the real exchange rate will therefore improve the current account balance.

TABLE 10
GDP GROWTH RATE, 1970-93

	1970-93	1970-80	1980-93	1980-85	1985-93	Change (1985-93)-(1980-85)
Angola	na	na	na	na	0.5	na
Benin	3.1	2.2	2.7	3.7	2.1	-1.7
Botswana	11.3	14.5	9.5	10.6	8.8	-1.8
Burkina Faso	4.0	4.5	3.5	4.0	2.9	-1.2
Burundi	4.1	4.5	4.1	4.1	3.5	-0.6
Cameroon	5.1	7.2	0.3	6.8	-4.2	-11.0
Cape Verde	6.5	2.8	5.2	7.0	4.2	-2.8
Central African Republic	1.1	2.2	1.1	2.2	0.0	-2.2
Chad	2.0	-0.9	5.4	9.0	3.4	-5.5
Comoros	na	na	2.2	4.6	1.2	-3.4
Congo	5.9	5.8	2.7	11.0	0.9	-10.1
Côte d'Ivoire	1.8	6.9	-0.3	-0.3	-1.0	-0.7
Djibouti	na	na	0.0	3.7	-0.7	-4.3
Equatorial Guinea	na	na	na	na	na	na
Ethiopia	1.9	2.4	1.3	0.5	1.3	0.8
Gabon	2.5	9.0	1.2	2.2	2.2	0.0
Gambia, The	3.9	5.6	3.3	4.2	3.3	-0.9
Ghana	1.4	-0.1	3.5	-0.5	4.6	5.1
Guinea	na	na	na	na	na	na
Guinea-Bissau	2.6	2.4	3.8	4.6	3.8	-0.8
Kenya	4.8	6.7	3.8	2.4	3.7	1.4
Lesotho	5.5	9.5	4.7	1.2	6.4	5.2
Liberia	na	2.3	na	-1.6	na	na
Madagascar	0.4	0.6	0.9	-1.1	1.2	2.3
Malawi	3.5	6.0	2.8	2.6	2.8	0.1
Mali	3.3	4.9	3.0	0.2	3.4	3.2
Mauritania	1.7	1.2	1.8	0.4	2.2	1.8
Mauritius	5.3	6.6	6.2	4.3	6.4	2.2
Mozambique	na	na	1.5	-6.6	5.8	12.5
Namibia	na	na	2.3	-1.1	4.1	5.1
Niger	0.5	0.6	-0.6	-4.1	0.8	4.9
Nigeria	2.0	4.4	2.6	-3.0	5.0	8.0
Rwanda	3.7	4.7	1.3	2.5	0.7	-1.8
Sao Tome and Principe	2.1	5.7	0.3	-2.4	1.2	3.6
Senegal	2.5	2.3	2.8	3.1	2.4	-0.8
Seychelles	4.4	7.3	4.2	1.2	4.6	3.4
Sierra Leone	1.5	1.3	1.1	0.7	2.0	1.3
Somalia	na	4.8	na	1.3	na	na
South Africa	2.1	3.0	1.0	1.1	0.9	-0.2
Sudan*	2.4	5.3	na	1.5	na	na
Swaziland	5.1	4.3	6.2	3.7	5.6	1.9
Tanzania*	2.9	3.2	4.1	0.9	5.8	4.9
Togo	2.0	4.0	0.7	-0.5	-0.4	0.1
Uganda	na	na	na	na	5.1	na
Zaire*	0.3	-0.3	0.4	1.9	-1.9	-3.8
Zambia	0.9	1.4	0.8	-0.3	1.1	1.4
Zimbabwe	2.7	1.5	2.4	3.3	2.0	-1.4

Source: Computed based on World Bank (1995).
* Refers to 1970-92.

Table 11 shows the current account balance before official transfers as a percentage of GDP for three subperiods: 1970-79, 1980-85 and 1986-93. If we assume that sustainable foreign assistance should be at the maximum 5 per cent of GDP, only Angola, Botswana, Ethiopia, the Gambia, Mauritius, Namibia, South Africa and Zimbabwe seem to have had sustainable current account deficits during the 1986-93 period. Angola and Ethiopia were involved in civil wars and did not receive significant foreign assistance from western countries. Botswana earns huge rents from diamond exports and Nigeria has not been a recipient of foreign aid because of its large earnings from oil exports.. The improvement in the current account of Nigeria and the Gambia can partly be attributed to real exchange rate depreciation because they were among the major currency depreciators.

To test empirically for the impact of the real exchange rate on the current account balance, we have adopted a method first utilized by Khan and Knight (1983) that eclectically combines the elasticity and absorption approaches to the balance of payments so as to estimate the following regression.

$$CAX = a0 + a1\ LOG\ (RER) + a2\ LOG\ (TOT) + a3\ LOG\ (OECDG) + a4\ DEFICIT$$

where CAX = the current account deficit before official transfers as a percentage of exports of goods and services, RER = the trade weighted real exchange rate index, TOT = the terms of trade index, OECDG = the GNP of OECD countries, and DEFICIT = the fiscal deficit as a percentage of GDP.

The expected signs of the coefficients of the explanatory variables are negative for the real exchange rate (because the real exchange rate is measured in terms of units of foreign currency per unit of domestic currency) and the deficit as a percentage of GDP, and they are positive for the terms of trade and the GNP of OECD countries.

Table 12 shows OLS regression results for 30 Sub-Saharan countries for the period 1980-92. The real exchange rate has the right sign for 21 of the 30 countries, but it is statistically significant only for Cameroon, Côte d'Ivoire, Ghana and Mali. The terms of trade variable has the right sign for 22 countries and is statistically significant for 10 countries. The fiscal deficit has the right sign for 19 countries, of which 5 show a statistically significant coefficient. The GNP of OECD countries has a correct sign in 15 countries and is statistically significant in 9 countries. Cameroon and Côte d'Ivoire exhibit the best econometric results. With only 12 observations, the country regressions had only 7 degrees of freedom. To raise the degrees of freedom and remove the nonstationarity problem of an individual country's time series observations, we have pooled the country time series and estimated the above regression. The following results have been obtained.

TABLE 11
CURRENT ACCOUNT BALANCE BEFORE OFFICIAL TRANSFERS, AS A PERCENTAGE OF GDP (ANNUAL AVERAGE)

	1970-79	1980-85	1986-93
Angola*	na	na	na
Benin	-12.2	-12.2	-12.2
Botswana**	-21.7	-21.7	-21.7
Burkina Faso	-14.9	-14.9	-14.9
Burundi	-5.3	-5.3	-5.3
Cameroon	-4.3	-4.3	-4.3
Cape Verde***	-13.4	-13.4	-13.4
Central African Republic	-13.8	-13.8	-13.8
Chad	-14.0	-14.0	-14.0
Comoros	na	na	na
Congo	-24.8	-24.8	-24.8
Côte d'Ivoire	-8.4	-8.4	-8.4
Djibouti	na	na	na
Equatorial Guinea	na	na	na
Ethiopia	-1.2	-1.2	-1.2
Gabon	0.7	0.7	0.7
Gambia, The***	-8.7	-8.7	-8.7
Ghana	-1.8	-1.8	-1.8
Guinea	na	na	na
Guinea-Bissau	na	na	na
Kenya***	-7.6	-7.6	-7.6
Lesotho	-16.5	-16.5	-16.5
Liberia	-2.6	-2.6	-2.6
Madagascar	-5.7	-5.7	-5.7
Malawi	-14.5	-14.5	-14.5
Mali	-13.3	-13.3	-13.3
Mauritania	-23.8	-23.8	-23.8
Mauritius	-3.0	-3.0	-3.0
Mozambique	na	na	na
Namibia***	na	na	na
Niger	-9.3	-9.3	-9.3
Nigeria***	0.1	0.1	0.1
Rwanda***	-8.7	-8.7	-8.7
Sao Tome and Principe	6.2	6.2	6.2
Senegal	-10.7	-10.7	-10.7
Seychelles	-16.8	-16.8	-16.8
Sierra Leone	-10.4	-10.4	-10.4
Somalia	-16.6	-16.6	-16.6
South Africa	-2.3	-2.3	-2.3
Sudan***	-4.9	-4.9	-4.9
Swaziland	-3.5	-3.5	-3.5
Tanzania***	-8.2	-8.2	-8.2
Togo	-13.2	-13.2	-13.2
Uganda	na	na	na
Zaire****	-5.1	-5.1	-5.1
Zambia	-7.1	-7.1	-7.1
Zimbabwe	-2.1	-2.1	-2.1

Source: Calculated from data in World Bank (1996).
* 1986-90, ** 1986-91, *** 1986-92, **** 1986-89.

TABLE 12
DETERMINANTS OF THE CURRENT ACCOUNT DEFICIT

	Real exchange rate	Terms of trade	Fiscal deficit	OECD GNP	R^2	DW	F-stat
Botswana	-2.32	-0.62	0.01	1.01	0.68	2.89	5.17
	-(1.02)	-(1.00)	(0.82)	(0.37)			
Burundi	0.62	1.00	0.07	3.81	0.70	2.52	8.10
	(0.77)	(2.42)	(2.60)	(2.44)			
Cameroon	-1.38	1.01	0.03	3.40	0.88	2.16	23.11
	-(4.10)	(3.51)	(2.91)	(3.57)			
Central African Rep.	-2.41	0.16	-0.01	-2.36	0.56	1.82	4.85
	-(1.36)	(0.38)	-(0.63)	-(1.91)			
Chad	-0.48	-1.92	0.04	-0.71	0.09	2.00	1.23
	-(0.22)	-(0.75)	(1.12)	-(0.14)			
Congo	2.67	1.58	-0.01	3.58	0.38	1.73	2.83
	(0.74)	(2.99)	-(0.45)	(2.52)			
Cote d'Ivoire	-1.05	0.68	0.01	1.45	0.88	2.33	22.55
	-(5.80)	(2.62)	(0.99)	(2.55)			
Gabon	-0.27	0.50	0.03	1.13	0.80	1.71	13.27
	-(0.47)	(0.87)	(2.40)	(0.86)			
Gambia, The	0.34	-0.60	0.05	2.49	0.54	1.76	3.98
	(0.26)	-(0.58)	(1.68)	(1.10)			
Ghana	-1.29	-0.69	0.04	-10.54	0.60	2.49	5.45
	-(2.58)	-(0.58)	(0.58)	-(1.51)			
Kenya	0.42	-0.12	0.05	-0.47	0.55	2.10	3.75
	(0.69)	-(0.48)	(2.70)	-(0.34)			
Lesotho	-3.37	0.40	-0.59	-8.75	0.73	2.56	9.30
	-(0.42)	(0.34)	-(2.55)	-(2.22)			
Madagascar	0.21	0.47	-0.02	2.79	0.65	2.67	6.58
	(0.58)	(1.58)	-(1.83)	(2.02)			
Malawi	-2.05	-0.32	0.04	-1.74	0.17	2.60	1.60
	-(1.63)	-(0.30)	(1.93)	-(0.95)			
Mali	-2.03	2.07	0.00	-0.62	0.78	2.33	8.79
	-(4.63)	(5.09)	(0.08)	-(0.92)			
Mauritania	-1.70	0.10	-0.12	0.68	0.65	1.87	3.91
	-(0.64)	(0.17)	-(1.11)	(0.16)			

TABLE 12 (continued)

	Real exchange rate	Terms of trade	Fiscal deficit	OECD GNP	R^2	DW	F-stat
Mauritius	0.04	0.76	0.00	-0.28	0.38	1.92	2.32
	(0.04)	(1.15)	(0.14)	(0.24)			
Nigeria	0.15	0.12	0.03	3.56	0.84	2.45	15.25
	(1.24)	(0.70)	(1.76)	(2.51)			
Rwanda	0.80	0.96	0.04	-0.06	0.76	2.31	10.70
	(1.48)	(1.85)	(1.12)	-(0.07)			
Senegal	0.32	0.36	-0.01	1.21	0.60	2.97	5.47
	(0.74)	(0.58)	-(1.42)	(4.63)			
Seychelles	0.40	0.38	0.01	2.10	0.73	2.22	9.00
	(0.65)	(2.27)	(1.81)	(4.97)			
Sierra Leone	-0.14	4.72	0.04	3.54	0.31	2.22	2.37
	-(0.21)	(1.79)	(1.53)	(1.94)			
South Africa	-0.53	-0.92	0.01	-0.13	0.26	2.22	2.06
	-(1.26)	-(0.08)	(0.16)	-(0.25)			
Swaziland	-0.22	0.86	0.00	-0.14	0.75	2.29	7.64
	-(0.22)	(2.26)	-(0.30)	-(0.06)			
Tanzania	-0.09	-0.14	0.07	-5.88	0.78	3.04	11.60
	-(0.46)	-(0.24)	(2.21)	-(3.56)			
Togo	-0.34	0.96	-0.01	0.58	0.42	1.90	3.14
	-(0.67)	(1.97)	-(0.82)	(0.55)			
Uganda	-0.25	1.91	-0.10	-3.10	0.80	2.49	13.16
	-(1.00)	(2.72)	-(1.01)	-(1.09)			
Zaire	-0.12	0.82	0.01	-0.51	0.35	1.95	2.35
	-(1.12)	(2.66)	(1.72)	-(0.83)			
Zambia	-0.31	0.44	0.01	-1.79	-0.23	1.73	0.44
	-(0.89)	(0.92)	(0.43)	-(1.16)			
Zimbabwe	1.20	0.44	-0.03	4.14	0.56	1.76	4.80
	(3.59)	(0.87)	-(1.76)	(4.11)			

CAX = -6.12 - 0.164 LOG (RER) + 0.779 LOG
(-1.50) (-1.92) (5.80)
(TOT) + 0.284 LOG (OECDG) + 0.011 DEFICIT
(0.74) (2.91)

Adj R** = 0.728 DW = 2.08 F-stat = 218.1

To take into consideration country characteristics, we have introduced country dummies and obtained the following results:

CAX = -7.9 - 0.154 LOG (RER) + 0.779 LOG
(-2.49) (-2.23) (7.26)
(TOT) + 0.467 LOG (OECDG) + 0.0054 DEFICIT
(1.61) (1.73)

Adj R** = 0.847 DW = 2.02 F-stat = 61.4

All variables have the right sign in both regressions. The real exchange rate and the terms of trade are statistically significant in the second regression. The deficit as a percentage of GDP is statistically significant in the first equation, but not in the second. The above regressions can be considered as representing a typical Sub-Saharan country. The terms of trade have the largest influence on the current account deficit. A 1 per cent improvement in the terms of trade will improve the current account balance by 0.78 percentage points on average, while a depreciation of 1 per cent will improve the current account by 0.15 percentage points. Given the existing structure of exports, which are biased towards primary commodities facing weak demand and declining prices in the world market, attempts to improve the current account balance mainly through a depreciation in the real exchange rate are likely to be overwhelmed by deteriorating terms of trade.

Africa needs to establish new exports in order to improve the balance of payments position. Traditional exports and the first stage of processing continue to account for over three quarters of the merchandise exports of Africa. There is no evidence that countries which showed a large depreciation in the real exchange rate have been able to initiate a significant change in the structure of their exports. The structure of exports has been transformed in Mauritius, but that country did not have the largest depreciation in the real exchange rate between 1970-72 and 1990-93. Attainment of the appropriate real exchange rate level is a necessary but not sufficient condition for the transformation of the export structure.

The growth in OECD GNP does not seem to have had a significant impact on the current account balance in African countries. African economies suffered from a deterioration in the terms of trade, but were unable to take advantage of the opportunities provided by the OECD market. In order to achieve a better understanding of the impact of the real exchange rate on the current account balance, we will disaggregate the current account into exports and imports and estimate the real exchange rate elasticities of exports and imports.

5.1 The impact of exchange rate adjustments on exports

Table 13 shows the trend growth rate of the index of the quantity of exports. Among countries which were classified as super depreciators, Ghana exhibited the largest significant turnaround in export performance. Nigeria recorded a substantial growth rate in the volume of exports during 1985-93, while Mozambique and Tanzania reversed the negative trend and recorded a positive, though statistically insignificant, growth rate. Other countries, such as Cameroon, which had a small trend appreciation in the real exchange rate, or Mali, which had a small depreciation, recorded a substantial turnaround in the volume of exports. Cameroon benefited from an increase in petroleum production that started to be exploited in the early 1980s, but Mali was able to boost its exports of agricultural raw materials, particularly cotton, despite the widespread belief that the CFA franc was overvaluated.

To understand better the impact of the real exchange rate on exports, we have estimated a simple export function for the 1980-93 period, as follows.

$$\text{Log (exp)} = e0 + e1 \log (\text{rer}) + e2 \log (\text{OECDGNP})$$

where exp = exports of goods and services in constant 1987 dollars, rer = the trade weighted real exchange rate, and OECDGNP = the GNP of OECD countries.

Table 14 offers a summary of real exchange rate and foreign income elasticities. The real exchange rate is statistically significant and has the right sign for Burundi, Cape Verde, Nigeria and Zimbabwe. African exports seem to be positively related to the growth of the GNP in OECD countries, with most African countries having positive and statistically significant foreign income elasticities. There are a few cases, such as Central African Republic, Mozambique, Niger and Zambia, in which the elasticities are negative. Some of the foreign income elasticities of demand, particularly those for Ghana, Nigeria and Cameroon, are very high and are at the levels expected for countries with East Asian type economies that have a high growth rate of GDP and exports. The large elasticities are partly a reflection of the apparent recovery of exports during 1985-93. Given the nonstationarity of the time series data used in estimating the above export functions, the elasticities cannot be interpreted as the stable responses of exports to changes in real exchange rates and foreign incomes. The pooled time series data increased the sample size and resolved the nonstationarity problem, but produced results which showed small but insignificant real exchange rate elasticity and an almost significant but negative foreign income elasticity.

$$\text{Log (exp)} = 50.3 + 0.239 \text{ Log (rer)} - 1.907 \text{ Log (OECDGNP)}$$
$$\qquad\qquad (2.94)\ \ (0.82) \qquad\qquad (-1.88)$$

$$\text{Adj } R^{**} = 0.30 \qquad DW = 2.31 \qquad \text{F-stat} = 66.6$$

These results should not be interpreted to mean that the real exchange rate and the growth of the GNP of OECD countries are not important for the growth of African exports. A good econometrician can mine the data and add a few dummy variables and get decent elasticities. Rather, the above results can be interpreted as indicating that poor

TABLE 13
TREND GROWTH RATE IN THE VOLUME OF EXPORTS

	1970-93	1970-80	1980-85	1985-93
Angola	-1.4 *	-21.7	3.1	20.3
Benin	2.5 *	-5.0	40.4	-18.4
Botswana	na	na	na	na
Burkina Faso	3.6	4.8	-0.7 *	0.7 *
Burundi	na	na	na	na
Cameroon	5.4	1.7 *	-5.7	21.1
Cape Verde	na	na	na	na
Central African Republic	0.2 *	-0.6 *	-0.9 *	1.1 *
Chad	1.0 *	-2.1 *	11.4 *	6.4 *
Comoros	na	na	na	na
Congo	4.3	-0.3 *	11.2	4.1
Côte d'Ivoire	2.4	2.8	6.4	-2.0
Djibouti	na	na	na	na
Equatorial Guinea	na	na	na	na
Ethiopia	0.4 *	-0.6 *	1.3 *	-5.9 *
Gabon	-0.6 *	0.9 *	1.6 *	4.4
Gambia, The	2.4 *	1.8 *	14.0 *	9.6 *
Ghana	0.1 *	-10.6	-4.5 *	10.7
Guinea	na	na	na	na
Guinea-Bissau	na	na	na	na
Kenya	-2.4	-0.6 *	-1.8 *	3.9
Lesotho	na	na	na	na
Liberia	na	na	na	na
Madagascar	-3.1	-3.2	-4.7	2.5 *
Malawi	na	na	na	na
Mali	3.4	5.3	-5.6	6.1
Mauritania	6.6	-1.2 *	24.3	-3.8
Mauritius	6.3	4.0	6.0	3.8
Mozambique	-11.9	-23.8	-14.4	1.1 *
Namibia	na	na	na	na
Niger	1.7	8.1	-9.7	-2.4
Nigeria	-2.2	0.9 *	-6.4	3.6
Rwanda	3.1	4.4 *	13.0 *	-6.4 *
Sao Tome and Principe	na	na	na	na
Senegal	1.5	-1.5 *	8.6	2.7 *
Seychelles	na	na	na	na
Sierra Leone	-3.6	-7.5	-4.9 *	-0.2 *
Somalia	na	na	na	na
South Africa	na	na	na	na
Sudan	-4.2	-10.0	1.1 *	-2.1 *
Swaziland	na	na	na	na
Tanzania	-4.8	-10.9	-4.7 *	2.4 *
Togo	3.2	0.3 *	-2.4 *	7.0
Uganda	-7.7	-22.8	5.5 *	-3.8
Zaire	-2.5	-1.9	0.2 *	-5.9
Zambia	-1.8	-0.5 *	-8.9	-3.2
Zimbabwe	na	na	na	na

Source: Computed based on data in UNCTAD (1994).
* Not statistically significant.

TABLE 14
REAL EXCHANGE RATE AND FOREIGN INCOME ELASTICITIES

	Constant	Real exchange rate	OECD GNP	R^2	DW	F-stat
Burundi	-27.6	0.8	2.6	58.2	2.07	10.04
	(-2.57)	(3.15)	(4.30)			
Cameroon	-24.5	-0.06	2.83	85.8	1.01	40.4
	(-4.5)	(-0.13)	(7.00)			
Cape Verde	-8.2	4.67	0.23	64.8	1.79	12.1
	(-1.23)	(4.20)	(0.54)			
Central African Republic	42.1	-0.11	-1.37	73.2	1.97	18.8
	(6.55)	(-0.18)	(-5.15)			
Congo	5.87	-1.63	1.37	88.1	1.46	30.6
	(0.96)	(-1.88)	(4.52)			
Cote d'Ivoire	19.3	-0.7	0.36	36.5	2.25	3.3
	(3.90)	(-2.40)	(0.99)			
Egypt, Arab Republic of	1.57	-0.12	1.32	94.2	1.32	106.9
	(0.59)	(-1.59)	(9.00)			
Gabon	-10.2	-0.17	1.97	73.7	1.38	12.2
	(-0.59)	(-0.38)	(1.95)			
Ghana	-85.1	0.31	6.42	77.3	2.22	14.6
	(-2.18)	(1.05)	(2.76)			
Kenya	19.9	-1.29	0.44	85.6	1.39	24.8
	(0.87)	(-2.38)	(0.34)			
Lesotho	-26.4	-1.17	3.04	77.6	2.23	14.8
	(-1.07)	(-0.71)	(2.08)			
Madagascar	-11	0.16	1.85	68.8	2.44	9.8
	(-0.75)	(0.74)	(2.15)			
Malawi	0.98	-0.11	1.16	56.5	1.64	6.19
	(0.12)	(-0.18)	(2.94)			
Mali	3.67	0.17	0.92	92.4	1.47	49.7
	(0.23)	(0.64)	(0.89)			
Mauritania	-9.1	0.76	1.56	37.8	1.47	4.96
	(-0.92)	(2.23)	(3.00)			
Mauritius	-11.28	-1.29	2.32	97.9	1.78	191.5
	(-1.13)	(-2.50)	(4.83)			
Mozambique	32.5	-0.33	-0.72	69.8	1.68	10.24
	(0.74)	(-1.70)	(-0.27)			
Niger	55.1	-0.33	-2.06	69.7	1.34	16
	(2.48)	(-0.61)	(-1.69)			
Nigeria	-28.4	0.14	3.1	95.1	1.62	72
	(-3.78)	(3.98)	(6.85)			
Rwanda	5.8	0.27	0.73	40.5	1.93	5.42
	(1.46)	(1.86)	(3.25)			
Senegal	8.8	-0.01	0.74	39.4	1.43	5.23
	(1.98)	(-0.02)	(3.14)			
Sierra Leone	62	-0.58	-2.5	64.8	1.49	12.96
		(-3.30)	(-5.09)			
Uganda	11.9	-0.14	0.5	55.2	2.28	7.2
	(1.98)	(-1.77)	(1.39)			
Zaire	34	-0.76	-0.6	80.9	1.8	22.2
	(1.74)	(-3.29)	(-0.53)			
Zambia	29.8	0.06	-0.57	54	2.63	8.64
	(9.69)	(0.82)	(-3.20)			
Zimbabwe	-21.9	0.49	2.51	76.9	1.67	22.7
	(-2.01)	(2.08)	(4.12)			

export performance is not simply a problem of appropriate exchange rate policy. Structural constraints and institutional deficiencies have to be removed in conjunction with an exchange rate policy which provides adequate incentives for the production of exports and efficient import substitution.

5.2 Exchange rate adjustment and inflation

In the 1970s, when most African countries adopted a fixed peg exchange rate, the average inflation rate was similar to that in OECD countries with high rates of inflation. Many countries, including almost all those in the CFA franc zone, had lower average inflation rates than that of the UK and only slightly higher ones than that of France. The average inflation rates were higher and the standard deviation larger in Korea and Indonesia than they were in 25 out of 29 SSA countries for which consumer price index data are available (Table 15). The only countries with inflation rates over 30 per cent were Ghana and Zaire. Uganda should probably also be in this club, but no reliable inflation data are available for the Idi Amin period.

In the early 1980s, inflation accelerated in Ghana, Madagascar, Sierra Leone, Somalia, Sudan, Tanzania, Uganda, and Zambia. Only Uganda had officially sanctioned a dual system, with a floating exchange rate in the second window and a legally tolerated parallel market (the 'Chibanda rate'). The other countries had a pegged exchange rate regime. The acceleration of inflation was largely caused by fiscal deficits financed by borrowing from the banking system.

The impact of the exchange rate regime on inflation is clearly captured during the 1986-93 period, when an increasing number of countries devalued their currencies or adopted a floating regime, while the CFA zone countries maintained a fixed peg. Table 16 shows the classification of SSA countries according to inflation performance. The CFA zone countries had the lowest average inflation rates of less than 5 per cent per year. South Africa and the Southern Africa Customs Union/Rand Monetary Area countries had moderate inflation rates of around 10-15 per cent. South Africa was exporting its inflation to the smaller economies. The countries which exhibited large devaluations or adopted a floating exchange rate regime tended to experience high though not necessarily accelerating rates of inflation.

The impact of changes in the exchange rate on inflation has been estimated by running the following regression for all SSA countries for which the relevant data are available.

$$\text{Log (CPI)} = b0 + b1 \text{ Log (GDP)} + b2 \text{ Log (OER)} + b3 \text{ Log (MON)} + b4 \text{ Log (IMP)}$$

where CPI = the consumer price index, GDP = GDP in 1987 prices, OER = the annual average official exchange rate in the local currency per US dollar, MON = the money supply broadly defined to include savings and time deposits, and IMP = import price index.

TABLE 15
INFLATION RATES IN SSA, EAST ASIA AND SDR COUNTRIES

	Inflation rate (%)				Standard deviation		
	1971-93	1971-80	1981-85	1986-93	1971-93	1971-80	1980-93
Botswana	11.5	7.1	10.9	11.7	2.4	2.1	2.7
Burkina Faso	5.6	9.1	7.9	-0.2	8.4	9.9	5.2
Burundi	9.6	12.2	8.9	6.9	7.9	10.1	3.8
Cameroon	9.6	10.7	12.6	4.4	5.3	3.6	6.2
Cape Verde	8.5	na	na	8.6	5.8		5.8
Central African Republic	2.2	na	na	-1.8	7.0		7.0
Chad	2.0	na	na	-1.1	10.6		10.6
Congo	7.1	8.7	11.3	2.4	5.4	4.7	5.8
Côte d'Ivoire	7.8	12.2	5.6	3.6	7.0	7.7	4.0
Djibouti	5.3	na	1.6	na	6.7	7.3	6.7
Equatorial Guinea				-4.0	8.6		8.6
Ethiopia	8.5	9.9	7.8	7.2	10.2	8.8	10.5
Gabon		11.9	0.7	3.3	11.2	7.7	12.4
Gambia, The	13.5	10.5	13.6	17.1	11.1	6.1	13.2
Ghana	41.7	43.5	62.3	26.4	34.6	37.9	35.2
Guinea-Bissau					16.6		16.6
Kenya	14.6	12.1	13.4	18.4	9.0	5.4	10.5
Lesotho			13.3	14.5	2.4	1.9	2.6
Liberia		10.1	3.3		6.0	6.2	4.6
Madagascar	13.3	9.4	20.4	13.8	8.1	10.3	7.9
Malawi			13.1	16.6	7.4	1.4	7.4
Mali					3.1		3.1
Mauritania				7.7	3.4		3.4
Mauritius	11.1	15.0	9.1	7.5	9.1	11.0	10.0
Mozambique					6.1		6.1
Namibia			12.7	13.0	2.5	0.5	2.5
Niger	5.4	11.3	7.9	-3.6	9.3	7.1	8.6
Nigeria	21.6	15.3	19.7	30.5	16.8	8.8	19.6
Rwanda	9.4	13.1	6.5	6.6	8.5	9.6	5.5
Senegal	7.0	10.4	11.9	-0.2	8.2	8.3	6.8
Seychelles	8.8	16.5	4.1	2.1	7.7	6.3	4.0
Sierra Leone	45.0	11.5	52.4	82.2	44.5	8.4	45.0
Somalia		15.8	46.6	18.2	26.1	17.8	23.8
South Africa	12.7	10.6	14.0	14.4	3.1	3.0	2.2
Sudan	40.0	17.5	32.1	73.0	34.3	9.5	36.2
Swaziland	12.6	11.9	15.2	11.9	5.3	6.7	4.0
Tanzania	21.5	13.7	30.2	25.9	9.7	9.6	4.8
Togo	6.2	10.3	7.0	0.6	7.4	6.5	6.8
Uganda			76.5	92.3	69.4	42.0	69.4
Zaire	406.2	44.1	44.9	1084.5	998.2	28.4	1239.4
Zambia	47.4	11.2	20.7	109.4	57.8	4.9	64.3
Zimbabwe	13.4	7.6	15.1	19.7	9.3	4.7	9.7
Indonesia	12.5	17.5	9.7	8.0	8.7	11.3	3.3
Malaysia	4.6	6.0	4.7	2.7	3.8	4.7	2.6
Thailand	6.8	10.0	5.0	4.1	6.0	7.5	5.0
Singapore	4.3	6.7	3.3	1.8	5.8	8.0	2.7
Korea	10.8	16.5	7.3	5.9	8.0	7.7	7.7
United States	5.9	7.9	5.5	3.8	3.1	3.3	3.1
Germany	3.9	5.1	3.9	2.5	2.0	1.4	2.0
Japan	5.1	9.1	2.8	1.6	5.2	5.7	2.0
United Kingdom	9.3	13.8	7.2	5.1	5.7	5.4	4.2
France	7.3	9.7	9.7	2.9	4.0	2.8	4.3

TABLE 16
CLASSIFICATION OF SUB-SAHARAN AFRICAN COUNTRIES ACCORDING TO INFLATION PERFORMANCE

1971-80

Very low <5	Low >5<10	Moderate >10<15	High >15<30	Very high	Hyper-inflation
-	Botswana Burkina Faso Congo Ethiopia Madagascar Zimbabwe	Burundi Cameroon Côte d'Ivoire Gabon Gambia, The Kenya Mauritius Niger Nigeria Rwanda Senegal Sierra Leone Swaziland Tanzania Togo Zambia	Seychelles Sudan Somalia	Ghana Zaire	-

1986-93

Very low <5%	Low >5<10	Moderate >10<15	High >15<30	Very high >30<150	Hyper-inflation >1000
Burkina Faso Cameroon Central African Republic Chad Congo Côte d'Ivoire Equatorial Guinea Gabon Mali Niger Senegal Seychelles Togo	Burundi Cape Verde Ethiopia Mauritania Mauritius Rwanda	Botswana Lesotho Madagascar Namibia South Africa Swaziland	Gambia, The Ghana Kenya Malawi Nigeria Tanzania Zimbabwe	Sierra Leone Sudan Uganda Zambia	Zaire

The theoretical rationale behind the choice of the above equation is the concept that the growth of output, particularly food production, will have a dampening effect on prices, while the depreciation of the nominal exchange rate, the growth of the money supply and a rise in import prices will cause an increase in the domestic price level. The growth of GDP as a result of a boost in the utilization of existing capacity may actually cause a surge in the price level rather than a decline, and hence the sign of the GDP coefficient may be positive or negative. Given the large weight of food expenditures in the

consumer price index of most SSA countries, the growth of food output would be better than the overall GDP as an explanatory variable.

Table 17 presents the OLS results for 33 SSA countries for which data are available. In almost all countries, the four explanatory variables explain virtually all the variation in the consumer price index. The exchange rate coefficients have the right sign for all countries except Botswana and Lesotho. The estimated coefficients for these two countries are, however, not statistically significant. In 20 countries, the exchange rate elasticity of the consumer price index is statistically significant. Most of the estimates range from 0.3 to 0.6, implying that a one percentage point rise in the price of a dollar will lead to an increase in the price level by 0.3-0.6 percentage points. Ethiopia has the largest elasticity (2.5), followed by Ghana, with an elasticity of 1.03. For Ethiopia, it seems that the price level is highly sensitive to exchange rate depreciation.

The money supply and the import price index coefficients also have the right sign for all countries except for five countries for the former and six countries for the latter. None of the coefficients with the wrong signs were statistically significant, except in the case of Sierra Leone, which had a significant negative coefficient for the import price index. Most of the money supply elasticity of the consumer price index tended to range around 0.3-0.6, which is similar to that of the exchange rate. Côte d'Ivoire and Tanzania seem to have an elasticity of around 1, implying that a one percentage point growth in the money supply will raise the price level by one percentage point. The exchange rate elasticities are larger than are the money supply elasticities in 14 countries, and they are smaller in 12 countries. Among the CFA zone countries, the money supply elasticities tend to be larger, except in the cases of Chad and Togo.

In order to achieve a more reliable average estimate from a larger sample and avoid the nonstationarity problem characterizing time series observations of individual countries, we have pooled all the available observations from 36 SSA countries for the period 1970-92 and estimated the regression for the consumer price index using the four explanatory variables and a dummy for the CFA zone countries. The following results have been obtained.

Log (CPI) = -8.68 + 0.173 log (GDP) +
(-9.79) (3.84)
0.365 Log (OER) + 0.066 Log (MON) +
(16.74) (3.31)
1.354 Log (IMP) - 0.466 CFA dummy
(22.54) (-3.89)

R** 0.936 DW = 1.89 F-stat = 1692.3

The above results indicate that, on average for an SSA country, the growth rate of GDP, the exchange rate depreciation, the growth of money supply, and the rise in import prices are associated with an increase in the price level. The import price elasticity of the consumer price index is greater than 1, implying that a one percentage point climb in import prices will lead to a 1.35 percentage climb in the price level. The exchange rate

TABLE 17
DETERMINANTS OF INFLATION: REGRESSION RESULTS

	CONSTANT	LOG GDP	LOG OER	LOG MS	LOG IMPPR	R^2	D.W.	F-stat
Botswana	45.51	-0.31	-0.099	-0.046	-0.075	0.998	1.69	1603.0
	(0.75)	-(2.15)	-(1.56)	-(0.79)	-(0.91)			
Burkina Faso	-10.26	0.109	0.271	0.409	0.134	0.969	2.19	132.8
	-(1.62)	(0.24)	(1.70)	(2.20)	(0.75)			
Burundi	-6.43	-0.365	0.473	0.645	0.181	0.980	1.38	249.3
	-(1.25)	(1.12)	(2.33)	(6.73)	(1.44)			
Cameroon	-0.92	0.459	0.177	-0.154	0.047	0.994	1.49	738.4
	-(0.21)	(2.33)	(1.37)	-(1.05)	(0.30)			
Cape Verde	35.53	-1.39	0.052	-0.074	0.001	0.988	1.78	139.5
	(3.78)	-(3.05)	(0.43)	-(0.80)	(0.00)			
Central African Republic	-25.46	0.569	0.184	0.73	-0.188	0.754	2.11	9.5
	-(3.36)	(1.03)	(1.07)	(2.47)	-(0.71)			
Chad	-11.08	0.437	0.525	0.101	0.235	0.650	3.18	5.1
	-(3.17)	(2.60)	(2.79)	(0.98)	(0.97)			
Congo	4.92	0.096	0.184	-0.064	-0.095	0.993	2.13	619.9
	(1.52)	(0.52)	(1.94)	-(0.59)	-(0.56)			
Côte d'Ivoire	25.78	-2.3	0.009	1.06	0.625	0.953	1.13	113.6
	(2.39)	-(3.33)	(0.04)	(3.52)	(2.64)			
Ethiopia	4.61	-0.717	2.504	0.514	0.612	0.970	1.69	181.3
	(0.51)	-(1.55)	(3.54)	(6.30)	(4.10)			
Gabon	2.26	-0.656	0.319	0.434	0.791	0.980	1.95	263.6
	(0.74)	(2.53)	(1.89)	(2.26)	(3.46)			
Gambia, The	1.24	-0.456	0.781	0.396	0.585	0.986	1.12	394.9
	(0.15)	-(0.85)	(4.94)	(2.58)	(2.44)			
Ghana	23.47	-1.347	1.034	0.109	0.557	0.997	1.66	1547.7
	(2.11)	-(2.52)	(3.97)	(0.43)	(2.40)			
Kenya	9.2	-0.247	0.332	0.159	0.114	0.996	2.21	1109.5
	(0.83)	-(0.86)	(1.93)	(1.67)	(1.08)			
Lesotho	-1.25	-0.494	-0.038	0.72	0.359	0.989	1.62	271.2
	-(0.17)	-(1.27)	-(0.19)	(3.49)	(1.99)			
Madagascar	15.93	-1.239	0.625	0.317	0.503	0.988	1.82	477.2
	(1.36)	-(2.24)	(4.89)	(1.95)	(3.23)			
Malawi	-12.8	0.372	0.612	0.321	0.531	0.993	1.56	339.1
	-(1.88)	(1.09)	(3.41)	(2.31)	(1.40)			
Mauritania	7.22	-0.336	0.327	0.208	-0.306	0.847	2.60	7.7
	(0.14)	-(0.12)	(0.31)	(0.42)	-(0.40)			
Mauritius	85.63	-0.618	0.457	0.047	0.386	0.996	1.32	1060.8
	(0.08)	-(2.59)	(3.41)	(0.50)	(3.54)			
Niger	-10.89	-0.074	0.346	0.615	-0.062	0.984	1.58	350.8
	-(3.96)	-(0.50)	(4.19)	(7.19)	-(0.50)			
Nigeria	24.72	-1.587	0.401	0.664	0.275	0.985	1.55	343.4
	(2.45)	-(3.67)	(8.29)	(6.11)	(0.85)			
Rwanda	-2.13	0.177	0.371	0.036	0.268	0.989	1.71	397.4
	-(0.24)	(0.48)	(2.72)	(0.26)	(1.88)			
Senegal	-32.95	0.998	0.273	0.519	0.038	0.981	1.73	288.6
	-(9.92)	(3.90)	(2.26)	(2.83)	(0.20)			
Seychelles	4.84	-0.089	0.074	0.042	0.166	0.997	1.93	1472.3
	(2.92)	-(1.12)	(0.90)	(0.89)	(2.99)			
Sierra Leone	-34.24	0.957	0.288	0.837	-0.28	0.998	1.80	
	-(3.27)	(1.74)	(5.52)	(13.87)	-(2.63)			
Somalia	14.4	-1.15	0.812	0.441	-0.019	0.986	1.43	317.9
	(1.68)	-(2.62)	(5.28)	(2.65)	-(0.09)			
South Africa	-9.16	0.037	0.38	0.452	0.268	0.992	0.75	625.2
	-(0.51)	(0.04)	(3.53)	(3.86)	(2.20)			
Sudan	-4.96	-0.156	0.618	0.421	0.318	0.998	2.14	3980.2
	-(1.41)	-(0.87)	(10.01)	(6.32)	(3.38)			
Swaziland	-8.28	0.337	0.922	0.053	0.886	0.990	1.74	480.4
	-(2.01)	(1.23)	(5.50)	(0.32)	(5.19)			
Tanzania	44.5	-3.076	0.423	0.9997	0.158	0.983	0.86	271.8
	(1.56)	-(2.29)	(2.21)	(5.59)	(0.44)			
Togo	-20.21	0.771	0.538	0.128	0.494	0.973	1.74	197.9
	-(3.28)	(2.54)	(4.05)	(1.24)	(2.41)			
Zaire	78.6	-3.79	0.809	0.0804	1.263	0.998	1.79	3772.1
	(5.13)	-(5.52)	(16.29)	(1.64)	(6.26)			
Zambia	-6.61	0.084	0.109	0.217	0.15	0.996	1.35	936.9
	-(0.51)	(0.14)	(1.12)	(1.22)	(0.98)			
Zimbabwe	-7.91	0.505	0.853	-0.173	0.862	0.996	2.11	1026.7
	-(2.32)	(2.45)	(9.56)	-(1.21)	(5.27)			

elasticity is 0.365, more than five times as large as the money supply elasticity. The dummy for the CFA zone countries shows that belonging to the zone reduces inflation by at least 46 percentage points relative to other SSA countries. If the pooled regression is interpreted as representing a typical SSA country, the inflation process is driven by imported inflation and exchange rate depreciation. If import prices are stable, a fixed exchange rate, such as that maintained by the CFA zone countries before the 1994 devaluation, will support stable prices.

Devaluation will lead to a higher price level. The experience of the CFA zone countries after the 1994 devaluation clearly indicates that devaluation is inflationary at least in the short run (Table 18). The 100 per cent increase in the price of foreign exchange led to an inflation rate of 25-40 per cent in 1994, compared to an inflation rate of less than 5 per cent per year during 1980-93. The inflation rate in 1995 declined, but it was still higher than it had been before devaluation.

TABLE 18
INFLATION RATES IN THE CFA ZONE AFTER THE 1994 DEVALUATION

	1994	1995
Burkina Faso	25.2	7.5
Cameroon	35.1	13.9
Chad	40.4	9.1
Côte d'Ivoire	26.1	14.3
Gabon	36.2	10
Mali	23.2	na
Niger	36	10.6
Senegal	32.3	7.9

It is tempting to conclude from the experience of the CFA zone countries relative to that of other SSA countries that a floating exchange rate regime is likely to be associated with high rates of inflation. Zaire has floated its currency the longest, and inflation has jumped from an average 40 per cent in 1980-82 to hyperinflation since 1991. However, the experience of Uganda since 1993 and of Kenya more recently indicates that the floating exchange rate in SSA is not necessarily associated with persistently high inflation rates. Uganda has reduced its inflation rate from over 50 per cent in 1992 to single digits in 1993-95, while at the same time boosting growth performance. Kenya has experienced its first major stagflation since 1991-93. Growth has plummeted, and inflation has risen. Inflation was reduced from 29 per cent in 1994 to less than 2 per cent in 1995, and it was targeted to be less than 5 per cent in 1996. Inflation has been reduced in conjunction with the liberalization of the foreign exchange and the treasury bills and government bonds market that has promoted short-term capital inflows. Growth recovery seems to have started, though it is too early to consider this sustainable. The reduction of inflation and the high interest rates have encouraged short-term capital inflows which have appreciated the nominal and real exchange rates. The manufacturing sector is overwhelmed by the competition of cheap imports, while it has poor and

deteriorating infrastructure which is affecting roads, power and water supply, as well as telecommunications.

The preliminary evidence from Uganda seems to suggest that inflation in the SSA can be reduced without sacrificing growth (Table 19). Uganda drastically reduced fiscal deficits as a percentage of GDP and avoided the financing of the deficit through money creation.

TABLE 19
INFLATION AND GROWTH IN KENYA AND UGANDA

	Uganda		Kenya	
	Inflation	GDP growth rate	Inflation	GDP growth rate
1987	200	6.6	7.6	5.9
1988	196.1	7	11.2	6.2
1989	61.4	6.4	12.9	4.7
1990	33.1	5.4	15.6	4.2
1991	28.1	5.2	19.8	1.4
1992	52.4	4.5	29.5	-0.8
1993	6.1	6.4	45.8	0.4
1994	9.7	9.4	29	2.7
1995	8.6	na	1.6	4.9

VI THE CHOICE OF AN APPROPRIATE EXCHANGE RATE REGIME

There are two potentially conflicting objectives of exchange rate policy. The exchange rate can be used as a nominal anchor for overall price levels in an economy. A fixed peg can guarantee that the price inflation of tradables is similar to that among a country's trading partners, although the law of one price does not always hold. Our empirical results and those of many other authors confirm the association of inflation and large depreciation (Isard 1995, Rogoff 1996).

Alternatively, the exchange rate can be used primarily to maintain the competitiveness of tradable goods, to maintain balance of payments equilibrium and to promote the growth of exports and efficient import substitution. We do not have firm empirical support for the existence of a significant association between the real exchange rate and export performance largely because of difficulties in the empirical estimation of the impact of structural constraints and institutional weaknesses.

The nominal anchor approach to exchange rate management implies the establishment of a fixed exchange rate, the use of monetary policy to defend the fixed rate and disregard for the impact on the competitiveness of the tradable goods sector. If the main objective is to maintain the competitiveness of the tradable goods sector, a flexible exchange rate regime is more appropriate. The flexibility of the exchange rate can either be left to the market, or managed by policy makers.

The management of the exchange rate in African countries used to involve the selection of the exchange rate regime. This mainly concerns the choice between the fixity and the variability of the nominal exchange rate. In a world in which all major currencies are floating ones, the fixity of the nominal exchange rate is limited to a single currency or a composite basket of currencies. The management of an exchange rate also involves the adoption of a unified exchange rate or a multiple exchange rate regime.

The choice of a foreign currency to which the domestic currency is to be pegged if a fixed exchange rate regime is to be adopted usually depends on trade patterns and the vehicle currency used in international transactions. If trade is predominantly with a single country, then the selection of the currency to which the domestic currency is to be pegged may appear straightforward. The pegging of the CFA franc to the French franc is a product of colonial and neocolonial history and ties rather than of trade relations. The CFA zone countries are primary commodity exporters. The vehicle currency of trade for most primary commodities is the dollar. The overvaluation of the real exchange rate of Cameroon and Cote d'Ivoire was partly the result of the large appreciation of the French franc against the dollar during 1986 to 1994.

If a country has many trading partners it is advisable to peg the currency on a trade weighted basket of currencies so as to even out exchange rate fluctuations among the trading partners. In order to avoid overvaluation under a fixed exchange rate regime,

domestic inflation must be maintained at the same level as that among the trading partners. If the depreciation of the real exchange rate is necessary, for example, in the case of a deterioration in the terms of trade or a switch in development strategy towards the acceleration of the growth in the tradable sector, the rate of domestic inflation must be lower than that among the trading partners. Deflating the economy to reduce inflation significantly may lead to massive unemployment and the discouragement of investment because of high interest rates. The reduction of nominal wages so as to reduce inflation is politically difficult to achieve. The major CFA franc zone countries experienced an exchange rate misalignment which persisted due to the fixed exchange rate regime.

The polar extreme of a fixed exchange rate is a freely floating exchange rate regime, in which the exchange rate is determined by the forces of supply and demand. The classical argument in favour of a flexible exchange rate was that it was possible to free monetary policy from the role of defending the exchange rate, and the policy effort could therefore be focused on the attainment of domestic objectives. The external balance is achieved automatically, and the equilibrium movements of the real exchange rate are easily accommodated (Friedman 1953, Obstfeld 1995). The economic policy school was in favour of the flexible exchange rate because it introduced a policy instrument for the management of the external balance. Monetary and fiscal policy would be used to manage the internal balance, that is, the employment level, capacity utilization and the inflation rate, while the exchange rate would assure equilibrium in the balance of payments (Meade 1955).

The main arguments against the flexible exchange rate revolved around the fact that the instability of the exchange rate under a floating system would make international trade and investment more risky. Moreover, the existence of currency speculators might exacerbate exchange rate instability. Friedman's theory that speculation is necessarily stabilizing because destabilizing speculators will lose money and get out of the business has been proven wrong by the experience in the industrialized countries since the breakdown of the Bretton Woods system. The argument of Nurkse (1944) that a flexible exchange rate system with capital mobility is likely to be unstable has been proven correct.

The removal of constraints on monetary policy is not necessarily a benefit. Expansionary monetary policy will be inflationary and will render both the real and the nominal exchange rates unstable, and this is not conducive for the promotion of international trade and long-term investment. Exchange rate flexibility is likely to boost the average rate of inflation because of the existence of the ratchet effect, whereby the depreciation of a domestic currency leads to a proportionate rise in prices, whereas the appreciation of the currency would not reduce prices proportionately.

The experience with floating exchange rates in developed market economies has generally vindicated the concerns of the opponents of flexible exchange rates. Both nominal and real exchange rates have been unstable. Many empirical studies have failed to confirm not only the absolute purchasing power parity theorem, but also the relative purchasing power parity theorem. These studies have failed to overturn the hypothesis that real and nominal exchange rates follow random paths (Isard 1987, 1995).

The explanation of the failure of the flexible exchange rate to track the purchasing power of currencies is that the foreign exchange market is characterized by immediate reaction not only to supply and demand conditions, but also to information which influences the expectations of economic agents. Price adjustment in the goods market tends to lag behind, and exchange rate adjustments are therefore likely to overshoot price adjustments in the goods market.

Greater capital mobility in financial markets has increased the volatility of exchange rates, which are now influenced not only by the prices of goods and services, but also by interest rate differentials and the expectations in financial markets. In the early 1980s the British pound and the US dollar appreciated even when the current account deficits in the UK and the US were very large. Conversely, the Japanese yen depreciated when Japan was recording enormous current account surpluses.

It may be argued that exchange rate overshooting and interest rate differentials are not as important in African countries because of the lack of well-developed capital markets. The experience of the Southern Cone countries in Latin America in the second half of the 1970s and of Mexico in the 1990s clearly shows that capital inflows are responsive to positive real interest rates and can cause a real exchange rate appreciation which is not appropriate for the promotion of export growth and a sustainable balance of payments equilibrium. In Kenya, short-term capital inflows led to the appreciation of the Kenyan shilling by over one third between the end of 1993 and the end of 1994.

The fragility of political systems and the instability in macroeconomic formulation in African countries render flexible exchange rate regimes unsustainable during the early stages of a World Bank or IMF imposed economic reform programme. The flexible exchange rate regime, whether in the form of an open auction or an interbank market, usually played the role of the flag carrier for the economic reform package. If the authorities are not committed to the logic of the programme, including the restraint on fiscal deficits, a floating regime is likely to lead to an exchange rate which sinks to politically unacceptable levels, and this may cause the abandonment of all economic reforms, as was the case in Zambia's experiment with an auction system in the 1980s (SIDA 1989). A strong reforming government in pursuit of responsible fiscal policies can use a floating exchange rate regime to correct a previous overvaluation and establish a foreign exchange market clearing exchange rate which is supportive of export production and efficient import substitution. After correcting past overvaluation, the authorities can conduct an active exchange rate policy by maintaining a slightly undervalued real exchange rate to promote exports and efficient import substitution.

Between the two extremes of a freely floating rate and a fixed exchange rate, countries may adopt two main exchange rate regimes: the adjustable peg or the crawling peg. Under the adjustable peg regime, the exchange rate is fixed, but the authorities reserve the right to adjust it.

To avoid the accumulation of overvaluation caused by high domestic inflation, a crawling peg is usually recommended. In this regime, the authorities adjust the exchange

rate by small margins within short periods. The crawling peg can be rule based, whereby the authorities adjust the exchange rate according to preannounced rules, such as for the correction of monthly or quarterly inflation differentials with trading partners. Preannounced rules encourage guaranteed one-way speculation. Exporters will delay the surrender of foreign exchange until the depreciation takes place, while importers will want to make payments before the depreciation, thereby causing a disruption between foreign exchange receipts and payments. The longer the intervals between adjustments, the more profitable is the one-way speculation. The shorter the intervals, the less profitable it is for foreign exchange earners to wait to surrender foreign exchange after the depreciation. Short intervals between adjustments are preferable because each depreciation will be small.

The rule based crawling peg which maintains a constant real exchange rate may not be adequate to promote the competitiveness of the tradable sector. The crawling peg may be adopted when the currency is already overvalued. The backlog overvaluation should be corrected by a major devaluation at the time of the adoption of the crawling peg. If such a devaluation is not politically feasible, the crawling peg should not only correct for current inflationary differentials, but also reduce a portion of the inherited overvaluation.

It is also important to evaluate the fundamental determinants of the appropriate exchange rate which will promote growth with a balance of payments equilibrium. Deterioration in the terms of trade reduces the purchasing power of exports and requires export diversification. To encourage new exports will require, among other things, favourable prices in the domestic currency and, hence, a depreciated real exchange rate. Policy makers will need to evaluate the conditions they face in the world market and adjust the exchange rate by greater margins than those justified by inflationary differentials.

The authorities may decide to adopt a discretionary crawling peg which does not follow any rule either in the rate of the crawl, or in the timing. The arguments in favour of the discretionary crawling peg revolved around the fact that the rate of the crawl can reflect changes in real factors which influence the appropriate exchange rate. A sure bet speculation which may be prominent in a rule based crawling peg will be avoided. The main disadvantage of the discretionary crawling peg lies in the fact that it can be used to stall a necessary exchange rate adjustment. A rule based crawling peg which corrects for the inflationary differentials with trading partners but also takes into consideration the fundamental determinants of the appropriate exchange rate is the appropriate exchange rate regime for most African countries at their current stage of development.

A crawling peg is relevant if convertibility is limited to current account transactions. Obstfeld and Rogoff (1995) have argued that, when there is capital mobility, 'there is no comfortable middle ground between full irrevocable currency union and floating.' In the current situation of the globalization of international finance, can African countries limit their currency convertibility to current account transactions? Will capital account incovertibility constrain the access of African countries to international capital markets, including direct foreign investment? Overall capital account convertibility is neither a

necessary, nor a sufficient condition to attract foreign direct investment. The People's Republic of China, the recipient of the largest share of the foreign direct investment targeted at developing countries, does not have capital account convertibility. Good infrastructure, an efficient labour force at competitive wages, credible guarantees that policies will not be reversed and that profits and capital can be repatriated are more important than is overall currency convertibility.

The policy focus of maintaining competitive and stable real exchange rate can be undermined by the premature liberalization of financial markets before putting into place a policy framework that will maintain low fiscal deficits. High real interest rates will attract short term capital inflows and appreciate the real exchange rate that will hurt the tradable goods sector. At the current level of development of most African countries, it is foolhardy to attempt to attract short term capital inflows that will appreciate and destabilize the real exchange rate and reduce the profitability of investing in exports and import substitution. Maintaining a slightly undervalued and stable real exchange rate may require avoiding moving towards convertibility of capital account transactions while continuing with current account convertibility including easy repatriation of profits and capital of long term foreign direct investment.

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