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ABSTRACT

Exchange Rate Policy and Implications for
Agricultural Market Integration in West Africa

by

Lynn B. Salinger and Dirck J. Stryker

May 1994

This paper examines the history of exchange policy in the *Communauté Financière Africaine* (CFA) zones of West Africa and offers an assessment of the official position of the CFA franc with respect to its equilibrium level just prior to the devaluation of January 1994. The paper concentrates particularly on how exchange rate distortions impede the elimination of internal trade barriers as well as the harmonization of external tariffs.

The equilibrium exchange rate (EER) of the CFA franc is calculated for three CFA member countries (Senegal, Mali, Côte d'Ivoire) using an elasticities approach to adjust the official exchange rate (OER), maintained at fixed parity with the French franc rate of 50:1 since 1948. The elasticities approach adjusts the OER for trade distortions (trade taxes or subsidies, price controls and quantitative restrictions on imports and foreign exchange), using elasticities of demand and supply of foreign exchange.

Data are presented in the empirical analysis section of this paper on the degree of openness of CFAF and other countries, the degree of trade concentration, the evolution of the value of domestic currencies (CFAF and other) with respect to the U.S. dollar, and various measures of macroeconomic management (domestic credit availability, inflation, current and capital account balance, average export subsidy rates, the level of foreign debt and its decomposition, external debt service ratios).

Results of the calculations indicate that the CFA franc is overvalued by 66% in Senegal, 43% in Mali, and 52% in Côte d'Ivoire. Such a high degree of overvaluation entails important economic costs for the CFAF countries, especially in view of the more realistic levels of parity for other African currencies, many of which, as a result of monetary reforms introduced as part of stabilization and structural adjustment programs during the 1980s, are now being traded at market-determined rates, with their levels now reasonably close to equilibrium values.

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Exchange Rate Policy and Implications for Agricultural Market Integration in West Africa

B. Lynn Salinger
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**EXCHANGE RATE POLICY AND
IMPLICATIONS FOR AGRICULTURAL MARKET INTEGRATION
IN WEST AFRICA**

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August 1993

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**Exchange Rate Policy and
Implications for Agricultural Market Integration
in West Africa**

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Executive Summary

1. This paper examines the history of exchange rate policy in the *Communauté Financière Africaine* (CFA) zones of West Africa and offers an assessment of the official position of the CFA franc with respect to its equilibrium level. The analysis is part of a larger research effort supported by the Club du Sahel/CILSS and bilateral donors to examine regional patterns of cross-border trade in West Africa in raw and processed agricultural products as they currently exist, to identify important economic policy interventions which affect agricultural production and trade, to calculate the economic competitiveness of these activities, and to predict regional patterns of agricultural production and trade and of economic growth which might be established under alternative policy scenarios. The paper concentrates particularly on how exchange rate distortions impede the elimination of internal trade barriers as well as the harmonization of external tariffs.

2. Countries participating in the CFA were once the epitome of monetary stability. The union afforded member countries balance of payments credits from France, domestic monetary and fiscal policy stability, and a credible rate of exchange with other foreign currencies. These qualities of the currency union were to foster, in turn, international capital inflows and thus more rapid economic development. In contrast, economic stability in neighboring countries was threatened by their independently managed policies which led to greater variability of domestic monetary, fiscal, and exchange rate policy, and thus higher rates of inflation and slower rates of growth.

3. As a result, the markets of many of the non-CFA countries came to be characterized by a dual price structure in which prices on the free market, including the market for foreign exchange, were much higher than official prices prevailing in the public distribution network, where goods were allocated by administrative decisions rather than in response to changes in relative prices. This often gave rise to extensive rent-seeking activities, to the detriment of more directly productive economic activity. Institutional structures and business procedures, in consequence, became seriously distorted.

4. Since the early 1980s many African countries have undertaken comprehensive structural adjustment programs involving a package of institutional and pricing reforms. These have often comprised some combination of 1) devaluation, 2) movement towards a more flexible exchange rate, 3) reduction or elimination of export taxes, 4) easing or elimination of import controls, 5) reduction in the magnitude and variability of import tariffs, 6) privatization or reform of government parastatals, 7) elimination of price controls and restrictions on private marketing, and 8) reduction of public sector employment. These reforms have altered the structure of incentives in the direction of opening the economy to international trade and increasing the relative importance of the private sector. The ultimate goal has been to increase economic growth.

5. The first two of these reforms — devaluation of the domestic currency and the institution of more flexible exchange rate regimes — have not occurred in countries in the CFA zones. Therefore, to the extent that the fixed peg to the French franc no longer reflects the equilibrium level of the CFA franc, patterns of comparative advantage in CFA zone countries are not currently reflected in relative prices. For example, an overvalued CFA franc has made the domestic price of nontradables, particularly labor, relatively more expensive in CFA countries compared with countries using a rate of exchange closer to the free trade equilibrium rate. At the same time, the domestic price of tradable goods, such as imported agricultural inputs, has been relatively cheaper. Such skewing of the tradables/nontradables price ratio encourages increased use of costly production techniques that are intensive in the use of tradable inputs. It also discourages production of goods for export and as substitutes for artificially cheap imports.

6. There is some indication that the CFA franc may be devalued in the not too distant future. The convertibility of the currency coupled with speculation as to its overvaluation has led to a large transfer of banknotes out of the zone. Rising debt burdens of some CFA countries now also threaten their perceived creditworthiness, resulting in plunging values of their debt on secondary markets. Thus it is important to look at the degree of exchange rate

change that might take place and the implications that this would have for economic integration in West Africa.

7. The equilibrium exchange rate (EER) of the CFA franc is calculated for three CFA member countries (Senegal, Mali, Côte d'Ivoire) using an elasticities approach to adjust the official exchange rate (OER), maintained at fixed parity with the French franc at a rate of 50:1 since 1948. The elasticities approach adjusts the OER for trade distortions (trade taxes or subsidies, price controls, and quantitative restrictions on imports and foreign exchange), using elasticities of demand and supply of foreign exchange. This approach is based on the view that most LDCs are unable to finance sustained imbalances out of their foreign exchange reserves. Instead, they are forced to impose taxes and controls on trade and foreign exchange. This results in domestic prices of tradables being distorted in relation to world prices converted into domestic currency at the official rate of exchange. In addition, some of the external imbalance may be financed through short-term capital movements. The EER is calculated, then, by eliminating these distortions and unsustainable capital flows, and determining the change in the exchange rate that would be necessary to restore equilibrium.

8. Data are presented in the empirical analysis section of this paper on the degree of openness of CFAF and other countries, the degree of trade concentration, the evolution of the value of domestic currencies (CFAF and other) with respect to the U.S. dollar, and various measures of macroeconomic management (domestic credit availability, inflation, current and capital account balances, average export subsidy rates, the level of foreign debt and its decomposition, external debt service ratios). Assumptions regarding what percentage of GDP represents a sustainable current account deficit in each country are then made in order to calculate individual EERs for each of the three countries.

9. Results of the calculations indicate that the CFA franc is overvalued by 66% in Senegal, 43% in Mali, and 52% in Côte d'Ivoire. Such a high degree of overvaluation entails important economic costs for the CFAF countries. Reduced competitiveness of Sahelian export commodities and factors abroad, increased incentives to import goods and

inputs, reduced profitability (expressed in foreign currency equivalents) of domestic enterprises which renders these economies relatively less attractive to foreign capital, excessively stringent monetary policy, and a more limited range of policy tools which can be considered by the national government when designing an adjustment strategy are some of the more obvious burdens introduced by heavy overvaluation of the domestic currency. Less obvious, but quite real nonetheless, is the cost of resources squandered in rent-seeking behavior which takes place in response to market distortions.

10. These orders of magnitude are in stark contrast to levels of parity for other African currencies, many of which, as a result of monetary reforms introduced as part of stabilization and structural adjustment programs during the 1980s, are now being traded at market-determined rates, their levels now reasonably close to equilibrium values. These currency realignments have significantly altered the patterns of competitiveness with which sub-Saharan African countries produce both agricultural and non-agricultural goods.

11. To continue the existing policy mix of import protection, macroeconomic restraint, and encouragement of capital inflows while resisting devaluation does not appear to be sustainable for the CFAF countries. As one alternative, further tightening of macroeconomic policy coupled with efforts to increase productivity would appear to be a slow, painful strategy for avoiding devaluation. Another option, that of increased tariff protection against imports, would result in further efficiency losses, higher costs to consumers, and wasteful rent-seeking behavior.

12. Devaluation of the CFA franc and concomitant tariff reform needs to be carefully evaluated as a strategy for revitalizing the member countries' economies and promoting regional economic integration. While there would be important budgetary implications from such a move, realignment of parity of the CFA franc, either for the *Communauté* as a whole or for individual members, would go far in helping these countries regain competitiveness for their export and import-substitution sectors and would facilitate dismantling of inefficient intraregional barriers to trade.

Exchange Rate Policy and Implications for Agricultural Market Integration in West Africa

I. Introduction

Any effort to increase economic integration must incorporate relationships between different exchange rate regimes. This is particularly important in West Africa because of the divergence between the countries included in the CFA franc areas, which have for many years maintained a fixed rate of exchange with the French franc, and the other countries, which have pursued independent monetary and exchange rate policies. As this last group has moved towards greater exchange rate flexibility in recent years, the relative price changes that have occurred because of exchange rate movements have given rise to an increasingly distorted structure of incentives across countries. These distortions seriously impede the elimination of intraregional barriers to the flow of trade as well as the harmonization of external tariffs. If economic integration within the region is to be promoted, the magnitude of these distortions and the exchange rate adjustments necessary to eliminate them must be better understood.

This paper examines the history of exchange rate policy in the *Communauté Financière Africaine* (CFA) zones of West Africa and offers an assessment of the official position of the CFA franc with respect to its equilibrium level. The analysis is part of a larger research effort supported by the Club du Sahel/CILSS and bilateral donors to examine regional patterns of cross-border trade in West Africa in raw and processed agricultural products as they currently exist, to identify important economic policy interventions which affect agricultural production and trade, to calculate the economic competitiveness of these activities, and to predict regional patterns of agricultural production and trade and of economic growth which might be established under alternative policy scenarios (Salinger and Stryker, 1992).

The paper begins with a brief description of the CFA zones' history and institutional structure in Section II. Section III examines the theoretical literature on the linkage between exchange rate and agricultural development policies, on definitions of exchange rate overvaluation, and on the use of exchange rate policy to effect macroeconomic stability. Section IV applies this literature to West Africa and presents an empirical analysis of the degree of overvaluation of the CFA franc. Finally, Section V assesses the implications of alternative exchange rate regimes for agricultural market integration in West Africa.

II. Background

Since independence from colonial rule in West and Central Africa, many former French colonies have belonged to a regional monetary union known as the *Communauté Financière Africaine* (CFA).¹ Countries in West Africa are part of the West African Monetary Union (UMOA), whose monetary policy is implemented by the *Banque Centrale des Etats de l'Afrique de l'Ouest* (BCEAO), while central African countries are members of the *Banque des Etats de l'Afrique Centrale* (BEAC).² The Community maintains fixed parity of the domestic currency, the CFA franc (CFAF), with the French franc (FF) at a 50:1 rate. This rate has been in effect since 1948. Its modification, however, is not juridically excluded by the Community.

Convertibility of the CFAF with foreign currency is assured on current account transactions. Each member country is required to hold 65% of its foreign exchange reserves in an operating account of the French Treasury. In return, each country can overdraw the account by up to 20% of expected earnings in order to finance temporary current account

¹ For a more detailed discussion of the institutional structure governing the CFAF-FF relationship, see Vallée (1989), Guillaumont (1988), and Bhatia (1985).

² BCEAO countries include Benin, Burkina Faso, Côte d'Ivoire, Mali, Niger, Senegal, and Togo, while BEAC groups Cameroon, the Central African Republic, the Congo, Gabon, Equatorial Guinea (since 1985), and Chad. Madagascar and Mauritania left the Community in 1973. Mali was a member from 1962 to 1967 and rejoined again in 1984. Guinea left the CFA upon independence.

disequilibria. In theory, in the BEAC zone, monetary growth is controlled via traditional bank credit instruments (discount rates, reserve requirements) vis-à-vis private sector banks and enterprises as well as the central bank, while in the BCEAO zone, monetary policy governing the private sector is determined residually after the public banking sector satisfies its own monetary requirement. This distinction is probably not as sharply defined in reality. Details of this arrangement are described elsewhere (Devarajan and de Melo, 1987a; Vallée, 1989).

Some limits govern currency transactions relating to tourism, salary transfers, forward exchange market transactions, and foreign currency repatriation. Export receipts from sales both within and outside of the franc zone are to be held in a bank of the exporting country. Also, franc zone banks cannot hold foreign exchange reserves in excess of their operating needs (Guillaumont (1988), p. 68).

Countries participating in the CFA were once the epitome of monetary stability. The union afforded member countries balance of payments credits from France, domestic monetary and fiscal policy stability, and a credible rate of exchange with other foreign currencies. These qualities of the currency union were to foster, in turn, international capital inflows and thus more rapid economic development. In contrast, economic stability in neighboring countries was threatened by their independently managed policies which led to greater variability of domestic monetary, fiscal, and exchange rate policy, and thus higher rates of inflation and slower rates of growth.

As a result, the markets of many of the non-CFA countries came to be characterized by a dual price structure in which prices on the free market, including the market for foreign exchange, were much higher than official prices prevailing in the public distribution network, where goods were allocated by administrative decisions rather than in response to changes in relative prices. This often gave rise to extensive rent-seeking activities, to the detriment of more directly productive economic activity. Institutional structures and business procedures, in consequence, became seriously distorted.

Since the early 1980s many African countries have undertaken comprehensive structural adjustment programs involving a package of institutional and pricing reforms. These have often comprised some combination of 1) devaluation, 2) movement towards a more flexible exchange rate, 3) reduction or elimination of export taxes, 4) easing or elimination of import controls, 5) reduction in the magnitude and variability of import tariffs, 6) privatization or reform of government parastatals, 7) elimination of price controls and restrictions on private marketing, and 8) reduction of public sector employment. These reforms have altered the structure of incentives in the direction of opening the economy to international trade and increasing the relative importance of the private sector. The ultimate goal has been to increase economic growth.

The first two of these reforms — devaluation of the domestic currency and the institution of more flexible exchange rate regimes — have not been available to countries in the CFA zones. Therefore, to the extent that the fixed peg to the French franc no longer reflects the equilibrium level of the CFA franc, patterns of comparative advantage in CFA zone countries currently are not reflected in relative prices. For example, an overvalued CFA franc has made the domestic price of nontradables, particularly labor, relatively more expensive in CFA countries compared with countries using a more equilibrated rate of exchange. At the same time, the domestic price of tradable goods, such as imported agricultural inputs, has been relatively cheaper. Such skewing of the tradables/nontradables price ratio encourages increased use of costly production techniques that are intensive in the use of tradable inputs. It also discourages production of goods for export and as substitutes for artificially cheap imports.

Distortions in the CFAF exchange regime have often introduced biases in cross-border activities. In the past, as a vehicle for gaining access to other foreign currencies, the assured convertibility of the CFAF at a fixed rate to the FF made it a desired exchange commodity for non-CFA zone traders in the region (INRA-IRAM-UNB (1991)). Resources were thus diverted into non-productive activities, such as trading and speculation, whose primary objective was to earn CFAF.

As the CFAF has become increasingly overvalued, however, demand for it has lessened at the official rate of exchange. Yet the continued backing of the CFAF by the French Treasury has maintained its convertibility. As a consequence, imports into the CFAF countries from its neighbors have increased rapidly. Many of these flows are illegal reexports from the non-CFAF countries. This has the effect of undermining the trade policies of the CFAF countries and of depriving them of much tariff revenue. It also results in substantial resource losses through rent-seeking behavior on the part of traders.

There is some indication that the CFA franc may be devalued in the not too distant future. The convertibility of the currency coupled with speculation as to its overvaluation has led to a large transfer of banknotes out of the zone.³ Rising debt burdens of some CFA countries now also threaten their perceived creditworthiness, resulting in plunging values of their debt on secondary markets. The price of Ivoirian debt, for example, fell to 6% of its face value in early 1990 (Africa Analysis, January 5, 1990). Commercial creditors of the Côte d'Ivoire have in the recent past made rescheduling of outstanding loans conditional on a CFAF devaluation of some 90% (Africa Analysis, June 8, 1990). Thus it is important to look at the degree of exchange rate change that might take place and the implications that this would have for economic integration in West Africa.

III. Brief Survey of the Theoretical Literature

In this section we first examine the effect of exchange rate policy on agricultural sector development. We then review several pertinent theoretical concepts, including the process by which a currency becomes overvalued and the effects of exchange rate overvaluation on domestic production and trade incentives, on domestic fiscal policy, and on regional commercial relationships.

³ 47% of all CFAF notes issued in 1988, for example, flowed to the French treasury (77% of all notes in the Central African Monetary Union BEAC zone and 30% of all notes in the West African Monetary Union BCEAO zone), to be converted into foreign currency (Africa Analysis, June 8, 1990).

Exchange rates and agriculture

Exchange rate policy is directly relevant to agricultural development. Schuh recognized immediately after the dismantlement of the Bretton Woods system the pivotal role of exchange rate movements on agricultural trade (Schuh, 1974). Yet exchange rate movements do not simply affect the flow of goods; their variability determines international capital flows as well, which are rapidly growing in magnitude relative to international goods flows.⁴

Recent research has suggested that domestic trade and exchange rate policies affect resource allocation to a far greater degree than do sectoral pricing policies (Krueger, Schiff, Valdés, 1988; Oyejide, 1986; Dorosh and Valdés, 1990). In a comparative study on the political economy of agricultural pricing policy in sixteen developing countries from 1960 to the mid-1980s it was shown that "indirect intervention," i.e. exchange rate, trade, and investment policy, has a greater effect on incentives to producers in the agricultural sector than do sectoral pricing and investment policies ("direct intervention"). Exchange rates, protection to industry, and other policies not aimed specifically at agriculture lead to distortions that effectively tax agriculture, and especially agricultural exports, at a level which is two to three times greater than the level of direct taxation of the sector. Yet these indirect effects are frequently not taken into account by policy makers (Just, 1988).

In addition, as the world becomes increasingly interdependent economically, the macroeconomic policies pursued in country A can have an important effect on the agricultural development of country B. U.S. dollar appreciation in the early 1980s had a detrimental effect on its agricultural exports, particularly to middle income developing countries. Yet rising dollar prices for U.S. agricultural exports and other international commodities whose prices are quoted in dollars improves the competitiveness of commodities

⁴ Schuh (1988) notes that, in 1984, total international financial flows amounted to US \$42 trillion, swamping international trade flows of US \$2 trillion.

produced in Africa, while a depreciating dollar accentuates falling international reference prices and reduces the competitiveness of these products.

Nowhere is this interdependence more acute than in francophone Africa, where the economic competitiveness of the zone vis-à-vis the rest of the world is formally tied to the French franc. Furthermore, strengthening political economic alliances in Europe may imply new changes for the monetary relationships between France and its former colonies.

Exchange rate policy and macroeconomic stability

Any country can decide what institutional form its exchange rate regime should take. Options are to float its currency independently against all foreign currencies or institute some form of fixed or flexible (managed) exchange rate. The choice of regime reflects the country's preferences for domestic economic stability and for independence in determining the appropriate mix of macroeconomic targets (inflation vs. unemployment).

It is often said that for developing countries a fixed peg or flexible (managed) float is preferable to a free float. There are several factors which affect such a choice (Wickham, 1985). One is the extent to which capital markets are integrated into the international system. A fully integrated market, with sufficient depth, forward exchange facilities, markets for stocks and securities, etc. will allow capital to be shifted relatively easily between domestic and foreign assets, resulting in a fairly stable floating exchange rate. The underdevelopment of financial markets, common in developing countries, therefore, argues in favor of a fixed peg or managed exchange rate system.

By defining a peg with respect to a single currency, a country is in effect defining itself to be part of an "optimum currency area." Factors critical to such a definition have been identified, including a high degree of factor mobility within the currency area (Mundell, 1961), a high degree of openness of the economy (McKinnon, 1963), limited product diversification in trade (Kenen, 1969), similarity of inflation rates, and a fairly high degree of macroeconomic policy coordination.

Benefits to a pegged system include 1) securing of the monetary value of the domestic currency, which might otherwise be eroded by excessive domestic price volatility, 2) more stable relative prices and overall domestic price levels, and 3) a greater arsenal of tools from which to design overall macroeconomic policy. On the other hand, it has been argued that a peg implies 1) a lack of flexibility for domestic monetary and fiscal policy, 2) the importation of inflation, and 3) loss of exploitation of a different seignorage rate on the domestic currency.

As the degree of overvaluation of the CFA franc has increased, some of the disadvantages associated with a common currency area have become more evident. Given the inability to move the exchange rate, adjustment has had to depend on macroeconomic restraint coupled with increases in the productivity of nontradable factor inputs. The former depends on strict controls to limit the supply of money and credit to the private sector, as well as the avoidance of large government budget deficits. To the extent that governments are not able to control their fiscal situation, but monetary controls remain in place, the supply of credit to the private sector is diminished. This may have a very adverse effect on the level of business activity.

Macroeconomic restraint is likely to make it more difficult to increase the productivity of factor inputs. This is added to the more general problems that exist in West Africa of increasing factor productivity through capital investment and technological innovation. As a result, adjustment through macroeconomic restraint is likely to be a slow and painful process, which may do much to inhibit economic growth.

Maintenance of an overvalued exchange rate may be favored by government because it provides an implicit source of "revenue" to the state (Pinto, 1990). In order to finance its operations, a government has recourse to several fiscal tools. It can explicitly tax economic actors through a variety of trade, income, property, etc. taxes. In most sub-Saharan African countries, however, income and property tax options are quite limited and taxes on trade tend to incur smuggling, tax evasion, and other rent-seeking behavior. A government can also

implicitly collect taxes through the monetization of fiscal deficits, i.e., by printing money and allowing inflation to erode real income. Finally, producers and consumers can be taxed indirectly via exchange rate policy.

This "indirect" source of government revenue is in the form of a tax on the foreign exchange earned by exporters, which must be converted into domestic currency at the official exchange rate. The government pays less for the exporter's dollars than it otherwise would, i.e., the government's access to foreign exchange is subsidized. The effect is to reduce dependence on explicit taxation or inflation as a means to cover the government's fiscal deficits.⁵

This linkage between exchange rate "taxation" and government spending implies that unification of official and parallel market exchange rates through devaluation without prior fiscal policy reform will fail. Unless a government makes credible efforts to bring government spending in line with explicit tax revenues, it will be forced to rely on inflation as a means of paying for its fiscal deficit. A surge in nominal domestic price levels will only revive the previous disequilibrium in the foreign exchange market, rendering previous devaluations ineffective. Also, surges in domestic inflation lead to increased political discontent, making the elimination of such heavy burdens on government budgets as consumer subsidy programs even less likely.

Exchange rate overvaluation⁶

The exchange rate is a price which reflects the cost of foreign exchange to the domestic economy. When the exchange rate market is in equilibrium, balance is achieved on

⁵ The ability of the government to collect this tax on foreign exchange is somewhat more complicated than suggested here because the exchange rate premium is acquired by the central bank or other exchange authorities rather than by the central government treasury. Nevertheless, the government is likely to have priority access to foreign exchange at the overvalued official rate. Furthermore, government access to central bank credit will be less inflationary to the extent that the real value of that credit in terms of foreign currency will be greater than at the official exchange rate.

⁶ This section draws heavily on (Edwards, 1989a) and (Helmets, 1988).

both external and internal accounts. External balance is achieved when any imbalance in the trade, or current, account, is matched by sustainable capital flows in the opposite direction. A current account deficit, for example, wherein the value of imports (M) is greater than the value of exports (X), may be offset by inflows of capital. Thus there is neither excess demand for nor excess supply of foreign exchange in the country. Internal economic balance is achieved when the domestic nontradable goods market clears in the current period and is expected to clear in the future.

Markets for foreign exchange are not always allowed to operate freely. In many countries, official exchange rates are set by central bank authorities at levels which may not reflect the shadow price or opportunity cost of foreign exchange. When the official rate (measured in units of domestic currency per unit of foreign currency) is below its equilibrium value, the official rate is said to be overvalued. This may occur as a result of one or more sustained macroeconomic disequilibria. According to Dornbusch (1988, p. 80), "the main causes of overvaluation are expansion in domestic demand (e.g., as a result of increased government spending), loss of export revenue (e.g., because of a drop in the price of commodity exports), and deficits in external balance (e.g., because of increases in import costs)."

Overvaluation of the exchange rate means that demand for foreign exchange exceeds supply as the price of tradables expressed in domestic prices declines relative to the price of nontradables. This discourages production of and encourages expenditures on tradable goods, which results in a current account deficit ($M > X$). This may be matched by a capital inflow incurring an increase of private or public debt, or by a foreign exchange reserve draw down.

Alternatively, excess demand for foreign exchange at the official exchange rate may be taxed via import tariffs or it can be rationed in one of several ways. Import licenses may be required, with or without exchange controls. Available in limited quantity, these often are allocated via administrative fiat. The residual excess demand for imports at artificially

depressed prices then spills over into secondary markets for goods, and for foreign exchange where there are exchange controls. The prices in these markets reflect scarcity values adjusted for a risk premium where the secondary markets are illegal.

When tariffs, import restrictions, and exchange controls decrease the demand for foreign exchange, the value of the domestic currency appreciates in real terms. The supply of foreign exchange at the official price is therefore reduced, as exporters are reluctant to be penalized by selling their goods abroad at the official exchange rate.

At the same time, domestic import-substitution activities (production of tradable goods and inputs) may also suffer. Imports of competing commodities and inputs are encouraged via the overvalued exchange rate because they are sold in domestic currency at a lower domestic price than would be the case in the absence of exchange market distortions. This may be offset, however, by the effects of tariffs, import restrictions, and exchange controls, which act to raise the prices of importable goods on secondary markets. The fact that import-competing activities benefit from trade protection whereas export activities generally do not implies a further bias against exports beyond that directly due to currency overvaluation.

The effects of these distortions are felt in domestic factor markets as well as the markets for goods and services. The demand for labor, for example, is redirected from tradable into nontradable activities. In West Africa, this translates into a "retreat of the peasantry" away from agricultural export (cotton, cocoa, palm oil, coffee, etc.) and import-substitution (rice) activities and into the production of nontradable agricultural commodities (millet/sorghum, cassava, plantain, yams) for home or local consumption. Furthermore, these nontradable activities are pursued with a much higher tradable component of total production costs than would otherwise be the case, due to the relatively cheap price of fertilizer, pesticides, machinery, etc.

Over the longer run, sustained overvaluation leads to capital outflows resulting from disinvestment and speculation to hedge against devaluation. Sustained overvaluation also increases the costs of the eventual adjustment, and becomes an even greater political target due to its high visibility once devaluation finally does take place.

In order to achieve economic equilibrium, governments have a variety of tools from which to choose (Helmets, 1988). Expenditure-changing policies, such as fiscal and monetary policies, affect the levels of domestic output and expenditures, while expenditure-switching policies, such as trade and exchange rate policies, redirect economic activity between tradable and nontradable sectors. Usually, some combination of changing and switching policies is implemented in order for economic activity to be redirected with a minimum of recession or inflation.

Countries that attempt to implement trade reform in order to switch expenditures without undertaking successful exchange rate reform frequently are unable to maintain momentum in their reform program (Bienen, 1990). Devaluation of the official exchange rate is expected to induce both a domestic export supply response and, in the absence of capital controls, a foreign capital supply response. Exporters are encouraged to sell their goods abroad because of the increased domestic price received for their sales abroad. Foreign capital is attracted into the country because it becomes cheaper to produce domestically relative to abroad (and, concurrently, imports of those goods produced abroad are now more expensive). Both lead to an inflow of foreign exchange at the same time devaluation also lessens the outflow of foreign exchange used to buy imports. Success depends, however, on both the devaluation and the accompanying stabilization package being convincing in their redressment of the problem of currency overvaluation. If not, domestic capital will flee abroad in the face of depreciating domestic assets.

Devaluation generally shifts the intersectoral terms of trade in favor of agriculture. The domestic price of agricultural tradables rises, and this generally offsets the effects of any reduction in trade protection, encouraging both export and import-substitution activities.

Devaluation also favors a return to activities that are more intensive in their use of domestic factors of production as opposed to imported inputs. To the extent that agricultural production is more factor-intensive than industrial production, the agricultural sector benefits relatively more from the devaluation.

Measures of exchange rate overvaluation

Economists seek to measure the distortion of the official exchange rate relative to its equilibrium rate using one of several techniques. These can generally be classified as some version of either the purchasing power parity approach or the elasticity approach.

Purchasing power parity approach

The real exchange rate (RER) focuses simply on changes in relative price levels between country X and its trading partners. The RER is estimated using the purchasing power parity (PPP) approach. Purchasing power parity theory is derived essentially from a monetary approach to the balance of payments. To the extent that domestic monetary and fiscal policy expansion generates a more rapid rate of inflation than exists in the country's trading partners, the domestic prices of nontradables rises more rapidly than the prices of tradables, causing consumers to shift towards the consumption of the latter and producers to move towards production of the former. The current account moves into deficit under such conditions. To the extent that this shift is not sustainable over the longer run through capital flows or transfers, the official exchange rate is no longer in equilibrium. The real exchange rate (RER) adjusts the official (or nominal) exchange rate (OER) for these relative price movements. It is of practical interest in that it is easily estimated.

To estimate the RER, the OER is adjusted for changes in the ratio of foreign (P_f) to domestic price (P_d) levels, i.e., $RER_t = OER_t * (P_{ft} / P_{dt})$, where P_{ft} is an index of foreign prices and P_{dt} is an index of domestic prices in time period t. As a measure of P_f , the foreign wholesale price index, which has a larger share of tradables than the consumer price index, is generally used. As a measure of the domestic price of nontradables, the domestic consumer price index is usually used even though it includes the prices of some tradables.

When there is a diversity of trading partners, the RER rate is usually expressed as a trade-weighted index, accounting for the various shares in total trade held by each of the country's major trading partners. In this case, $RER_t = OER_{it} * \sum_{it} (P_{fi} / P_{di})(w_{ij})$, where the nominal exchange rate with each trading partner (OER_{it}) is adjusted by changes in the two relative price indices, weighted by the relative trade shares, or w_{ij} . RER calculations thus require data regarding trade shares with major trading partners, the foreign exchange rates of country X and its trading partners with respect to one comparator, usually the U.S. dollar, the domestic consumer price index of country X, and the wholesale price indices of its trading partners.

An increase in P_d relative to P_f results in a decrease of the real exchange rate. A decrease over time in the RER indicates that the official exchange rate is becoming overvalued in the absence of exogenous changes in the demand for and supply of foreign exchange.

Alternatively, the equilibrium exchange rate (EER) can be estimated using the purchasing power parity approach by adjusting the OER in a year when that rate was also the EER for movements in the prices of tradables and nontradables, i.e., $EER_t = OER_o * (P_{dt}/P_{ft})$. The EER_t may then be compared with the OER_t to see the extent of overvaluation of the OER_t .

Estimation of the equilibrium exchange rate using the purchasing power parity approach suffers from a number of important limitations. Essentially, this approach assumes that disequilibrium occurs because of movements in the relative prices of tradable compared with nontradable goods and services. These occur principally because of differing rates of inflation at home and abroad, requiring adjustments of the exchange rate to maintain equilibrium. But exchange rate adjustments may be required even if domestic and foreign rates of inflation are identical.

Four major possibilities exist. First, external prices may vary, causing movements in a country's terms of trade. Both Mali and Senegal, for example, have experienced substantial deterioration of their terms of trade because of a decline in the prices of groundnuts and cotton and a rise in the prices of imports, especially of petroleum products. Although the Ivory Coast has seen less of a long term decline, it has experienced substantial cyclical fluctuations of its export prices, especially those of cocoa.

Second, structural changes within the economy are likely to result in shifts in the demand for and supply of foreign exchange. Growth of per capita income, for example, is normally accompanied by an increase in the demand for tradable foods, such as wheat and rice. Exhaustion of a "vent-for-surplus"⁷ period of export growth reduces the rate of expansion in the supply of foreign exchange. Each of these effects should be relatively important for the Ivory Coast, which has experienced substantial increases in per capita income based principally on the expansion of agricultural exports.

Third, cyclical changes within the economy also affect the exchange market. The most important of these, particularly for the Sahelian countries, is drought. During the 1970s and early 1980s, sustained drought in the Sahel resulted in a decline in local food production. Although this reduced incomes and thus the demand for food, this decline was mitigated by donor assistance and transfers from the less vulnerable nonagricultural sectors of the economy. Food aid, although it increased the availability of food locally, did so by increasing capital inflows in a way that was not sustainable. Thus the net demand for imports consistent with a sustainable inflow of capital was increased as a result of the increased demand for food in relation to its supply. The reverse has generally been true since 1985-86 in view of the return of the rains and increased agricultural production.

⁷ "Vent-for surplus" is a concept first developed by Hla Myint to describe a rapid period of export growth during which surplus factors of production are brought into the export sector (Myint, 1958).

Finally, the amount of capital inflow that is sustainable may change over time, altering the exchange rate at which equilibrium is maintained inclusive of this inflow. A major factor determining the capital inflow that is considered sustainable is the external debt situation and degree of investor confidence in the economy. This has deteriorated over the last few years, in the CFAF countries especially, as a result of mounting debt burdens and debt service payments.

Most of these effects have led to overvaluation of the CFA franc. It is evident, therefore, that the PPP approach to estimating the equilibrium exchange rate underestimates the degree of overvaluation that exists in the CFAF countries.

It is possible to correct the EER, calculated using the PPP approach, for these effects. To do this, however, requires not only estimates of the elasticities of demand for imports and supply of exports but also time series data on changes in the terms of trade, structural changes in the domestic demand for and supply of foreign exchange, important cyclical factors that may be present and changes in capital inflows that are considered as sustainable. These data are unavailable for most African countries.

Elasticities approach

Alternatively, the elasticities approach calculates the EER by adjusting the OER for trade distortions (trade taxes or subsidies, price controls, and quantitative restrictions on imports and foreign exchange), using elasticities of demand and supply of foreign exchange. This approach is based on the view that most LDCs are unable to finance sustained imbalances out of their foreign exchange reserves. Instead, they are forced to impose taxes and controls on trade and foreign exchange. This results in domestic prices of tradables being distorted in relation to world prices converted into domestic currency at the official rate of exchange. In addition, some of the external imbalance may be financed through short-term capital movements. The EER is calculated, then, by eliminating these distortions and unsustainable capital flows, and determining the change in the exchange rate that would be necessary to restore equilibrium.

Initially assuming there are no distorting trade policies, any desired change in the trade balance dB^* must be achieved through an adjustment in the exchange rate such that

$$dB^* = dX - dM = \epsilon \frac{EER - OER}{OER} X - \eta \frac{EER - OER}{OER} M$$

where X is exports of goods and services plus inflow of private unrequited transfers,
 M is imports of goods and services plus outflow of private unrequited transfers,
 ϵ is the elasticity of supply of exports,
 η is the elasticity of demand for imports,
 OER is the official exchange rate, and
 EER is the equilibrium exchange rate.

Solving for EER ,

$$EER = OER \times \left(1 + \frac{dB^*}{\epsilon X - \eta M}\right)$$

If trade policy distortions also exist, the *free trade* equilibrium exchange rate is defined assuming that these are eliminated as well. Prior to adjustment and with world prices fixed, the following identities hold:

$$\text{the domestic price of exports} = p_{wx}(1+s) \times OER$$

and

$$\text{the domestic price of imports} = p_{wm}(1+t) \times OER$$

where p_{wx} is the world price of exports measured in foreign currency,
 p_{wm} is the world price of imports measured in foreign currency,
 s is the subsidy equivalent rate on exports, and
 t is the tariff equivalent rate on imports.

The relative change in domestic prices, then, is given by

$$\frac{EER - (1+s)OER}{(1+s)OER}, \text{ for exports}$$

and

$$\frac{EER - (1+t)OER}{(1+t)OER}, \text{ for imports}$$

so that

$$dB^* = dX - dM = \epsilon \frac{EER - (1+s)OER}{(1+s)OER} X - \eta \frac{EER - (1+t)OER}{(1+t)OER} M$$

Solving for EER, in this case, yields

$$EER = OER \frac{dB^* + \epsilon X - \eta M}{\frac{\epsilon X}{1+s} - \frac{\eta M}{1+t}}$$

The equilibrium exchange rate is calculated, here, by adjusting the official exchange rate for both the desired change in the trade balance and the elimination of trade distortions.

Few empirical estimates of demand and supply elasticities for foreign exchange exist in sub-Saharan Africa. In one analysis of the equilibrium exchange rate for Mali's CFAF, the values of $\epsilon = 1.0$ and $\eta = 2.0$ were assumed, although in retrospect these values seem unduly high (Stryker, 1987). An econometric foreign exchange supply and demand model for Ghana estimated the price elasticity of demand for foreign exchange to be 1.66, the price elasticity of supply of foreign exchange from cocoa exports to be 0.22, and the price elasticity of supply from non-cocoa exports to be 0.35 (Stryker, 1990). In the analysis that follows, the following elasticity parameters are used:

	<u>Mali</u>	<u>Senegal</u>	<u>Côte d'Ivoire</u>
η	-0.4	-0.4	-0.75
ϵ	0.4	0.2	0.5

It is assumed here that demand for imports in Côte d'Ivoire, as the wealthiest of the three countries, is more sensitive to changes in price, while that in Mali and Senegal is less so.

IV. Empirical Analysis of CFAF Overvaluation

Background data

In examining the degree of openness and direction of trade of the CFAF economies compared with those of non-CFAF African countries, the CFAF countries appear relatively more open than the latter. Whereas imports represent over 30% of GDP in Senegal, Mali, and Côte d'Ivoire, comparable figures are 16% to 24% for Guinea, Nigeria, and Ghana (see Table 1).

Furthermore, the percentage of total official trade (imports plus exports) with France, measured from 1978 through 1989, remains significantly greater for the CFAF countries, as compared with trade concentration among the non-CFAF African countries (Table 2).

TABLE 1: MEASURES OF DEGREE OF OPENNESS OF ECONOMY
(Imports of Goods and Services/GDP, %)

Year	Senegal	Mali	Côte d'Ivoire	Guinea	Ghana	Nigeria	France	USA	Germany
1960-64	34	--	32	--	30	14	11	4	17
1965-69	29	21	29	--	22	14	13	5	19
1970-74	37	26	31	17	19	12	17	7	21
1975-79	44	27	37	21	13	20	20	9	25
1980-84	52	36	39	25	7	17	23	10	30
1985-89	41	41	30	28	20	17	22	11	28
1985	44	55	33	22	12	11	23	10	31
1986	35	41	27	33	18	13	20	10	27
1987	44	33	28	30	23	27	21	11	26
1988*	41	39	31	29	21	--	21	11	27
1989*	41	35	32	26	28	--	23	11	29

Source: World Bank, African Economic and Financial Database (African countries)
International Monetary Fund, International Financial Statistics
(France, US, Germany)

Note: Where blank, data not available.
* For African countries, denotes World Bank estimates.

TABLE 2: MEASURES OF TRADE CONCENTRATION, 1978-89

	Percentage of Total Official Trade with:					
	United States	France	Germany	United Kingdom	Côte d'Ivoire	Nigeria
Senegal	4	33	3		5	5
Mali	3	27	8		19	1
Côte d'Ivoire	9	25	5	3		4
Guinea	20	21	9	4		
Ghana	12	2	10	19	1	11
Nigeria	24	11	10	9	1	

Source: International Monetary Fund, Direction of Trade Statistics

Table 3 compares the variability of the value of the domestic currency with respect to the U.S. dollar. When indices of the official exchange rate, as measured in dollars per unit of local currency, are compared across countries, one first observes that, unlike the Guinean, Ghanaian, and Nigerian currencies, the official value of the CFAF has appreciated twice

relative to the U.S. dollar, first over the 1970s, after which the dollar appreciated significantly, and then again over the 1980s. The coefficient of variation (C.V.) of the \$/CFAF index from 1968 to 1989 is 20%, while those for the three non-CFA countries included here are 45%, 73% and 37% respectively. By contrast, the \$/deutsche mark C.V. is 24% and the FF/DM C.V. is 32%. The coefficient of variation of the U.S. dollar to the SDR is 10% over the same period. Thus the official rate of exchange between the CFAF and the dollar has been even more stable than that between the French franc and the German deutsche mark.

TABLE 3: OFFICIAL EXCHANGE RATE INDICES (\$/local currency) (1989=100)

Year	CFA Zone	Guinea	Ghana	Nigeria	France	Germany	France/Germany	SDR
1968	129	2410	26486	1030	129	47	275	78
1969	123	2410	26486	1030	123	48	258	78
1970	115	2410	26486	1030	115	51	224	78
1971	116	2420	26276	1032	115	54	214	78
1972	126	2622	20495	1118	126	59	214	85
1973	143	2876	23203	1118	143	70	203	93
1974	133	2890	23503	1170	133	73	182	94
1975	149	2876	23503	1196	149	76	195	95
1976	134	2782	23503	1174	134	75	179	90
1977	130	2821	23503	1142	130	81	160	91
1978	141	3022	17841	1159	141	94	151	98
1979	150	3116	9827	1221	150	103	146	101
1980	151	3133	9827	1346	151	103	146	102
1981	117	2848	9827	1199	117	83	141	92
1982	97	2657	9827	1093	97	77	125	86
1983	84	2577	7835	1017	84	74	114	83
1984	73	2470	765	963	73	66	111	80
1985	71	2450	500	825	71	64	111	79
1986	92	164	303	546	92	87	106	92
1987	106	139	184	184	106	105	101	101
1988	107	125	135	164	107	107	100	105
1989	100	100	100	100	100	100	100	100
Coefficient of variation	.20	.45	.73	.37	.20	.24	.32	.10

Source: International Monetary Fund, International Financial Statistics, 1990

Notes: A decrease in the official exchange rate index indicates a depreciation of the domestic currency with respect to the numeraire (the US dollar or French franc). Coefficient of variation = standard deviation/mean.

But how has the record of official exchange rate stability compared with the zone's macroeconomic management record? Has the stability of the official rate been maintained at a cost in terms of economic efficiency? How has price inflation in the CFA countries compared to that in industrial countries? How have current account balances and financing flows evolved in the CFA countries, and with what implications for equilibrium exchange rates? What is the effect of rising foreign debt obligations on the value of the CFAF? To the extent that official exchange rates do not reflect equilibrium values, has economic growth in the CFA countries suffered as a result? Finally, what has been the effect of exchange rate movements on the domestic price of nontradables, especially wage rates, which influences the relative cost of producing agricultural commodities across countries in the West African region?

The evolution of credit availability in Senegal, Mali, and Côte d'Ivoire is presented in Table 4 below.⁸ The credit figures indicate several things. First, claims on the central government became positive in all three countries by the 1980s (in Mali, this has always been the case), indicating that governments had become net borrowers from the monetary system. The proportion of total credit extended to the public sector during the 1980s varied greatly, however, from only 12% in Côte d'Ivoire, to 23% in Senegal, and as much as 45% in Mali.⁹ Over the entire period (1962 to 1989), total credit (in nominal CFAF) grew by 5% to 7.5% per year, which is somewhat lower than the average rate of inflation in the CFA countries (see section below).¹⁰ Total credit expansion was most aggressively pursued in

⁸ See Edwards (1989b) for a discussion of the relevance of the variables in Table 4 to the question of monetary management and exchange rate disequilibrium. One variable mentioned by Edwards, the ratio of the government fiscal deficit to GDP, is not treated here given the limited availability of government finance data for the countries in question.

⁹ This is comparable to Edwards' observations in Latin America, where the ratio of public sector domestic credit to total domestic credit ranged from 7.7% in the first quartile to 25.5% in the median group and 45.6% in the third quartile in the year when the currency was devalued, compared with 11.4% in the median of the control group of non-devaluing developing countries (Edwards 1989b, p. 466).

¹⁰ Edwards (1989b, p. 466) found much higher annual rates of credit growth in his study: 19 to 45% (in the year of devaluation) for total credit and 24 to 114% (year of devaluation) for credit to the public sector.

the 1970s (except in Mali, where it expanded most rapidly during the 1960s), as central banks were given greater discretionary credit creation powers. In the 1980s, however, while total credit expansion slowed to less than 3% per annum in all three countries, credit to the public sector was still being increased in Senegal and Côte d'Ivoire at a rate of more than 6% per year. This suggests that the effort to maintain macroeconomic equilibrium in the face of an overvalued currency may have had severe consequences for private business activity.

TABLE 4: AVAILABILITY OF DOMESTIC CREDIT (billions CFAF)

	Côte d'Ivoire			Mali			Senegal		
	Domestic credit	Claims Central Govt	Govt/ Tot(%)	Domestic credit	Claims Central Govt	Govt/ Tot(%)	Domestic credit	Claims Central Govt	Govt/ Tot(%)
1962-66	36.0	-5.3	-14	12.6	6.8	51	24.7	-9.2	-38
1967-71	69.6	-11.0	-15	30.5	20.6	68	33.0	-1.3	-5
1972-76	223.2	-24.1	-12	66.7	29.7	47	89.9	3.8	3
1977-81	731.8	-58.1	-10	127.1	54.1	43	257.8	26.4	10
1982-86	1271.8	198.0	15	182.2	85.6	47	494.9	130.0	26
1987	1363.2	177.5	13	188.9	83.8	44	538.9	146.0	27
1988	1441.6	264.5	18	148.5	68.6	46	576.3	151.9	26
1989	1334.9	229.9	17	148.7	58.4	39	532.0	127.2	24
Average annual growth rates (%)									
1962-69	5.1			9.2	12.8		1.7		
1970-79	11.2			7.2	4.9		9.8		
1980-89	2.0	6.3		0.4	0.4		2.6	6.3	
1962-89	7.5			5.2	4.7		6.5		

Source: International Monetary Fund, International Financial Statistics

Notes: 1) Domestic Credit (IFS, line 32)

2) Claims on Central Government (net) (IFS, line 32an), where + = asset, i.e. government owes the central bank, and - = liability, i.e. central bank owes the government

3) Claims on Central Government to Total Domestic Credit (col. 2 / col. 1)

As seen in Table 5, consumer prices rose on average 8-9% per annum in the three CFA countries over the period 1968 to 1989.¹¹ This average annual rate is comparable to that of France, at 8%.

TABLE 5: ANNUAL VARIATION IN CONSUMER PRICES FOR SELECTED COUNTRIES (%)

Year	CFA Countries			Non-CFA African Countries			Industrial Countries		
	Senegal	Mali	Côte d'Ivoire	Guinea	Ghana	Nigeria	France	USA	Germany
1969	3.9	-4.7	4.7		6.7	9.5	5.8	5.6	1.9
1970	2.8	-0.1	9.3		3.8	14.1	6.3	5.9	3.5
1971	4.1	15.0	-1.6		9.6	16.2	5.1	4.2	5.2
1972	6.2	7.8	0.4		9.9	3.3	6.4	3.5	5.5
1973	11.2	23.4	11.1		18.0	5.6	7.4	6.2	7.2
1974	16.4	6.5	17.4		18.6	12.8	13.5	10.9	6.8
1975	31.7	9.2	11.4		29.3	33.3	11.9	9.2	5.9
1976	1.2	6.2	11.9		56.4	24.5	9.6	5.8	4.3
1977	11.3	21.2	27.6		116.3	13.7	9.5	6.4	3.8
1978	3.5	24.9	12.9		73.0	21.9	9.1	7.6	2.6
1979	9.6	-1.1	16.7		54.4	11.6	10.7	11.4	4.1
1980	8.8	21.6	14.6		50.1	9.9	13.2	13.5	5.5
1981	5.8	12.2	8.8		116.5	21.0	13.4	10.3	6.3
1982	17.4	2.3	7.4		22.3	7.6	11.8	6.2	5.2
1983	11.7	6.5	6.0		122.8	23.2	9.6	3.2	3.4
1984	11.7	10.5	4.2		39.6	39.6	7.5	4.3	2.4
1985	13.0	4.4	1.8		10.4	5.5	5.7	3.5	2.1
1986	6.2	-4.4	7.3		24.6	5.4	2.5	1.9	-0.1
1987	-4.1	1.7	0.4	37.0	39.8	10.2	3.3	3.7	0.2
1988	-1.9	6.0	7.1	27.0	31.3	38.2	2.7	4.0	1.3
1989	0.5	-1.8		28.2	25.2	40.9	3.5	4.8	2.8
Average	8.1	8.0	9.0	30.7	41.8	17.5	8.0	6.3	3.8
Avg, 80-89	6.9	5.9	6.4		48.3	20.2	7.3	5.5	2.9

Source: International Monetary Fund, International Financial Statistics, except

Mali = 1969-1981 based on cost of living index presented in Lecaillon and Morrisson, Economic Policies and Agricultural Performance: The Case of Mali, 1960-1983 (Paris: OECD, 1986), p.34. 1982-1989, World Bank, President's Report, Structural Adjustment Loan, 1990 (Based on private consumer price index)

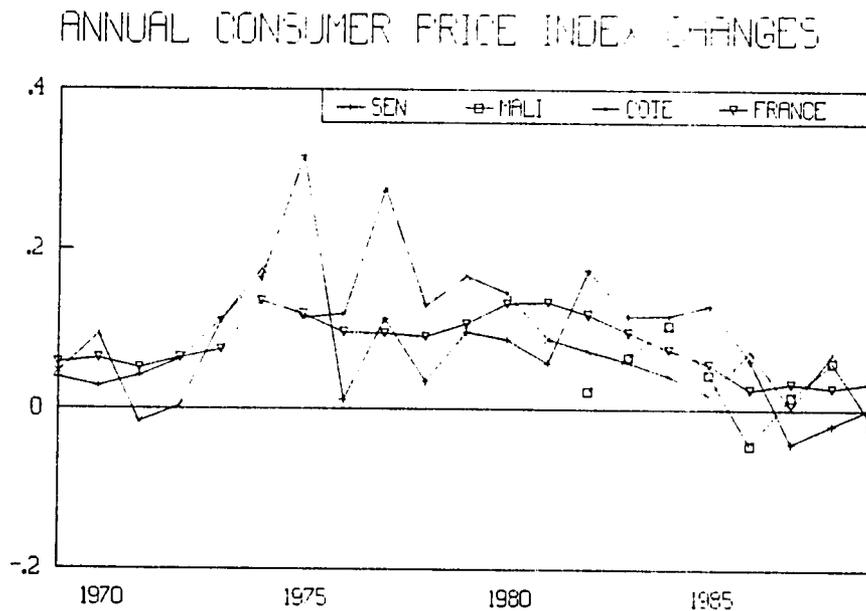
Guinea = World Bank, Country Economic Memorandum, 1990 (Conakry CPI)

¹¹ Data for Mali indicate a much lower rate of inflation, though the series is much shorter, and reflects a different source than that used for the other two CFA countries, making the figure of 3.1% per year somewhat less reliable.

A comparison in this table and in Figure 1 of actual year-to-year changes, however, indicates that there have been years of substantial difference between CFA and French inflation rates, particularly during the early 1970s when the West African central bank was given greater monetary authority by the French treasury. More important, while the average level of inflation in CFA countries may have been somewhat higher than in other industrial economies, it has been markedly lower than in non-CFAF African countries where double-digit figures have not been uncommon.

One implication of this analysis is that any overvaluation of the CFA franc that exists is probably not due to more rapid inflation in the CFAF zone than in its major trading partners. This overvaluation would have to have been caused by changes in the terms of trade, shifts in the demand for and supply of foreign exchange, and unsustainability of capital inflows rather than by purely monetary factors. This contracts, of course, with the non-CFAF countries in which monetary factors were much more important but were eventually offset by changes in exchange rates.

Figure 1



Equilibrium exchange rate estimation

Because monetary factors do not appear to have played a major role in causing the EER to deviate from the OER in the CFAF countries, attention here is focused on the consequences of structural changes in the terms of trade and in the demand for and supply of foreign exchange. It is very difficult to estimate these changes quantitatively, however, since this would require time series analysis that is impossible to perform with the available data. As a consequence, overvaluation has been estimated using the elasticities approach, as shown in the equations presented earlier.

This approach requires, in addition to the elasticities themselves, estimates of the 1) sustainable current account deficit and 2) the tariff/subsidy equivalent rate on imports and exports. Each of these is discussed below.

Sustainable current account deficit

Individual CFA countries may run current account deficits and/or surpluses each year. Many African economies have been able to depend to a certain degree on inflows of official development assistance to cover some portion of their deficits. Such inflows may obviate the need for the domestic economy to resort to exchange rate adjustments to close the external account gap (the "overall balance"). The CFAF zones' arrangement with the French treasury allows in part for just such contingencies. Other countries and multilateral organizations have in the past also regularly pledged a combination of loans, concessional financing, and debt forgiveness to cover a further portion of the external imbalance.

The recent CFA zone experience with persistent trade and current account deficits raises, however, the issue of their sustainability. Table 6 presents balances on trade (RB), official unrequited transfers (OT), current account (CA), and capital account (CP) for Côte d'Ivoire, Mali, and Senegal, each as a percentage of GDP.

The Côte d'Ivoire's balance of trade in goods and non-factor services has largely been in surplus over the post-colonial period, amounting to an average 5% of GDP, while Mali's

and Senegal's have usually been in deficit. The average trade deficit in Mali has run about -16% of GDP, while that in Senegal has been somewhat lower, at about -7.5% of GDP.

TABLE 6: RESOURCE BALANCES, CURRENT, AND CAPITAL ACCOUNTS (as % of GDP)

YearCôte d'Ivoire.....					Mali.....					Senegal.....					
	X	M	RB	OT	CA	CP	X	M	RB	OT	CA	CP	X	M	RB	OT	CA	CP
1960-64	40	32	8	2	-2	0	--	--	--	--	--	--	32	34	-2	--	--	--
1965-69	37	29	9	2	-4	3	12	21	-10	--	--	--	24	29	-4	5	-11	4
1970-74	37	31	5	2	-7	5	12	26	-13	10	-13	0	31	37	-7	7	-10	4
1975-79	39	37	1	1	-9	8	12	27	-15	8	-13	1	36	44	-8	5	-11	6
1980-84	38	39	-1	0	-13	7	17	36	-18	8	-17	-1	36	52	-15	6	-19	9
1985-89	37	30	7	1	-8	6	18	41	-23	13	-20	4	27	41	-14	5	-12	6
Averages:																		
Total	38	33	5	1	-8	6	15	31	-16	9	-16	1	31	40	-7	6	-13	6
1980	37	35	3	1	-11	7	18	38	-20	10	-19	2	32	46	-11	6	-15	7

Sources: Exports and imports of goods and non-factor services - World Bank, African Economic and Financial Database, 1989
 Official unrequited transfers, current, and capital account balances - International Monetary Fund, International Financial Statistics. For 1987-1989, latest World Bank macroeconomic estimates.

Notes: X = exports of goods and non-factor services OT = official unrequited transfers
 M = imports of goods and non-factor services CA = current account balance, net of official unrequited transfers
 RB = resource balance (=X-M) CP = long-term capital account balance (= Direct Investment, Portfolio Investment, Other Long-Term Capital, Net Errors & Omissions, Counterpart Transfers)

By the 1970s, current account deficits as a percentage of GDP were in double-digits, which was an important element leading to the introduction of structural adjustment programs. Over the 1980s, deficits averaged -11% of GDP in Côte d'Ivoire, -19% in Mali, and -15% in Senegal. However, balance of payments patterns have been distinct in each country:

- In Côte d'Ivoire, large debits of non-merchandise trade, representing largely payments to foreign workers, have resulted in a negative balance, on average, on current account (-11% of GDP), which has been offset to some extent by long-term inflows on capital account (7% of GDP). Official transfers are virtually non-existent (1% of GDP), leaving a deficit of -3% of GDP.

- In Senegal, the current account deficit (-15% of GDP) is covered to a large extent by official transfers (6% of GDP) and a long-term capital account surplus (7% of GDP), although an overall deficit of -2% of GDP still exists as well.
- Mali enjoys the highest average inflow of official transfers of the three countries, amounting to 10% of GDP, which covers about half of the high current account deficit (-19% of GDP). The long-term capital account, on average over the 1980s, has contributed only 2% of GDP to offset this. This means that Mali also has the largest average residual financing gap of the three countries, with an overall deficit equal to -7% of GDP.

Deficits in the overall balance (current plus long-term capital accounts) for each country are generally met by some combination *inter alia* of IMF credits, recourse to foreign exchange reserves, changes in debt arrears, and debt rescheduling.

Following the elasticities methodology described above, Table 7 makes an adjustment to the official exchange rate in Senegal, Côte d'Ivoire, and Mali for the unsustainable portion of the current account deficit net of official unrequited transfers. These transfers represent official development assistance (ODA) to the country, including debt forgiveness, and payments for technical assistance. The calculations use different assumptions in each country regarding what percentage of GDP represents a sustainable current account deficit. In Mali, a relatively resource-poor country, it is assumed that ODA will continue to sustain a current account deficit of 10% of GDP. On the other hand, Côte d'Ivoire's relatively high resource endowment suggests that over the long run a deficit of only 5% of GDP is sustainable, to be financed largely by private capital inflows. In the case of Senegal, the 5% deficit scenario is presented, despite the fact that Senegal's resource base is more comparable to that of Mali, because there appears to be growing reluctance on the part of donors to

continue the higher level of transfers in light of Senegal's poor adjustment record.¹² An assessment of the sensitivity of the EER calculations with respect to changes in elasticities assumptions is presented in Table 8.

Unit tariff equivalent

The OER was also adjusted for distortions due to trade policy, but only for the year 1989, given the paucity of data. Unit tariff equivalents were assumed on the basis of the average level of import tariffs. These averages are unweighted and do not take into account the effects of quantitative restrictions, which are not generally very important in the CFAF countries. Export subsidies were assumed to be 50% in Senegal, 25% in Côte d'Ivoire, and nil in Mali.¹³

TABLE 7: 1989 EQUILIBRIUM EXCHANGE RATE ESTIMATES (CFAF/\$)

	Official Exchange Rate	Unsustainable Current Account Deficit (% GDP)	Equilibrium Exchange Rate	EER/OER (%)	Sustainable Current Account Deficit (% GDP)	Assumptions			
						ϵ	η	s_x	t_m
Senegal	319.01	2.8	529	65.9	5	0.2	-0.4	.50	.45
Mali	319.01	5.3	457	43.2	10	0.4	-0.4		.25
Côte d'Ivoire	319.01	10.5	485	51.9	5	0.5	-0.75	.25	.30

The extent to which elasticity assumptions affect these outcomes is presented in Table 8 below.

¹² This is one of several donor options presented in Berg, *et al* (1990), pp. 225-229.

¹³ Senegal's agricultural export commodities enjoy a rate of nominal protection ranging from 10 to 65%.

TABLE 8: SENSITIVITY ANALYSIS - DEGREE OF EER OVERVALUATION (%) WHEN:

	$\epsilon = \text{as assumed and } \eta =$					$\eta = \text{as assumed, and } \epsilon =$				
	-1.5	-1.0	-.75	-.4	-.2	1.0	.75	.5	.2	.1
Senegal	52.0	55.0	57.8	65.9	77.7	57.5	59.0	61.2	65.9	68.4
Mali	34.6	38.9	42.8	54.3	71.6	26.8	31.8	39.2	54.3	62.3
Côte d'Ivoire	43.1	47.9	51.9	61.9	73.2	45.3	48.1	51.9	58.5	61.5

Analysis of CFA zone debt burden

A sustainable current account deficit of more than 5-10% is unlikely on at least two grounds. First, donors are becoming increasingly unwilling on political grounds to sustain a high level of capital inflow to developing countries in the face of poor economic performance in spite of structural adjustment. Second, there is growing evidence of a "debt-Laffer curve" (Cohen, 1990), wherein increasing amounts of nominal debt only serve to reduce the creditworthiness of a country, which reduces the market value of that debt on the secondary market and may have serious negative growth effects.¹⁴

¹⁴ The international debt crisis is discussed in further detail elsewhere (e.g., Sachs). Here we are concerned with the effect of rising debt and rising debt service burden on the CFAF exchange market.

TABLE 9:
FOREIGN DEBT (as % of Gross Domestic Product)

	Concessional LT external debt			Nonconcessional external debt			Private external debt			Total external debt		
	Côte d'Ivoire	Mali	Senegal	Côte d'Ivoire	Mali	Senegal	Côte d'Ivoire	Mali	Senegal	Côte d'Ivoire	Mali	Senegal
1975-79	5.3	38.7	9.4	5.1	1.5	5.3	23.2	2.2	11.1	38.8	43.5	29.7
1980-84	6.0	67.4	23.2	19.4	4.5	22.7	57.6	3.1	10.7	95.1	78.3	65.3
1985	9.4	118.9	35.8	36.6	10.3	41.0	84.5	4.7	10.2	140.9	140.3	95.2
1986	9.0	94.5	33.8	32.4	7.8	31.3	69.1	3.6	8.2	118.9	111.1	80.6
1987	10.8	89.0	36.9	41.4	6.0	28.3	68.7	3.1	6.4	133.4	102.9	78.3

FOREIGN DEBT (as % of exports)

	Concessional LT external debt			Nonconcessional external debt			Private external debt			Total external debt		
	Côte d'Ivoire	Mali	Senegal	Côte d'Ivoire	Mali	Senegal	Côte d'Ivoire	Mali	Senegal	Côte d'Ivoire	Mali	Senegal
1975-79	13.9	324.8	27.0	13.4	12.4	15.3	61.4	18.2	31.7	102.7	364.2	85.2
1980-84	16.0	378.9	63.2	50.2	24.0	61.8	151.7	17.2	30.4	250.6	439.3	179.6
1985	20.6	571.4	114.6	79.8	49.5	130.9	184.3	22.7	32.7	307.3	674.1	304.5
1986	22.9	576.3	123.2	82.9	47.9	113.9	176.7	21.8	29.9	304.0	677.8	293.5
1987	31.7	536.3	133.0	121.7	36.3	102.0	202.0	18.8	22.9	392.0	620.3	282.3

Source: World Bank, African Economic and Financial Database, 1989

Total debt of African IDA countries rose over 21% per year from 1970 to 1980, more rapidly than in Latin America.¹⁵ As seen above in Table 9, external debt has been rising in each of the three CFA countries. While there is some disagreement on the appropriate benchmark for the measurement of debt, the total debt burden, whether measured as a percentage of GDP or of exports, rose to dramatic levels by 1987: 78% of GDP and 282% of exports in Senegal, 103% of GDP and 620% of exports in Mali, and 133% of GDP and 392% of exports in Côte d'Ivoire.

The composition of total debt, however, varies markedly among the three countries (Table 10). In Mali the bulk of the foreign financing comes from concessional sources (87%). In Senegal, financing was sought in almost equal proportions from private (45%) and official (55%) sources in the mid-1970s. By the late 1980s, however, the bulk of foreign financing had shifted to official sources, under both concessional and non-

¹⁵ The World Bank classifies low-income countries as "IDA countries," referring to those countries which are eligible for loans with the most generous terms of borrowing from the Bank's International Development Association. See "The debt problem and its implications for import capacity," in World Bank (1986).

concessional terms. Ivoirian capital needs have always been provided largely by the private capital markets (60%), although the percentage of total debt from official sources is now also on the rise (though still on non-concessional terms). Côte d'Ivoire is also the only country of the three to be able to make use to any significant degree of short-term capital (11% on average).

TABLE 10: COMPOSITION OF FOREIGN DEBT

	Côte d'Ivoire				Mali				Senegal			
	CLTED	NCED	PED	STED	CLTED	NCED	PED	STED	CLTED	NCED	PED	STED
1975-79	15.2	13.5	60.1	11.2	89.1	3.4	5.0	2.5	32.8	17.9	38.7	10.6
1980-84	6.5	19.2	60.5	13.7	86.4	5.2	4.0	4.4	34.8	33.4	18.0	13.9
1985	6.7	26.0	60.0	7.4	84.8	7.3	3.4	4.5	37.6	43.0	10.7	8.6
1986	7.5	27.3	58.1	7.1	85.0	7.1	3.2	4.7	42.0	38.8	10.2	9.0
1987	8.1	31.1	51.5	9.3	86.5	5.9	3.0	4.7	47.1	36.1	8.1	8.6
Average	10.1	19.1	59.5	11.4	87.2	4.8	4.2	3.7	35.7	28.8	24.0	11.4

Source: World Bank, African Economic and Financial Database, 1989

Notes: CLTED = Concessional long-term external debt

NCED = Non-concessional external debt

PED = Private external debt

STED = Short-term external debt

The diversity in composition across countries reflects, to some extent, the creditworthiness of each country as perceived by the international capital markets. The Côte d'Ivoire, with its history of political stability, relatively rich resource endowment, and openness to foreign investors, has been more successful at attracting private capital, while Senegal and Mali, with their more limited resource bases and smaller, more closed economies, have had to rely more heavily on official organizations, both bilateral and multilateral, for capital infusions.

Analysis of external debt service ratios (Table 11) indicates that the most severe debt servicing burden is borne by Côte d'Ivoire. Payments to service long-term external debt are absorbing over 16% of annual GDP in Côte d'Ivoire, more than twice the rate in Senegal (over 7%). Nearly half of annual export receipts in Côte d'Ivoire goes to service its long-term foreign debt, as compared with one-fourth in Senegal and nearly one-fifth in Mali.

TABLE 11: EXTERNAL DEBT SERVICE RATIOS

	Total LT external debt service (as % of GDP)			Total LT external debt service (as % of exports)		
	Côte d'Ivoire	Mali	Senegal	Côte d'Ivoire	Mali	Senegal
1975-79	5.1	0.8	3.6	13.5	6.7	10.4
1980-84	14.4	1.4	4.5	38.2	7.5	12.8
1985	19.9	4.5	5.9	43.5	21.8	19.0
1986	18.3	3.7	7.7	46.8	22.6	28.1
1987	16.3	3.0	7.6	47.8	18.2	27.5

Source: World Bank, African Economic and Financial Database, 1989

With debt service obligations reaching unprecedented levels, it is not surprising that rescheduling of bilateral debt payments has been negotiated between creditors and debtors in a number of African countries.¹⁶ According to the IMF, only 12 sub-Saharan African countries have serviced their debts regularly since 1980 (IMF, 1988). During the 1980s, 25 sub-Saharan African countries rescheduled their debts with official and private creditors 99 times. Other actions included the conversion of concessional loans into grants, the outright forgiveness of debt, and the establishment of multi-country debt rescheduling initiatives for the poorest African countries. No such multilateral initiative yet exists for middle-income African countries.

According to the World Bank, declining net capital inflows and falling export revenues have worsened the problems of growing debt service payments:

Net disbursements of non-concessional debt, which accounts for the bulk of debt service obligations and payments, declined from an annual average of US\$7.4 billion during 1981-82 to only US\$1.2 billion during 1986-87. That decline has occurred almost entirely in private flows, in response to worsening economic performance in Africa, higher interest rates, and a tighter international financial environment. Official flows, including grants and non-concessional loans, have increased — but not enough to make up the shortfall. (World Bank, 1989, pp. 17-18).

¹⁶ Multilateral debt is currently ineligible for rescheduling.

As a result of these debt service obligations, there is pressure to devalue the CFAF. Rising debt portfolios have decrease the perceived creditworthiness of some countries, resulting in the plunge in resale values of debt issues on secondary capital markets, as mentioned earlier in this paper. Further debt rescheduling in Côte d'Ivoire, especially with private creditors, may even be contingent on devaluation of the CFAF. In addition, overall economic growth is hampered in two ways. First, an illiquidity effect results from the crowding out of the domestic capital market by government borrowing to service the debt. Second, a disincentive effect is created, whereby expectations of future debt burdens tend to reduce the incentives for current investment and adjustment, resulting in capital flight and decapitalization of the economy (Claessens and Diwan, 1990).

The debt burden that hangs over each of the CFAF countries exacerbates the existing disequilibrium in the balance of payments. Because these countries are unlikely to be allowed to pile up much further debt, they will be dependent more than ever on donor grants. No one knows ultimately what these will be, but the assumptions used in this paper are probably relatively conservative.

Growth effects of CFAF exchange rate regime

If the official CFAF-FF parity has represented a distortion from equilibrium exchange rates during certain periods, has economic growth in the CFAF countries suffered as a result? Table 12 below presents real GDP growth rates from 1965 to 1987 for Côte d'Ivoire, Mali, Senegal, Ghana, Guinea, and Nigeria.

TABLE 12: GROWTH OF GROSS DOMESTIC PRODUCT (Average annual rates, %)

	Côte d'Ivoire GDP per cap.		Mali GDP per cap.		Senegal GDP per cap.		Ghana GDP per cap.		Guinea GDP per cap.		Nigeria GDP per cap.	
1965-73	8.6	4.5	2.7	0.6	1.6	-0.7	3.4	1.1	3.2	1.4	8.4	5.9
1973-80	4.7	0.4	6.3	4.1	2.3	-0.5	-0.3	-2.1	4.1	2.1	3.4	0.9
1980-87	2.2	-2.0	3.4	1.0	3.3	0.4	1.4	-2.0	2.1	-0.3	-1.7	-5.1

Source: World Bank, *From Crisis to Sustainable Growth* (1989a)

A crude comparison of growth rates during the 1980s between the three CFA countries and the three comparators — Ghana, Guinea, and Nigeria — suggests that the Ivoirian record has not been dissimilar from those in countries whose economies have ostensibly undergone much greater upheaval. Mali and Senegal, on the other hand, distinguish themselves with a low but positive per capita GDP growth rate (1% and 0.4%, respectively).

Two studies by Devarajan and De Melo (1987b and 1990) examine growth rates from 1960 to 1982 and again from 1982 to 1989 for CFA and non-CFA countries. Their results show that: 1) over the earlier period, CFA countries grew significantly faster than non-CFA sub-Saharan African countries (3.69% versus 3.29% per annum), but slower than the larger comparator group of developing countries (3.69% per annum versus 4.51%), including the non-CFA sub-Saharan group,¹⁷ and 2) after 1981, the failure of CFA countries to adjust as much as they needed led to their GDP growth rates lagging behind those of comparator countries, including other African states. The authors conclude that while "a change in external circumstances does not necessarily mean that the original commitment to a fixed exchange rate was unwise,..., the very institutional arrangement which enabled these countries to enjoy faster and more stable growth in the 1970s is preventing them from adjusting to the external and internal shocks of the 1980s." (pp. 25-26)

While a comparison of the growth of GDP in CFAF and non-CFAF countries is interesting in order to look at the longer term implications of monetary union and exchange rate stability, this comparison has important limitations. First, it shows relatively little, if nevertheless statistically significant, differences in average rates of growth. So if monetary

¹⁷ It should be noted, however, that while "fast-growing" (*op. cit.*, p. 490) Ivory Coast, Cameroon, and Gabon are included among the CFA countries, Nigeria is not included among the comparator group, despite the fact that it satisfied both selection criteria (per capita income below US \$3000 in 1980 and a population over one million in 1965). It is unclear how significant the comparison would have been if Nigeria's experience had been considered.

union and exchange rate stability help, they do not help much, and the variation in experience of different countries within each group is much greater than that between groups.

Second, the data do not permit a comparison of GDP growth after the mid-1980s, which was the time at which most non-CFA countries were freeing up their exchange rates and undertaking other types of economic reform. Although the record is far from in, there is some evidence that growth in these countries has accelerated, albeit from a very low base. Therefore, any judgements regarding the advantages of monetary union and exchange rate stability must be based on experience prior to the recent period of policy reform — a period during which many new insights in economics have been applied, especially in relation to the biased structure of incentives introduced by overvalued currencies.

V. Implications of the Analysis

As can be seen from the tables above, all three countries would appear to have distortions on the order of 50% in their official exchange rates. These estimates reflect both the effect of unsustainable current account deficits and important trade policy distortions.

In comparison, since 1982 many non-CFA sub-Saharan African countries have substantially revised their exchange rate regimes. Several countries, including Guinea, Ghana, and Nigeria, have moved to managed auction systems wherein foreign exchange is allocated by the central bank to the highest bidders (Quirk et al., 1987).¹⁸ Such movement toward a competitive market for foreign exchange has resulted in drastic devaluations of the national currencies (see Table 3, page 21). This currency depreciation has usually been introduced as part of an overall stabilization cum structural adjustment package in order to redirect the economy's resources toward growth industries. While large comparative studies on the growth effects of these changes have not yet produced definitive results, it is clear that

¹⁸ In developing countries elsewhere, foreign exchange may be allocated by the commercial banking system.

these currency realignments have significantly altered the patterns of competitiveness with which sub-Saharan African countries produce both agricultural and non-agricultural goods. One key indicator is the wage rate.

Comparative wage rates

Although export competitiveness has been determined historically in West Africa by its comparative advantage in primary products such as coffee, cocoa, timber, oil palm, groundnuts, cotton, livestock, and minerals, the scope for increasing or even sustaining exports of these natural resource-abundant products is narrowing as good land and mineral deposits are being exhausted. Further growth of exports in Africa will depend increasingly on labor-intensive production of non-traditional products, such as those of horticulture and industry. This implies that the wage rate will become an increasingly important variable in determining comparative advantage.

At present, there are substantial disparities in wage rates between different African countries when these are measured at the official exchange rate. Some comparisons are presented for daily rural wage rates in Table 13.

TABLE 13: COMPARATIVE DAILY RURAL WAGE RATES, 1990

Country	Wage Rate Local Currency	Exchange Rate	Wage Rate U.S. Dollars
Ghana	400 cedis/day	350 cedis/\$	\$1.14
Guinea	700 GF/day	700 GF/\$	\$1.00
Ivory Coast	800 CFAF/day	280 CFAF/\$	\$2.86
Mali	650 CFAF/day	280 CFAF/\$	\$2.32
Senegal	600 CFAF/day	280 CFAF/\$	\$2.14

Source: World Bank, field surveys, and Wall Street Journal

It is clear from this table that the CFA countries suffer a substantial disadvantage vis-à-vis the non-CFA countries. The former's wage rates, measured in terms of US dollars, are two to three times the latter's. Yet productivity differences between these countries are slight. Over the longer term, the implied differences in wage costs are bound to have an extremely detrimental effect on the CFA countries' exports.

One factor that has improved the situation in recent years has been the return of reasonably normal rainfall, especially in the Sahel. This has greatly decreased the prices of coarse grains, which are not imported to any great extent so that their prices are largely determined by conditions of domestic demand and supply. Since these cereals are an important wage good, this has put downward pressure on nominal wages and helped to decrease the disequilibrium in the balance of payments. Labor markets all over West Africa are linked by migratory flows, however, so that the benefits have been felt in non-CFA countries as well as in those whose currencies are linked to the French franc.

Options regarding the CFA franc

In analyzing alternative scenarios for greater economic integration in West Africa, it is important to consider the options that exist regarding the CFA franc. These include:

1. Continue the existing policy mix of import protection, macroeconomic restraint, and capital inflows.
2. Tighten macroeconomic policy and increase productivity in order to slow inflation to a rate that is less than that which exists in the major trading partners.
3. Increase the degree of import protection through higher tariffs.
4. Devalue the CFA franc.

Each of these is discussed below.

Continue existing policy

The major problem with continuing the existing policy mix is that it does not appear to be sustainable. The earlier section on debt suggested that foreign lenders are increasingly impatient with the slow pace of adjustment and the amount of continued borrowing that is taking place to support the CFA franc. Borrowing on commercial terms is extremely expensive, if not virtually impossible, given the large discount at which existing debt is being traded on secondary markets. Although the bilateral and multilateral donors offer much more favorable terms than do private lenders, especially in Mali and Senegal as compared with the Ivory Coast, the accumulation of debt by each of these countries is also reaching its limits.

Another disadvantage of the existing policy mix is that it leads to relatively large trade distortions in an effort to stem the flow of imports. The field studies that have been carried out as part of this project have provided abundant evidence of the types of distortions involved in the cereals trade. These lead not only to efficiency and consumer losses, but also to substantial resource costs in the form of "rent-seeking" behavior. As a result, agricultural marketing costs are much higher than they need to be, and the pattern of trade is seriously distorted.

Finally, the macroeconomic restraint that is being imposed to try to maintain equilibrium in the balance of payments and in the domestic economy imposes costs on the marketing of agricultural products. First, the squeeze on money and credit makes it difficult for traders to have access to the working capital that is necessary to operate efficiently. Second, given the absence in these countries of indirect instruments for controlling the money supply, credit is generally allocated in ways that do not benefit the most efficient entrepreneurs. When credit is in short supply, for example, it is often the public sector that retains priority in its allocation to the detriment of the private sector.

Tighten macroeconomic policy and increase productivity

The major policy option that the CFA countries are attempting to pursue involves tightening supplies of money and credit, reducing government budget deficits, and increasing

productivity. The objective is to slow inflation to a rate that is less than that which exists in the major trading partners. This would increase the relative prices of tradable compared with nontradable goods and services, in a manner similar to a devaluation, while maintaining the advantages of a common currency area.

The major questions relate to whether the objective of this policy mix can be achieved, over what period of time, and at what cost. Certainly, the high rates of inflation in all of these countries during the 1970s and in Mali and Senegal from 1982 to 1985 have been slowed (see Table 5). But high inflation existed all over the world during the 1970s, and the slowing of inflation in the Sahel during the latter half of the 1980s was probably due as much to good weather as to restrictive macroeconomic policy. There was some improvement in the fiscal performance of the CFA countries toward the end of the 1980s (see Table 3), but whether this will be sustained is another matter. As for productivity gains, there is little evidence that these have occurred to any significant extent in the past, certainly not in the agricultural sector, and prospects for the immediate future do not look much brighter.

It appears, therefore, that adjustment using this policy option will be a slow process, given the extent of overvaluation involved. In the meantime, the costs of restrictive macroeconomic policy and of distorted price structures will continue to be incurred. This will give an important competitive edge to the non-CFA countries, especially in the expansion of exports both within and outside the West African region. For reasons discussed below, it will also severely complicate the process of regional economic integration.

Increased tariff protection

To the extent that macroeconomic restraint is not working and pressure to reduce balance of payments deficits is being applied, the CFA countries may be forced to increase their protection against imports. This is already happening in the rice subsector, where Mali effectively banned rice imports in 1990 and Senegal applied the equivalent of a 92% tariff rate. The result will be increasingly distorted economies and a strong bias against exports,

especially of non-traditional products, which are quite sensitive to cost variations. Over the longer term, this will have a highly detrimental impact on economic growth.

The field surveys for this project have shown that these price distortions give rise to cross-border trade within the region regardless of the barriers put in place to prevent it. The erection of these barriers, however, results in loss of efficiency, costs to consumers, and wasteful rent-seeking behavior. The goal of economic integration is to reduce the already high level these costs.

Devaluation

Devaluation is a complex policy involving simultaneous changes in many relative prices. Much has already been written about devaluation, and a detailed discussion of this option is beyond the scope of this paper. There are, however, several aspects of this policy option that must be mentioned because of their implications for regional economic integration.

The first of these has to do with the form that devaluation might take. One option might be a one-time change in the CFAF/FF exchange rate, leaving the rate between CFA countries as it is. This would be the simplest policy change from the perspective of leaving the system intact.

Another possibility would be for the CFAF system to be dismantled entirely, and for each country to gain control over its own monetary policy and exchange rate. Aside from the problems that this might create for monetary discipline and increased transactions costs in intra-regional trade, the movement towards more flexible exchange rates would make it more difficult to achieve regional economic integration in important agricultural products. The reasons for this are discussed in the next section.

Implications of alternative exchange rate regimes for economic integration

Experience of the European Economic Community

The evolution of the Common Agricultural Policy (CAP) in the European Economic Community provides important insights into the implications of alternative exchange rate regimes for economic integration of the agricultural markets of West Africa. The CAP was created at a time when exchange rates were fixed within Europe, with the exception of realignments that were relatively infrequent. Thus exchange rate changes were not an issue.

What was an issue was the level at which prices were to be set internally in relation to world market prices. For about 70% of the value of agricultural production, these prices were to be maintained by a common variable import levy. Within the EEC, on the other hand, there were to be no barriers to trade in agricultural products. After much discussion, internal prices were set at relatively high levels, which covered the costs of most domestic producers.

In 1967 the French devalued the French franc. Shortly thereafter the Germans revalued the deutsche mark. In units of local currency, this would have raised the prices of tradable agricultural products in France and lowered these prices in Germany. Neither country was willing to do this. Instead they created what were, in effect, separate exchange rates for agricultural products. This was equivalent to imposing import subsidies and export taxes in France and import taxes and export subsidies in Germany. As far as agricultural products were concerned, free trade within the community ceased to exist.

Economic integration in West Africa

Similar problems face the countries of West Africa should they move to integrate the markets for their agricultural products. Each country has historically established a level of prices that reconciles the interests of producers, consumers, and the government budget. In Mali, for example, a long process of reform in the cereals subsector moved consumer prices for rice steadily upwards from relatively low levels. By 1989-90 an effective embargo on legal rice imports resulted in consumer prices in the 180-220 CFAF/kg range. In Senegal,

rice prices to consumers were maintained at somewhat lower levels — 169-176 CFAF/kg for equivalent quality rice¹⁹ — by the operations of the Caisse de Péréquation et de Stabilisation des Prix (CPSP). In Guinea and the Gambia, prices to consumers were about 120 CFAF/kg, with a 10% tariff being applied to world prices converted at exchange rates that reflected equilibrium rates reasonably well.²⁰

The result of this price structure, as one might expect, was an illegal flow of rice from the Gambia into Senegal and from Guinea into Mali. Because of the overvaluation of the CFA franc, trade policy had to be used to restrict imports from the non-CFA to the CFA countries. These policies distorted the allocation of resources, and circumventing them was costly.

If the overvaluation of the CFA franc were eliminated, the prices established in these countries would be reasonably consistent with free trade between them.²¹ Assume, for example, that the CFA franc were devalued by 50% and that the equivalent import tariff were reduced to 10%, as it is in Guinea and the Gambia. The price in Senegal of the quality of rice consumed in Guinea and the Gambia would then equal 175 CFAF/kg — almost the same level that it is today.²² Even the price in Mali of about 200 CFAF/kg would not be very different once transportation costs are taken into account. Thus, unlike in Europe at the time that the CAP was established, the price levels in the western subregion of West Africa

¹⁹ Most of the rice imported into the other countries is 25-35% broken, which is sold at a world market price that is about 30% higher than Senegal's 100% brokens. The price for brokens in Senegal in 1989-90 was 130-135 CFAF/kg.

²⁰ Figures taken from Hibou (1990).

²¹ The analysis here is very preliminary and is designed to illustrate the kinds of problems posed by different exchange rate regimes. For a more precise quantitative assessment of this problem, see Stryker & Salinger (1991).

²² This calculation assumes that the current price of 120 CFAF/kg in Guinea and the Gambia is comprised of the CIF price of 100 CFAF/kg plus a 10% ad valorem tariff plus 10 CFAF/kg for handling and trading margins, which is not affected by the exchange rate change.

appear to be reasonably consistent with one another, once exchange rate disequilibria are taken into account.²³

In the absence of devaluation, it would be impossible to maintain the price levels that currently exist in each of these four countries without restrictive trade policy. If free trade were permitted within the zone, this would require either that Mali and Senegal lowered their external trade barriers or that Guinea and the Gambia raised theirs. Each would require negotiation and compromise in the area of agricultural price policy, which is often politically difficult. The former policy would also cause balance of payments problems for Mali and Senegal, and budgetary problems for Senegal; the latter policy would go against most of the advice received from the donors, would result in losses of efficiency, and would be costly to consumers.

If such a customs union were to be created, the union would face the same problems as did the EEC if there were any further movement in exchange rates. This would almost certainly be the case because the non-CFA countries all have built in mechanisms for exchange rate adjustment. If free trade were to be maintained within the union, internal prices would have to be allowed to adjust with changes in exchange rates. Once initial agreement on a common external tariff barrier is reached, however, such movement might be possible. First, most of the non-CFA countries no longer have official consumer prices for agricultural products. Second, these price movements would probably be much less than the movements in prices of nontradable foods associated with fluctuating domestic supply conditions. Third, to the extent that these exchange rate movements reflected differing rates of inflation at home and abroad, the CFAF price would remain unchanged as long as the CFA countries maintained their rates of inflation in line with those of their trading partners.

Conclusions

²³ The major cost of this policy would be the loss of tax revenue and CPSP profits in Senegal.

The CFA franc is overvalued by at least 50% in the three countries studied here. Depending on the size of the current account which one assumes is sustainable in Senegal, that overvaluation factor may in fact be a good deal higher. Such orders of magnitude are in stark contrast to levels of parity for other African currencies, many of which, as a result of monetary reforms introduced as part of stabilization and structural adjustment programs during the 1980s, are now being traded at market-determined rates, their levels now reasonably close to equilibrium values.

Such a high degree of overvaluation entails important economic costs for the CFAF countries. Reduced competitiveness of Sahelian export commodities and factors abroad, increased incentives to import goods and inputs, reduced profitability (expressed in foreign currency equivalents) of domestic enterprises which renders these economies relatively less attractive to foreign capital, excessively stringent monetary policy, and a more limited range of policy tools available to national government when designing an adjustment strategy are some of the more obvious burdens introduced by heavy overvaluation of the domestic currency. Less obvious, but quite real nonetheless, is the cost of resources squandered in rent-seeking behavior which takes place in response to market distortions.

Without devaluation of the CFA franc, efficient free trade in agricultural products within West Africa cannot occur among CFA and non-CFA countries unless one or the other makes significant changes to its tariff structure. Either non-CFA countries must raise their own import tariffs by about 50%, or CFA countries must lower their protective barriers an equivalent amount. If they do not, the pattern of trade will be badly distorted by exchange rate disequilibrium. Yet the non-CFA countries are reluctant to raise tariffs because their consumers have already suffered enough from past devaluations, and their governments do not want to introduce economic inefficiencies in production behind high protective barriers. The CFA countries, on the other hand, are very averse to lowering tariffs and other, nontariff barriers because this would severely injure their own producers. Thus current barriers persist despite the enormous opportunities they create for rent-seeking behavior

Individual CFA countries face different incentives to devalue depending on a host of factors, including their ability to attract foreign aid, the extent of their budget and balance of payments difficulties, the degree to which their foreign trade is dependent on France versus other markets, etc. Devaluation by the *Communauté* as a whole or by individual CFA countries and a concomitant reduction in import tariffs would result in relative domestic cereals prices remaining more or less at current levels. However, devaluation-cum-tariff reform would have important budgetary implications as tariff revenues decreased and debt repayment obligations increased in domestic currency terms.

By the summer of 1993, it was becoming clear that devaluation of the CFA franc was only a matter of time. A massive outflow of CFA notes led the central banks on August 1 to suspend convertibility of the CFA franc outside of the CFA zone (*Africa Analysis*, August 6, 1993). This resulted in a two-tiered market with the CFA franc expected to sell in Lagos and Accra at a 20 to 40% discount. As the pressure to devalue the CFA franc increased, differences arose among African leaders as to the relative merits of devaluation and what should be its magnitude (*Africa Analysis*, November 27, 1992).

What is clear from the analysis presented in this paper is that devaluation, to be effective, must be substantial and supported by monetary and fiscal policies that will prevent inflation from reducing its impact on the competitiveness of production in the CFA countries. Even with tight macroeconomic policies, however, there will almost certainly be some inflationary slippage so that, unless the exchange rate is to become more flexible, the change in the nominal exchange rate will have to be greater than the desired magnitude of real devaluation.

This implies, according to the results of this study, a nominal devaluation well in excess of 50%. The 20 to 40% discount anticipated for the parallel markets of West Africa following the elimination of outside convertibility does not take into account current trade restrictions and unsustainable capital inflows. Unless the devaluation is sufficiently great to alter substantially the relative prices of tradables and nontradables over the longer term, it

will only shake the confidence of investors, leading to a further outflow of capital. A one-time devaluation of this large magnitude appears to be unlikely, however, leaving these countries with the choice of whether to move to a more flexible rate, as most of their neighbors have done, or to run the risk of a series of recurring foreign exchange crises.

VI. Bibliography

- Abbott, Philip C. 1988. "Modeling Exchange Rate and Macroeconomic Linkages to Agriculture: Lessons from a Structuralist Approach." In Philip L. Paarlberg and Robert G. Chambers, eds. *Macroeconomics, Agriculture, and Exchange Rates*. Boulder, CO: Westview Press; 297-320.
- Africa Analysis*. Fortnightly bulletin published by Ludgate House, London. Various issues.
- Atsain, Achi and Allechi, M'bet. 1988. "A Comparative Study of the Political Economy of Agricultural Pricing Policies in Côte d'Ivoire." Abidjan: Centre Ivoirien de Recherche Économique et Sociale.
- Balassa, Bela and Schydrowsky, Daniel M. 1968. "Effective Tariffs, Domestic Cost of Foreign Exchange, and the Equilibrium Exchange Rate." *Journal of Political Economy* 76 (May-June): 348-360.
- Berg, Elliot et al. 1990. *Adjustment Postponed: Economic Policy Reform in Senegal in the 1980s*. Washington, DC: Development Alternatives, Inc., October.
- Bhatia, Rattan J. 1985. *The West African Monetary Union: An Analytical Review*. IMF Occasional Paper 35. Washington, DC: International Monetary Fund.
- Bienen, Henry. 1990. "The Politics of Trade Liberalization in Africa." *Economic Development and Cultural Change* 38,4: 713-732.
- Bird, Graham. 1982. "Developing Country Interests in Proposals for International Monetary Reform." In Tony Killick, ed. *Adjustment and Financing in the Developing World*. Washington: International Monetary Fund.
- _____. 1983. "Should Developing Countries Use Currency Depreciation as a Tool of Balance of Payments Adjustment? A Review of the Theory and Evidence, and a Guide for the Policy Maker." *Journal of Development Studies*: 461-484.
- Blejer, Mario I. 1978. "Exchange Restrictions and the Monetary Approach to the Exchange Rate." In Jacob A. Frenkel and Harry G. Johnson, eds. *The Economics of Exchange Rates*. Reading, MA: Addison-Wesley: 117-128.
- Claessens, Stijn and Diwan, Ishac. 1990. "Investment Incentives: New Money, Debt Relief, and the Critical Role of Conditionality in the Debt Crisis." *The World Bank Economic Review*, 4,1: 21-41.

- Cleaver, Kevin M. 1985. *The Impact of Price and Exchange Rate Policies on Agriculture in Sub-Saharan Africa*. World Bank Staff Working Paper No. 728. Washington: The World Bank.
- Cohen, Daniel. 1990. "Debt Relief: Implications of Secondary Market Discounts and Debt Overhangs." *The World Bank Economic Review*, 4,1: 43-53.
- Corden, W. M. 1986. *Inflation, Exchange Rates, and the World Economy*, 3rd edition. Chicago: University of Chicago Press.
- Cottani, Joaquin A.; Cavallo, Domingo F.; and Khan, M. Shahbaz. 1990. "Real Exchange Rate Behavior and Economic Performance in LDCs." *Economic Development and Cultural Change*, 39,1: 61-76.
- Coussy, Jean. 1988. "La zone franc au cours des trois dernières décennies (1960-1988)." Paper presented at a roundtable, "Les Afriques francophones depuis leurs indépendances," St. Antony's College, Oxford, England, April 29-30, 1988.
- Dervis, Kermal. 1980. "Analyzing the Resource Pull Effects of Devaluation under Exchange Control." *Journal of Development Economics* 7: 23-47.
- Devarajan, Shantayanan and de Melo, Jaime. 1987a. "Adjustment with a Fixed Exchange Rate: Cameroon, Côte d'Ivoire, and Senegal." *The World Bank Economic Review* 1,3: 447-488.
- _____. 1987b. "Evaluating Participation in African Monetary Unions: A Statistical Analysis of the CFA Zones." *World Development* 15,4: 483-496.
- _____. 1990. "Membership in the CFA Zone: Odyssean Journey or Trojan Horse?" Paper presented at the Conference on African Economic Issues, Nairobi, Kenya, June 5-7, 1990.
- Dornbusch, Rudiger. 1978. "The Theory of Flexible Exchange Rate Regimes and Macroeconomic Policy." In Jacob A. Frenkel and Harry G. Johnson, eds. *The Economics of Exchange Rates*. Reading, MA: Addison-Wesley: 27-46.
- _____. 1988. "Overvaluation and Trade Balance." In Rudiger Dornbusch and F. Leslie C. H. Helmers, eds. *The Open Economy: Tools for policymakers in developing countries*. New York: Oxford; 80-107.
- Dorosh, Paul and Valdés, Alberto. 1990. *Effects of Exchange Rate and Trade Policies on Agriculture in Pakistan*. IFPRI Research Report No. 84. Washington, DC: International Food Policy Research Institute, December.

- Edwards, Sebastian. 1988. "Terms of Trade, Tariffs, and Labor Market Adjustment in Developing Countries." *The World Bank Economic Review* 2,2: 165-185.
- _____. 1989a. *Real Exchange Rates, Devaluation, and Adjustment: Exchange Rate Policy in Developing Countries*. Cambridge, MA: Massachusetts Institute of Technology Press.
- _____. 1989b. "Exchange Controls, Devaluations, and Real Exchange Rates: The Latin-American Experience." *Economic Development and Cultural Change*, 37,3: 457-494.
- _____ and Montiel, Peter J. 1989. "Devaluation Crises and the Macroeconomic Consequences of Postponed Adjustment in Developing Countries." *IMF Staff Papers*, 36,4: 875-903.
- _____ and van Wijnbergen, Sweder. 1988. "Disequilibrium and Structural Adjustment." In Hollis Chenery and T. N. Srinivasan, eds. *Handbook of Development Economics*, vol. 1. Amsterdam: North Holland.
- Fischer, Stanley. 1988. "Devaluation and Inflation." In Rudiger Dornbusch and F. Leslie C. H. Helmers, eds. *The Open Economy: Tools for policymakers in developing countries*. New York: Oxford, 108-127.
- Flood, Robert P., Bhandar, Jadgeep S., and Horne, Jocelyn P. 1989. "Evolution of Exchange Rate Regimes." *IMF Staff Papers*, 36,4: 811-835.
- Greene, Joshua. 1989. "The External Debt Problem of Sub-Saharan Africa." *IMF Staff Papers*, 36,4: 836-874.
- Guillaumont, Patrick et Sylviane. 1988. *Stratégies de développement comparées: Zone franc et hors zone franc*. Paris: Economica.
- Gupta, Sanjeev. 19___. *Black Market Exchange Rates*. Kieler Studien n. 167, Institut für Weltwirtschaft an der Universität Kiel. Tübingen: J.C.B. Mohr.
- Helleiner, Gerald K., ed. 1986. *Africa and the International Monetary Fund*. Washington, DC: The International Monetary Fund.
- Helmers, F. Leslie C. H. 1988. "The Real Exchange Rate." In Rudiger Dornbusch and F. Leslie C. H. Helmers, eds. *The Open Economy: Tools for policymakers in developing countries*. New York: Oxford, 10-33.

- Hibou, Béatrice. 1990. *Analyse comparée des politiques de protection et de régulation des marchés céréaliers ouest-africains: le cas des pays du «sous-espace» ouest*. Paris: INRA-UNB-IRAM.
- INRA-IRAM-UNB. 1990. "Premiers éléments de synthèse sur le 'sous-espace ouest'." Document de travail, Juillet.
- _____. 1991. *Echanges céréaliers et politiques agricoles dans le sous-espace ouest: Quelle dynamique régionale? Rapport de Synthèse*. Avril.
- International Monetary Fund. 1977. *Balance of Payments Manual*, 4th edition. Washington, DC: International Monetary Fund.
- _____. Research Department. 1984. *Issues in the Assessment of the Exchange Rates of Industrial Countries*. IMF Occasional Paper 29. Washington, DC: International Monetary Fund.
- _____. 1988. *IMF Survey*, vol. 17 (supplement). Washington, DC: International Monetary Fund.
- _____. 1990a. *International Financial Statistics*. Washington, DC: International Monetary Fund.
- _____. 1990b. *Direction of Trade Statistics Yearbook, 1983-89*. Washington, DC: International Monetary Fund.
- Jacquemot, Pierre and Assidon, Elsa. 1988. *Exchange rate policy and adjustment in Africa*. Paris: Ministère de la Coopération et du Développement.
- Just, Richard E. 1988. "Exchange Rates and Macroeconomic Externalities in Agriculture." In Philip L. Paarlberg and Robert G. Chambers, eds. *Macroeconomics, Agriculture, and Exchange Rates*. Boulder, CO: Westview Press; 191-218.
- Kahn, Mohsin S. and Lizondo, J. Saul. 1987. "Devaluation, Fiscal Deficits, and the Real Exchange Rate." *The World Bank Economic Review*, 1,2: 357-374.
- Kenen, Peter B. 1969. "The Theory of Optimum Currency Areas: An Eclectic View," in Robert A. Mundell and Alexander Swoboda, eds., *Monetary Problems of the International Economy*. Chicago: University of Chicago Press, pp. 41-60.
- Krueger, Anne O. 1978. *Foreign Trade Regimes and Economic Development: Liberalization Attempts and Consequences*. Cambridge, MA: Ballinger Publishing Co.

- _____. 1982. "Analysing Disequilibrium Exchange-Rate Systems in Developing Countries." *World Development* 10,12: 1059-1068.
- _____. 1983. *Exchange-rate determination*. Cambridge: Cambridge University Press.
- _____; Schiff, Maurice; and Valdés, Alberto. 1988. "Agricultural Incentives in Developing Countries: Measuring the Effect of Sectoral and Economywide Policies." *The World Bank Economic Review*, 2,3: 255-71.
- Maciejewski, Edouard B. 1983. "'Real' Effective Exchange Rate Indices: A Re-Examination of the Major Conceptual and Methodological Issues." *IMF Staff Papers* 30 (September): 491-541.
- McKinnon, Ronald I. 1963. "Optimum Currency Areas," *American Economic Review*, 53 (September): 717-25.
- McLenaghan, John B.; Nsouli, Saleh M.; and Riechel, Klaus-Walter. 1982. *Currency Convertibility in the Economic Community of West African States*. IMF Occasional Paper 13. Washington, DC: International Monetary Fund.
- Mundell, Robert A. 1961. "A Theory of Optimum Currency Areas," *American Economic Review* 51 (September): 657-65.
- Myint, Hla. 1958. "The 'Classical' Theory of International Trade and the Underdeveloped Countries." *Economic Journal* 68: 317-337.
- Oyejide, T. Ademola Oyejide. 1986. *The Effects of Trade and Exchange Rate Policies on Agriculture in Nigeria*. IFPRI Research Report No. 55. Washington, DC: International Food Policy Research Institute, October.
- Pinto, Brian. 1988. "Black Markets for Foreign Exchange, Real Exchange Rates, and Inflation: Overnight versus Gradual Reform in Sub-Saharan Africa." World Bank Policy, Planning, and Research Working Paper, WPS 84. September.
- _____. 1990. "Black Market Premia, Exchange Rate Unification, and Inflation in Sub-Saharan Africa." *The World Bank Economic Review* 3,3: 321-338.
- Quirk, Peter J.; Christensen, Benedicte Vibe; Huh, Kyung-Mo; and Sasaki, Toshihiko. 1987. *Floating Exchange Rates in Developing Countries: Experience with Auction and Interbank Markets*. IMF Occasional Paper 53. Washington, DC: International Monetary Fund.

- Sachs, Jeffrey D., ed. 1989. *Developing Country Debt and the World Economy*, National Bureau of Economic Research Project Report. Chicago: University of Chicago Press.
- Salinger, B. Lynn and J. Dirck Stryker. 1992. *Regional Economic Integration in West Africa: Potential for Agricultural Trade as an Engine of Growth in the Western Subregion*. Cambridge, MA: Associates for International Resources and Development, March.
- Schuh, G. Edward. 1974. "The Exchange Rate and U.S. Agriculture." *American Journal of Agricultural Economics* 56: 1-13.
- _____. 1988. "Some Issues Associated with Exchange Rate Realignments in Developing Countries." In Philip L. Paarlberg and Robert G. Chambers, eds. *Macroeconomics, Agriculture, and Exchange Rates*. Boulder, CO: Westview Press; 231-240.
- Sheikh, Munir A. 1976. "Black Market for Foreign Exchange, Capital Flows and Smuggling." *Journal of Development Economics* 3: 9-26.
- Stryker, J. Dirck et al. 1987. *Incentive System and Economic Policy Reform in Mali*. Somerville, MA: Associates for International Resources and Development, June.
- _____. 1990. *Trade, Exchange Rate, and Agricultural Pricing Policies in Ghana*. Washington, DC: World Bank.
- _____ and B. Lynn Salinger. 1991. *Trade, Agricultural Policy, and the Dynamics of Regional Zones in West Africa: Scenarios for Regional Economic Integration of the Cereals Market in the Western Sub-region*. Cambridge, MA: Associates for International Resources and Development, May.
- Tsakok, Isabelle. 1990. *Agricultural Price Policy: A Practitioner's Guide to Partial Equilibrium Analysis*. Cornell, NY: Cornell University Press.
- Vallée, Olivier. 1989. *Le prix de l'argent CFA: Heurs et malheurs de la zone franc*. Paris: Karthala.
- Wickham, Peter. 1985. "The Choice of Exchange Rate Regime in Developing Countries: A Survey of the Literature." *IMF Staff Papers* 32: 248-288.
- World Bank. 1986. *Financing Adjustment with Growth in Sub-Saharan Africa, 1986-90*. Washington: The World Bank.
- _____. 1989a. *Sub-Saharan Africa: From Crisis to Sustainable Growth*. Washington: The World Bank.

_____ and the U.N. Development Programme. 1989b. *Africa's Adjustment and Growth in the 1980s*. Washington: The World Bank.