



-WPS-048a

Country Economics Department  
The World Bank  
August 1990  
WPS 482

# Membership in the CFA Zone

## Odyssean Journey or Trojan Horse?

Shantayanan Devarajan  
and  
Jaime de Melo

CFA countries fared worse than other comparable countries in the 1980s and reduced spending — particularly investments — disproportionately in adjusting to the external environment. This is an ominous sign for future growth.

**FILE COP**

This paper—a product of the Trade Policy Division, Country Economics Department—is part of a larger research effort in PRE on the experience of economic integration. An earlier version of this paper was presented at the Conference on African Economic Issues in Nairobi, Kenya, June 5-7, 1990. Copies are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Rebecca Sugi, room N10-031, extension 37951 (28 pages, including tables).

For most of the 13 African members of the CFA Franc Zone, the 1980s have been a decade of slow or negative growth in per capita GDP, worsening balance of payments, debt crises, financial crises, declining competitiveness, and an apparent failure to adjust to the changed environment they inherited from the 1970s.

Devarajan and de Melo reassess the costs and benefits of membership in the CFA Franc Zone in light of its members' poor performance in the 1980s.

They base their assessment on comparisons of the members' performance indicators with indicators for comparator groups: other countries in Sub-Saharan Africa, other low- and middle-income countries, and other exporters of fuel and primary goods.

Performance indicators for members of the CFA Zone deteriorated more than indicators for other groups, especially in the second half of the decade.

Growth and investment rates, in particular, fell more for CFA countries. This decline is attributed to the CFA members' declining competitiveness as other countries undertook adjustment programs that emphasized depreciation of the real exchange rate.

Controlling for changes in the external environment, Devarajan and de Melo show that CFA countries adjusted less than comparator countries during the 1980s.

And the burden of their adjustment appears to have fallen disproportionately on reduced spending, particularly reduced investment—an ominous sign for future growth.

The PRE Working Paper Series disseminates the findings of work under way in the Bank's Policy, Research, and External Affairs Complex. An objective of the series is to get these findings out quickly, even if presentations are less than fully polished. The findings, interpretations, and conclusions in these papers do not necessarily represent official Bank policy.

**Membership in the CFA Zone:  
Odyssean Journey or Trojan Horse?**

by

**Shantayanan Devarajan  
Harvard University  
and  
Jaime de Melo  
World Bank, University of Geneva, and CEPR\***

**Table of Contents**

<b>I.</b>	<b>Introduction</b>	<b>1</b>
<b>II.</b>	<b>Growth and Adjustment in the CFA Zone: An Overview</b>	<b>3</b>
<b>III.</b>	<b>Are CFA Zone Growth Rates Different?</b>	<b>11</b>
<b>IV.</b>	<b>A Control Group Approach to Adjustment</b>	<b>15</b>
<b>V.</b>	<b>Conclusions</b>	<b>24</b>
	<b>References</b>	<b>27</b>

**\* We are grateful to Mona Haddad and Julie Stanton for invaluable research assistance. An earlier version of this paper was presented at the Conference on African Economic Issues, Nairobi, Kenya, June 5-7, 1990. We thank Bela Balassa, Stanley Fischer, Ravi Kanbur, and Steve O'Connell for helpful comments.**

## I. Introduction

For most of the thirteen African members of the CFA Franc Zone, the 1980's have been a decade of slow or negative growth in per capita GDP, worsening balance of payments, debt crises, financial crises, declining competitiveness and -- most distressing of all -- an apparent lack of adjustment to the changed external environment they inherited from the 1970's. Of the few recently-documented "success stories" of adjustment in Africa, none is a member of the CFA Zone (World Bank [1989]).

This disappointing performance is curious in light of the cautious optimism about Zone membership voiced earlier in the decade by, among others, Guillaumont and Guillaumont [1984], and Devarajan and de Melo [1987a]. Their optimism stemmed from the notion that participation in the Franc Zone would foster growth on the one hand, and reduce the need for adjustment on the other. Guaranteed convertibility of the CFA Franc and the fixed exchange rate with the French Franc would lead to a stable investment climate for domestic and foreign investors, thereby stimulating economic growth. As for adjustment, the rules of the Zone led to monetary and fiscal discipline. By avoiding some of the excesses of their African neighbors, Zone members' need to adjust would be less -- even though they lacked an important instrument of adjustment, namely, a currency devaluation<sup>1</sup>. Furthermore, as Devarajan and de Melo [1987b] pointed out, CFA countries had enough

---

<sup>1</sup>For a recent analysis of the failure of the CFA Zone to realize the gains from monetary cooperation, see Honohan [1990].

instruments with which to depreciate the real exchange rate which was, after all, the relevant signal for structural adjustment.

The purpose of this paper is to reassess the benefits and costs of the CFA Zone in light of the poor performance of its members in the 1980's. We do so by looking at the facts. First, in section II, we ask whether on average CFA countries fared worse than a group of "comparator" countries. Since there is no clear-cut group of comparators, we look at three: other Sub-Saharan African countries, other low- and middle-income countries and other primary and fuel exporters. Recognizing that a comparison of averages neglects differences within a group of countries, we perform some statistical estimations in section III. We ask: assuming that year-to-year GDP growth rates for all countries are drawn from a random distribution, is there evidence that the distribution of CFA countries' growth rates is significantly different from that of the comparators? In section IV, we take a closer look at the adjustment experience of CFA countries vis-a-vis their comparators. Did CFA countries adjust less, controlling for the size of the external shock, than other countries? Did they adjust differently? One argument is that, given that they cannot devalue their nominal exchange rate, CFA countries cannot levy an "inflation tax" to finance a fiscal deficit. We ask whether this led to lower inflation and higher current account deficits. Another argument is that the fixed exchange rate makes expenditure-switching more difficult, so that CFA countries rely

more on expenditure-reduction as a means of adjustment. We test this hypothesis. Section V contains some concluding remarks.

## II. Growth and Adjustment in the CFA Zone: An Overview

In this section, we compare the average performance of CFA members with that of the three groups of comparator countries. Rather than undertake a detailed analysis, we look for broad patterns that will suggest the statistical evaluations of subsequent sections. This approach is based on simple, unweighted averages of countries' performance indicators over different periods. The approach does not recognize that during the last two decades, countries have been subjected to external and internal shocks that have varied in timing and magnitude across countries. Our method of aggregation by country groupings implies that the shocks were uniform within each group. Later, we will allow for some diversity in comparisons based on an error components model. Nevertheless, these preliminary comparisons are a useful starting point for further analysis.

We compare CFA members with three groups of comparators. The most important comparator group is other Sub-Saharan African countries (SSA). These countries have most in common with Zone members in terms of economic structure, history and culture. Furthermore, being their neighbors, they provide Zone members with the best perspective on "life outside the CFA Zone". We also compare CFA countries with other low-income countries and other primary exporters. Except for Gabon, all CFA countries had a per

capita income in 1980 below \$1200. We use this figure as the cut-off for low-income countries. Higher income countries, such as those in Latin America and East Asia, tend to have very different economic structures and human capital endowments; hence their exclusion from the comparator set. In the same vein, there is some evidence that countries producing and exporting primary products have different adjustment histories from those which emphasize manufactured goods [Faini and de Melo (forthcoming)]. Since every CFA country is either a primary or fuel exporter, we also compare them with other primary/fuel exporters<sup>2</sup>.

Table 1 displays the averages for our different indicators of CFA countries and their comparators during the period 1973-88. We divide the period into two subperiods, corresponding (roughly) to the pre- and post-adjustment periods for most countries. The results broadly confirm our earlier results (Devarajan and de Melo [1987a]), where the sample period extended from 1960 to 1982. There, we showed that CFA countries' average GDP growth rate was slightly higher than that of other Sub-Saharan African countries, but lower than that of other developing countries<sup>3</sup>. Furthermore, we found that the relative performance of CFA countries improved after 1973. We attributed the differences to the benefits from

---

<sup>2</sup>The definition of a manufacturing exporter is a country whose share of manufactured goods in total exports exceeds 30 percent and whose share of manufacturing in GDP exceeds 13 percent. All other developing countries are in our comparator group.

<sup>3</sup>A complementary study by Guillaumont et al. [1988a] reached the same conclusion using a broader set of indicators. See also Guillaumont et al. [1988b].

**TABLE 1: A Comparison Between the 1970's and 1980's****Average Annual Real GDP Growth Rate (percent)**

	1973-81	1982-89
CFA (11)	3.7	2.6
Other:		
SSA (20)	2.7	2.0
Low-income (41)	4.4	2.9
Primary (52)	4.6	3.9

**Real Total Investment/Real GDP**

CFA	24.3	18.9
Other:		
SSA	20.3	17.8
Low-income	21.6	19.8
Primary	22.5	19.4

**Debt/GDP (Debt Service/Exports in parenthesis)**

CFA	30.6	(7.7)	62.5	(19.2)
Other:				
SSA	28.6	(9.7)	70.5	(20.9)
Low-income	26.0	(13.0)	58.4	(22.3)
Primary	24.9	(15.1)	56.4	(25.2)

**Average Annual Inflation**

CFA	12.0	2.3
Other:		
SSA	24.3	29.7
Low-income	18.4	33.3
Primary	24.4	44.9

**Real Exchange Rate (1980=100)**

CFA	107.0	108.0
Other:		
SSA	115.0	147.0
Low-income	103.0	121.0
Primary	103.0	119.0

**Average Annual Export Growth Rate**

CFA	6.8	1.5
Other:		
SSA	1.9	2.6
Low-income	4.9	5.0
Primary	4.8	7.6

**Note:** Unweighted averages. Number of countries in parenthesis.



stability of a fixed exchange rate regime, especially in the turbulent post-1973 era of floating exchange rates.

The pattern we discerned using data up to 1982 appears to have persisted through the late 1980's. Table 1 indicates that CFA countries enjoyed an average annual growth rate over half a percentage point higher than their African neighbors. Their performance relative to other low-income and primary-exporting countries continued to be inferior. While the basic trends established up to 1982 appear to be sustained, the gap between CFA and other African countries seems to be narrowing. The difference in GDP growth rates was a full percentage point in the 1970's.

As for other indicators in Table 1, the gap in investment-to-GDP ratios between CFA countries and their African counterparts narrowed much further during the eighties. Whereas in the 1970's Zone members had a higher investment ratio than any of the comparators (and four percentage points higher than other African countries), in the 1980's they were all bunched around the same number. The decline in investment, and the narrowing of the gap between CFA countries and others, is a two-edged sword. On the one hand, lower investment ratios could be associated with an increase in the efficiency of investment, as various "white elephants" are abandoned. On the other hand, if there is no improvement in the marginal efficiency of investment, the shortfall would signal a further slowdown in GDP growth in the future. As we will see, the latter possibility appears more likely when we look at the 1982-89 period more closely.

The next two indicators, debt and inflation, highlight the particular aspects of the CFA Zone rather sharply. Having a fixed and rigid nominal exchange rate with the French Franc -- changes in parity require the unanimous consent of Zone members -- effectively limits the seignorage tax that CFA countries can levy. Consequently, the countries have experienced dramatically lower inflation rates than their African counterparts, let alone than other low-income and primary-producing countries. In fact, while average inflation rates have risen in other parts of the developing world, as a consequence of the deterioration in the external environment starting around 1982, they have fallen in the CFA Zone: the average rate in the 1980's was under 5 percent.

At the same time, CFA countries have had, until recently, an unlimited line of credit from the French treasury, known as the compte d'operations. This enabled them to have an average debt-to-GDP ratio in the 1970's that was higher than all of the comparator groups' averages. As it has for other low-income countries, this ratio doubled for the CFA Zone in the 1980's. However, the debt-to-GDP ratio rose less rapidly than in the SSA group. Thus, while the fixed exchange rate may have exerted some monetary discipline in the CFA Zone, it did not decrease their reliance on external finance.

The next two indicators, debt service/exports and the real exchange rate should be examined jointly, along with the debt-to-GDP ratio, since a real exchange rate depreciation should help lower the debt-service ratio if there is an export supply response

-- although it will also raise the debt-to-GDP ratio (see, for example, Rodrik [1989]). While CFA countries' average debt-to-GDP ratio over 1982-89 was lower than their African counterparts, their average debt-service ratio was almost the same. In other words, the debt-servicing needs and, implicitly, the creditworthiness of these two groups of countries are roughly comparable. Yet, while the real exchange rate of the other African countries depreciated almost 30 percent between the 1970's and 1980's, that of the CFA Zone stayed the same. This may provide a clue to the debt-service puzzle mentioned earlier. By depreciating their real exchange rates, the other African countries have been able to raise exports so that their ratio of debt-service payments to exports is comparable to that of CFA countries, although at the expense of their debt-to-GDP ratio. Put another way, by not depreciating their real exchange rate, the CFA countries have probably not generated a comparable export supply response, so that their debt service ratio is the same as that of other African countries, although their debt-to-GDP ratio is lower.

Some of the speculation in the above paragraph is vindicated by a comparison of export growth of CFA countries vis-a-vis their comparators. Zone members experienced faster growth in their exports than all of their comparators during 1973-81; in the second subperiod, 1982-89, their average export growth rate was the slowest, perhaps because of the lack of real exchange rate depreciation.

This comparison between the seventies and eighties masks the evolution of adjustment throughout the 1980's. When we break the period up into two subperiods, 1982-85 and 1986-89, the deterioration in the CFA Zone's position becomes clearer. The results appear in Table 2. Several striking patterns emerge. First, while the CFA countries' average GDP growth was higher than that of other African countries in the first subperiod, it was actually lower in the second. When the growth rate in the rest of Africa accelerated after 1985, that in the CFA Zone declined. Second, the investment rate in the Zone fell sharply during this period, to the point where it is (marginally) lower than that of all its comparators (recall that in the 1973-81 it was the highest). Third, while the real exchange rate in other African countries depreciated even more sharply in the second period, it appreciated in the CFA Zone, partially a reflection of the depreciation of the dollar vis-a-vis the French franc.

One interpretation of this change in relative positions is that, by undertaking adjustment programs that emphasized a real exchange rate depreciation, the other African countries were able to benefit from the improvement in world commodity prices and demand after 1985. In particular, they were able to enjoy export growth which translated into faster GDP growth. Another interpretation would emphasize that the competitiveness of CFA countries was undermined by the continued depreciation of their

**TABLE 2: A Closer Look at the 1980s**

**Average Annual Real GDP Growth Rate (percent)**

	1982-85	1986-89
CFA (11)	3.5	1.8
Other:		
SSA (20)	1.0	3.0
Low-income (41)	2.4	3.4
Primary (52)	4.8	2.9

**Real Total Investment/Real GDP**

CFA	21.3	16.6
Other:		
SSA	18.4	17.1
Low-income	20.7	18.8
Primary	20.6	18.2

**Debt/GDP (Debt Service/Exports in parenthesis)**

CFA	58.0 (16.1)	67.1 (21.5)
Other:		
SSA	57.1 (17.1)	83.5 (24.9)
Low-income	49.3 (19.5)	67.6 (25.0)
Primary	47.1 (22.4)	65.9 (27.9)

**Average Annual Inflation**

CFA	8.6	1.0
Other:		
SSA	26.2	35.7
Low-income	19.5	50.4
Primary	28.9	64.6

**Real Exchange Rate (1980=100)**

CFA	115.0	100.0
Other:		
SSA	124.0	177.0
Low-income	109.0	136.0
Primary	106.0	136.0

**Average Annual Export Growth Rate**

CFA	3.0	0.1
Other:		
SSA	0.1	5.0
Low-income	1.2	8.8
Primary	7.6	7.7

Note: Unweighted averages. Number of countries in parenthesis.

neighbors' currencies<sup>4</sup>. There is also some evidence that after 1982, the line of credit from the compte d'operations was no longer completely open. Zone members needed to cut back their current account deficits. Given the lack of real exchange depreciation, this must have come through expenditure reduction. In particular, they reduced investment sharply which led to a fall in GDP growth rates, which may continue into the future.

### III. Are CFA Zone Growth Rates Different?

As mentioned earlier, a comparison of averages assumes implicitly that all countries within a group are uniform. We now relax that assumption. Specifically, we assume that the GDP growth rate for each country in each year is drawn from a random distribution. We then ask whether the distribution from which CFA countries' growth rates are drawn is significantly different from that of the comparators. Note that this, too, is a strong assumption since it assumes away the role of a host of other factors which influence growth.

A common method for answering the question asked by the title to this section is by pooling the cross-section and time-series

---

<sup>4</sup>Lest we read too much into the real exchange rate figures, we should clarify how they are constructed. The figures represent the ratio of the trade-weighted average of the wholesale price indices of each country's trading partners to the consumer price index of that country. Hence, they represent only a partial index of competitiveness. In particular, a sudden increase in a country's export price will not be captured in the real exchange rate index. Nevertheless, to the extent that African countries face similar commodity prices, the index presented here reflects the differences in competitiveness across groups of countries.

data and using least squares regression with dummy variables. To control for country-specific differences, this method requires a dummy variable for each country, which severely restricts the number of degrees of freedom. Instead, we use a modified approach, known as the "error-components framework" which assumes that the intercept term in the regression of the logarithm of GDP on the time trend (and a dummy variable) is also a random variable. This random variable is assumed to pick up the influence of omitted variables in determining growth. The error-components method requires the use of a generalized least squares estimator to get efficient estimates (see Fuller and Battese [1974]) but results in greater degrees of freedom.<sup>5</sup> As this was also the model estimated in our previous work on the CFA Zone (Devarajan and de Melo [1987a]), it also has the advantage of providing a basis for comparison.

Table 3 presents the estimated coefficients for  $\beta$  and  $\beta'$  in the following model:

$$Y_{it} = \alpha_i D_{it} + \alpha'_i D'_{it} + \beta D_{it} T + \beta' D'_{it} T + u_{it}$$

where

$Y_{it}$	=	logarithm of GDP of country $i$ in year $t$
$D_{it}$	=	dummy variable for CFA members
$D'_{it}$	=	dummy variable for comparator group members
$T$	=	time trend
$u_{it}$	=	composed error term <sup>6</sup>

---

<sup>5</sup>The maintained hypothesis is that the random component is uncorrelated with the time trend.

<sup>6</sup>The composed error term  $u_{it} = a_i + v_{it}$  where  $a_i$  are random variables rather than fixed and  $v_{it}$  is the usual error term. We assume that the residuals from different cross-section units are independent.

Given the definition of the variables, the estimates of  $\beta$  and  $\beta'$  represent the growth rates for CFA and comparator countries, respectively.

---

**Table 3**  
**Estimated Growth Rates from Error-Components Model**  
(standard errors in parenthesis)

---

	1973-81	1982-89
CFA	3.9 (0.33)	2.1 (0.43)
Other:		
SSA	2.5 (0.25)	2.3 (0.33)
Low Income	4.2 (0.19)	3.0 (0.23)
Primary	4.5 (0.17)	2.8 (0.20)

Note: All the coefficients are significantly different from zero at the 95% confidence level.

---

The regression results confirm the pattern suggested by the comparisons of averages above. While they enjoyed significantly higher growth rates than their African counterparts in the 1970's, CFA countries fell behind in the 1980's. In fact, the estimated growth rate for CFA countries is lower than that for other Sub-Saharan African countries for the 1982-89 period as a whole. Our comparison of means showed this to be true only for the latter half of this period, i.e., for 1986-89. Furthermore, the gap between



CFA countries and other low income countries and other primary exporters appears to have widened.

Table 3 shows that the growth rates of CFA countries and their comparators were all significantly different from zero, and that the growth rate of CFA countries fell more in the second subperiod than did those of the others. It does not, however, answer the question, "was the growth rate of CFA countries significantly different from that of its comparators?" To answer this, we need to test whether the difference in the coefficients is significantly different from zero. Table 4 reports the results of such a test, where "significantly different from zero" is defined at the 95 percent confidence level.

---

**Table 4**  
**Growth Comparisons by Subperiod**

---

	1973-81	1982-89
Other:		
SSA	+	NS-
Low Income	NS-	-
Primary	-	NS-

Note: + (-) indicates that growth in the CFA Zone was significantly higher (lower) than in the comparator group; NS+(NS-) indicates the growth rate in the CFA Zone was higher (lower) but not significantly so.

---

Once again, the results corroborate the fact that the CFA Zone's performance has declined in relative terms during the 1980's. The members' growth rate was significantly higher than that in Sub-Saharan Africa in the 1970's. In the 1980's, it was

lower, but not significantly so. If we think of economic growth as a running race, CFA countries in the 1970's were clearly ahead of the pack of all African countries. By the 1980's, they were indistinguishable from the rest of the pack. Similarly, while CFA members' growth rate was not significantly different from that of other low-income countries in 1973-81, it became significantly lower in 1982-89. That is, in the race with other low-income countries, CFA Zone members fell behind the pack in the 1980's.

#### IV. A Control Group Approach to Adjustment

The statistical approach in the previous section suffers from the fact that it does not control for factors that are likely to affect performance. In particular, developing countries were differentially affected by external shocks during the 1970's and 1980's. Could the differences in growth rates between the CFA Zone and its comparators be attributable to these left-out factors? In this section, we attempt a partial answer to that question by relying on a statistical approach often used in the evaluation of adjustment programs, namely, the modified control-group approach [see, for example, Faini et al. (forthcoming)]. In terms of our evaluation, this method amounts to looking for a fixed effect (in this case, belonging to the CFA Zone) in explaining performance after controlling for changes in the external environment facing each country. As before, our comparisons are for the two subperiods, 1973-81 and 1982-89. Adding some structure to our model, we now specify that the change in performance between the

two subperiods -- where performance is measured by the average value of selected indicators during each period -- is a function of autonomous policy changes after controlling for changes in the external environment between the two periods. Specifically, denote the set of performance indicators  $j$  for country  $i$  by  $y_{ij}$ . We postulate that changes in the value of each performance indicator depends on the vector of autonomous policy changes,  $x_i$ , on changes in the external environment,  $SH_i$ , and on membership in the CFA Zone:

$$y_{ij} = \alpha_{0j} + x_i' \alpha_i + SH_i \alpha_{2j} + \alpha_{3j}d + \epsilon_{ij}$$

where a prime denotes a transpose and  $d$  is a dummy variable that takes the value 1 for countries that belong to the CFA Zone and 0 otherwise.

Since autonomous policy changes are difficult to observe, we postulate that they are a function of the difference between the realized value of a performance indicator and some target value. Hence, we use lagged values of the performance indicators as proxies for the changes in policy (see Faini et al. for details). The statistical results reported below show the coefficients for a model where each observation is an average over the first or second subperiods.

The shock variable is a weighted average of changes in the world real interest rate ( $R$ ), export price index ( $PX$ ) and import price index ( $PM$ ) for each country. The weights are the ratios to

GDP (Y) of debt (D), exports (X) and imports (M), respectively. By "changes", we mean the difference in the average value of these variables between 1973-81 and 1982-89. In symbols,

$$SH = (R_2 - R_1)(D/Y)_1 - (PX_2 - PX_1)(X/Y)_1 + (PM_2 - PM_1)(M/Y)_1$$

where the subscripts refer to averages over the first and second subperiods, and country subscripts have been omitted.

The estimate of the shock variable turns out to be lower for CFA countries than for any of the comparator groups. Indeed, the shock faced by other Sub-Saharan African countries was over twice that facing CFA countries. Hence, some of the lack of adjustment in the CFA Zone may be explained by a reduced need for adjustment. The question is whether, given the reduced need for adjustment, the observed adjustment was still "too little".

The results<sup>7</sup> are presented in Table 5. The CFA dummy variable has a negative coefficient for all comparisons. The two coefficients that are consistently significant for the CFA Zone are those in the inflation and current account equations. The interpretation is that CFA countries, after controlling for differences in the shocks they faced between the two periods, had lower inflation and less current account improvement in the 1980's relative to the 1970's. The coefficients on the dummy variables for the GDP growth and investment equations are also lower, but not

---

<sup>7</sup>After correction for heteroskedasticity and one round of exclusion tests for outliers.

**Table 5**  
**Performance in the CFA Zone**

Dependent Variable	Y <sub>-1</sub>	I/Y <sub>-1</sub>	INF <sub>-1</sub>	CA <sub>-1</sub>	CFA	SH
<b>Comparison with Other Sub-Saharan African Countries:</b>						
Y	-.889* (-4.73)	.094 (1.47)	.021 (.80)	.057 (.54)	-.009 (-.82)	.049 (1.01)
I/Y	1.032* (2.37)	-.656* (-3.72)	.010 (.09)	.061 (.27)	-.022 (-.89)	.235 (1.70)
INF	-2.151* (-2.47)	-.012 (-.05)	.212 (.67)	-1.397* (-4.24)	-.138* (-3.01)	.135 (.63)
CA	.282* (1.73)	.052 (.85)	.021 (.95)	-.661* (-5.84)	-.032* (-3.24)	-.106* (-2.18)
<b>Comparison with Other Low-Income Countries:</b>						
Y	-.433* (-2.63)	.035 (.58)	.039 (1.27)	-.093 (-.95)	-.021 (-1.58)	.014 (.37)
I/Y	.457* (2.07)	-.36* (-3.74)	-.004 (-.06)	.185 (1.54)	-.01 (-.77)	-.078 (-1.28)
INF	-1.70* (-4.4)	-.276* (1.75)	.163 (.65)	-.827* (-4.64)	-.134* (-3.85)	.081 (1.17)
CA	.111 (.76)	-.025 (-.48)	.015 (.62)	-.765* (-6.87)	-.024* (-2.48)	-.056 (-1.40)
<b>Comparison with Primary Exporting Countries:</b>						
Y	-.63* (-5.1)	.069 (1.60)	.025 (1.58)	.01 (.16)	-.015 (-1.30)	.02 (.66)
I/Y	.55* (2.77)	-.391* (-5.41)	-.027* (-1.85)	-.091 (-.63)	-.005 (-.36)	-.116* (2.00)
INF	-.75* (-1.72)	-.003 (-.002)	-.123 (-.59)	-.537* (-2.74)	-.106* (-2.58)	.046 (.59)
CA	-.033 (-.23)	.032 (.58)	-.001 (-.06)	-.781* (-7.01)	-.026* (-2.40)	-.068 (1.51)

Notes: The constant term is omitted from the results. Asterisks denote those coefficients which are significant at least at the 90 percent level. Y = GDP growth; I/Y = investment/GDP; CA = current account/GDP; INF = inflation rate. The subscript (-1) denotes lagged values. Results are corrected for heteroskedasticity by weighing each observation by the inverse of its estimated standard error. Extreme influential observations are excluded.

significantly so. The overall impression from this set of regression coefficients is that, while average GDP growth and investment-to-GDP ratios may have been lower in the 1980's in the CFA Zone, the more significant differences appear in the average inflation rates and current account improvement. The former is not surprising. As mentioned earlier, the rules of Zone membership prevent CFA governments from levying an inflation tax, so that the fixed effect on inflation for CFA countries would be lower. The current account coefficient is much more troubling. It implies that in all of the comparator groups, CFA countries are conspicuous by their inability to reduce their current account deficits, even taking into account the fact that the shocks they face (i.e., the need to adjust) may have been different.

This observation is consistent with our earlier result about the lack of real exchange rate depreciation in the CFA Zone. While the rest of Sub-Saharan Africa depreciated its real exchange rate by an average of 25 percent in the 1980's, the CFA Zone's real exchange rate appreciated. Such a result would not have been a problem by itself if the CFA countries did not need to depreciate their real exchange rate. However, the coefficients in Table 5 show that they needed to. Controlling for differences in shocks they faced, the amount of current account improvement in the CFA Zone was systematically lower than in the comparator groups.

Note that the coefficients of the lagged variables are usually significant with the expected sign. The higher the value of the own-lagged variable, the lesser the change in performance between

the two periods. For example, other things equal, the higher is average growth in the period 1973-81, the less is the increase in average growth during 1982-89 compared with 1973-81. While the external shock variable has the expected sign for the inflation and current account equations, it enters positively with the change in growth and investment, which is unexpected. Although, in most instances, these coefficients are not statistically significant, the low explanatory power of the proxy measure for external shocks suggests some measurement inaccuracies.

Another problem with the results in Table 5 is that we may have misspecified the model. In particular, by controlling for autonomous policy changes separately from CFA Zone membership, we may be neglecting those aspects of Zone membership that are associated with policy. An alternative formulation would be to leave out the independent variables for autonomous policy changes or, their proxy, the lagged dependent variables.<sup>8</sup> Unfortunately, this specification only yielded significant coefficients for the CFA variable in the inflation equation. The effect of CFA membership on current account improvement was not statistically significant. Thus, isolating autonomous policy changes sharpens our estimates of the fixed effects due to Zone membership, possibly because there was no systematic relationship in the use of these policies among Zone members.

Despite these qualifications, there is some evidence that adjustment in the CFA Zone has been insufficient in the 1980's,

---

<sup>8</sup>We are grateful to Stanley Fischer for this suggestion.

arguably the era when almost everybody else in Africa was undertaking major adjustment programs. We have suggested one reason for the Zone's lack of adjustment, namely, the inability of Zone members to effect a nominal devaluation. But the nominal exchange rate is but one instrument of adjustment. In principle, CFA Zone members have enough instruments with which to adjust their economies (Devarajan and de Melo [1987b]). In practice, they have been reluctant to use these other instruments or, when they have chosen to use them, the results have been disappointing<sup>9</sup>. The advantage of a nominal devaluation is that it permits "expenditure-switching" to accompany the necessary "expenditure-reduction" of an adjustment program. In this case, the amount of expenditure-reduction required would be less (Corden [1988]). It follows, therefore, that CFA members would have had to rely more on expenditure-reduction as opposed to expenditure-switching in reducing their current account deficits. We now test this hypothesis.

Using the data from the two subperiods, 1973-81 and 1982-89, we estimate an equation which links the target of adjustment -- the resource balance expressed as a ratio to GDP -- with the investment rate and the real exchange rate. The investment rate is used here as an instrument for expenditure-changing policies. Of course, there are other instruments, including government consumption expenditure. However, it is easier to cut investment

---

<sup>9</sup>For a discussion of Cote d'Ivoire's attempt at simulating a devaluation by a uniform tariff-cum-subsidy scheme, see O'Connell [1989].



first, especially in a slow growing economy. Therefore, it is worth examining the extent to which improvements in the resource balance reflected declines in investment.

The regression linking the resource balance with investment and the real exchange rate also contains a dummy variable for each country, to capture country-specific effects, and a time trend. The results of the regression yield a negative -- and highly significant -- coefficient on the investment variable for both CFA and non-CFA countries. By contrast, the coefficient on the real exchange rate variable is small and indistinguishable from zero. This is consistent with other studies that have attempted to link the real exchange rate to the resource balance or the trade balance. For example, Pritchett [1990] found only a weak relationship between the merchandise trade balance and the real exchange rate, even when controlling for terms of trade movements. His reasoning, which may also apply here, was that while exports may respond to changes in the real exchange rate, imports were determined by foreign exchange availability, i.e., exports, and hence may move perversely.

Undaunted by the insignificance of the real exchange rate variable, we use the estimated regression coefficients to compute the predicted resource balance in 1978-79 and 1987-88. For both CFA and non-CFA countries, the resource balance improved between the first and second two-year periods. This is a reflection of the cutback in foreign lending in the 1980's and the simultaneous need for these countries to make increasingly higher debt-service

payments. We can then ask the question: how much of the improvement in the resource balance between 1978-79 and 1987-88 was due to investment-reduction, and how much to real-exchange-rate depreciation? Were the relative proportions different between CFA and non-CFA countries? The results are reported in Table 6.

---

**Table 6**  
**Changes in Resource Balance, Investment and**  
**the Real Exchange Rate between 1978/9 and 1987/8**

---

	Average Predicted Change in Resource Balance/GDP	Investment Component	RER Component
CFA	.046-	.071	-.033
Other Low Income	.050-	.053	.232

Note: Column 1 is equal to the sum of columns 2 and 3 plus the intercept term.

---

First, although the improvement in the resource balance-to-GDP ratio was roughly comparable for the two groups of countries, the investment components were quite different. CFA countries relied more heavily on cutting investment than did other low-income countries. Second, the real exchange rate component even has the wrong sign for CFA countries. That is, instead of contributing to the reduction in the current account deficit, the real exchange rate may have worked against it in the CFA Zone, though the lack of statistical significance of the coefficient on the real exchange rate variable calls for caution in interpreting this result. Finally, and most importantly, the relative

contributions of investment-reduction and real exchange rate depreciation are very different between the two groups of countries. For other low-income countries, it is about one-quarter whereas for CFA members it is over 2 (and with the wrong sign).

## V. Conclusions

The purpose of this paper has been to assess whether the particular institutional arrangement of the CFA Zone has aided or hurt its members. It has been argued that the convertible currency with a fixed exchange rate results in monetary and fiscal discipline which, in turn, benefits Zone members. Just as Ulysses tied himself to the mast, CFA governments abdicated the right to levy an inflation tax so that they will never be tempted to do so. The evidence of the relative performance of CFA countries' economies vis-a-vis their comparators shows that this argument was persuasive until the early 1980's.

After 1981, changes in the world environment and persistent current account deficits meant that CFA countries needed to adjust their economies along with most other developing countries. Our statistical results show that they did not adjust as much as they needed to. Furthermore, their growth performance was disappointing. Under every estimate, Zone members' GDP growth rates fell behind those of their counterparts, including the other African states. Finally, the burden of adjustment appears to have fallen disproportionately on expenditure-reduction in general, and

investment-reduction in particular -- an ominous sign for future growth.

Of course, a change in external circumstances does not necessarily mean that the original commitment to a fixed exchange rate was unwise.<sup>10</sup> It is possible that CFA Zone members took all these contingencies into account in making the original decision to join the Zone and hence forego the opportunity to devalue their nominal exchange rate in the future. In this case, there are no policy implications from the recent deterioration in the Zone's economic performance. The members may have drawn a bad hand, but not one which renders their original decision sub-optimal.

An alternative interpretation is that the current circumstances facing the CFA Zone lie outside the set of events which were considered when the original decision to join the Zone was made. In particular, the adverse terms of trade shocks of the 1970s and 1980s, and the attendant need to shift resources from nontradables to tradables, may not have been expected in the 1960s. Such an argument is compelling because the exchange rate is both an instrument for transforming resources from nontradables to tradables as well as an inflation-creating (or controlling) tool. It could be that the founders of the Zone calculated the inflation-controlling benefits of a fixed exchange rate without anticipating the costs in terms of the countries' inability to adjust to unfavorable external circumstances. Thus, the very institutional

---

<sup>10</sup>We are grateful to Ravi Kanbur, whose comments helped us sharpen this argument.

arrangement which enabled these countries to enjoy faster and more stable growth in the 1970's is preventing them from adjusting to the external and internal shocks of the 1980's. In short, what began as an Odyssean journey may have turned into a Trojan horse.

### References

- Corden, W. M., "Macroeconomic Adjustment in Developing Countries," Research Department, International Monetary Fund, 1988.
- Devarajan, S. and J. de Melo, "Evaluating Participation in African Monetary Unions: A Statistical Analysis of the CFA Zones," World Development, Vol. 15, No. 4, pp. 483-96, 1987a.
- Devarajan, S. and J. de Melo, "Adjustment with a Fixed Exchange Rate: Cameroon, Cote d'Ivoire and Senegal," World Bank Economic Review, Vol. 2, No. 2, 1987b.
- Faini, R., J. de Melo, A. Senhadji-Semlali and J. Stanton, "Growth-Oriented Adjustment Programs: A Statistical Analysis", World Development (forthcoming).
- Faini, R. and J. de Melo, "Adjustment, Investment and the Real Exchange Rate in Developing Countries," Economic Policy (forthcoming).
- Fuller, W. and G. Battese, "Estimation of Linear Models with Crossed Error Structure," Journal of Econometrics, Vol. 2, pp. 67-78, 1974.
- Guillaumont, P. and S. Zone Franc et Developpement Africain, Paris: Economica, 1984.
- Guillaumont, P., S. Guillaumont and P. Plane, "Participating in African Monetary Unions: An Alternative Evaluation," World Development, Vol. 16, No. 5, pp. 569-76, 1988a.
- Guillaumont, P. and S. Guillaumont, eds., Strategies de Developpement Comparees: Zone Franc et Hors Zone Franc, Paris: Economica, 1988b.
- Honohan, P. "Monetary Cooperation in the CFA Zone," Policy, Research and External Affairs Working Paper No. WPS 389, World Bank, 1990.
- O'Connell, S. "Uniform Trade Taxes, Devaluation and the Real Exchange Rate: A Theoretical Analysis," Policy Planning and Research Working Paper No. WPS 185, World Bank, 1989.
- Pritchett, L., "The Merchandise Trade Balance and the Real Exchange Rate in LDC's," Country Economics Department, World Bank, 1990.
- Rodrik, D., "The Welfare Economics of Debt Service," John F. Kennedy School of Government, Harvard University, 1989.

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

PRE Working Paper Series

	<u>Title</u>	<u>Author</u>	<u>Date</u>	<u>Contact for paper</u>
WPS455	A Formal Estimation of the Effect of the MFA on Clothing Exports from LDCs	Junichi Goto	June 1990	M. T. Sanchez 33731
WPS456	Improving the Supply and Use of Essential Drugs in Sub-Saharan Africa	S. D. Foster	June 1990	Z. Vania 33664
WPS457	Financing Health Services in Africa: An Assessment of Alternative Approaches	Germano Mwabu	June 1990	Z. Vania 33664
WPS458	Does Japanese Direct Foreign Investment Promote Japanese Imports from Developing Countries?	Kenji Takeuchi	June 1990	J. Epps 33710
WPS459	Policies for Economic Development	Stanley Fischer Vinod Thomas	June 1990	WDR Office 31393
WPS460	Does Food Aid Depress Food Production? The Disincentive Dilemma in the African Context	Victor Lavy	July 1990	A. Murphy 33750
WPS461	Labor Market Participation, Returns to Education, and Male-Female Wage Differences in Peru	Shahidur R. Khandker	July 1990	B. Smith 35108
WPS462	An Alternative View of Tax Incidence Analysis for Developing Countries	Anwar Shah John Whalley	July 1990	A. Bhalla 37699
WPS463	Redefining Government's Role in Agriculture in the Nineties	Odin Knudsen John Nash	August 1990	K. Cabana 37946
WPS464	Does A Woman's Education Affect Her Husband's Earnings? Results for Israel in A Dual Labor Market	Shoshana Neuman Adrian Ziderman	August 1990	V. Charles 33651
WPS465	How Integrated Are Tropical Timber Markets?	Panos Varangis	August 1990	D. Gustafson 33714
WPS466	Is There An Intra-Household Kuznets Curve?	Lawrence Haddad Ravi Kanbur	August 1990	J. Sweeney 31021
WPS467	Structural Adjustment and Living Conditions in Developing Countries	Nanak Kakwani Elene Makonnen Jacques van der Gaag	August 1990	B. Rosa 33751
WPS468	Does the Structure of Production Affect Demand for Schooling in Peru?	Indermit Gill	August 1990	M. Abundo 36820



PRE Working Paper Series

	<u>Title</u>	<u>Author</u>	<u>Date</u>	<u>Contact for paper</u>
WPS469	Modeling Economic Behavior in Peru's Informal Urban Retail Sector	J. Barry Smith Morton Stelcner	August 1990	M. Abundo 36820
WPS470	What Do Alternative Measures of Comparative Advantage Reveal About the Composition of Developing Countries' Exports?	Alexander J. Yeats	August 1990	J. Epps 33710
WPS471	The Determinants of Farm Investment and Residential Construction in Post-Reform China	Gershon Feder Lawrence J. Lau Justin Lin Xiaopeng Luo	August 1990	C. Spooner 30464
WPS472	Gains in the Education of Peruvian Women, 1940 to 1980	Elizabeth M. King Rosemary Bellew	August 1990	C. Cristobal 33640
WPS473	Adjustment, Investment, and the Real Exchange Rate in Developing Countries	Riccardo Faini Jaime de Melo	August 1990	R. Sugui 37951
WPS474	Methods for Measuring the Effect of Adjustment Policies on Income Distribution	Anne Maasland	August 1990	P. Dixon 39175
WPS475	Does Divestiture Matter? A Framework for Learning from Experience	Ahmed Galal	August 1990	G. Orraca-Tetteh 37646
WPS476	Health Insurance in Sub-Saharan Africa: A Survey and Analysis	Ronald J. Vogel	August 1990	K. Brown 35073
WPS477	Private Participation in the Delivery of Guinea's Water Supply Services	Thelma A. Triche	August 1990	M. Dhokai 33970
WPS478	Interrelations Among Child Mortality, Breastfeeding, and Fertility in Egypt, 1975-80	John Marcotte John B. Casterline	August 1990	S. Cochrane 33222
WPS479	Conversion Factors: A Discussion of Alternate Rates and Corresponding Weights	Michael Hee	August 1990	E. Zamora 33706
WPS480	An Evaluation of Neutral Trade Policy Incentives Under Increasing Returns to Scale	Jaime de Melo David Roland-Holst	August 1990	R. Sugui 37951
WPS481	The Effects of Trade Reforms on Scale and Technical Efficiency: New Evidence from Chile	James Tybout Jaime de Melo Vittorio Corbo	August 1990	R. Sugui 37951
WPS482	Membership in the CFA Zone: Odyssean Journey or Trojan Horse?	Shantayanan Devarajan Jaime de Melo	August 1990	R. Sugui 37951