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TRADE POLICY AND ECONOMIC PERFORMANCE IN SUB-SAHARAN AFRICA

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ABSTRACT

This study focuses on the role of trade and trade policy in achieving sustained long-term growth in Africa. One major conclusion is that trade policy in Sub-Saharan Africa works much the same way that it does elsewhere. High levels of trade restrictions have been an important obstacle to exports in the past, and their reduction can be expected to result in significantly improved trade performance in the region. There is little ground for pessimism in this respect, or for concern that Africa's different conditions—poor infrastructure, geography, or dependence on a limited number of primary products—make it a special case in which exports are not responsive to prices or to the traditional instruments of commercial policy. At the same time, the effects of trade policy on economic growth seem to be indirect and much more modest. The fundamentals for long-term growth are human resources, physical infrastructure, macroeconomic stability, and the rule of law.

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I. Introduction

The last couple of years have finally brought some good news about Africa. In 1996 Africa's total income grew at five percent. This may be low by East Asian standards, but it is the highest rate registered in the continent since 1970. Leading the way are Rwanda (13.3 percent) Ethiopia (12.4 percent), Malawi (10.4 percent), Angola (8.6 percent), Uganda (7.0 percent), and Cote d'Ivoire (6.5 percent) (IMF 1997, Table A6). Growth rates such as these, along with a wave of political change and democratization, have generated a degree of optimism about Africa's future. Will the world's poorest continent finally embark on a path of self-sustaining growth, lifting the region's 600 million people out of poverty?

Optimism has to be tempered by the fact that the fastest growing countries in Sub-Saharan Africa have only begun their recoveries from debilitating civil wars or long periods of economic decline. For many of them, it will require growth at East Asian rates for the better part of a decade <u>just</u> to make up for lost ground. Real per-capita incomes in Rwanda and Angola are today less than half their level in 1970! The region's two most aggressive reformers, Uganda and Ghana have still to catch up with their 1970 level of per-capita GDP despite substantial economic gains since the mid-1980s. In fact, it is shocking to discover that roughly a third of the countries in Sub-Saharan Africa (16 countries in all) had higher per-capita GDPs in the early 1960s then they do three-and-a half decades later. Over this period, only 19 countries experienced an increase in real per-capita GDP of 20 percent or more (see Table 1). These figures underscore the depth of the continent's economic decline, and the enormity of the challenges ahead.

Continent-wide generalizations obscure an important economic fact about Africa. Economic growth has not been dismal in all countries of the region, and there are quite a few countries that have managed to grow at respectable rates for a decade or more (Table 2). Taking the 1960-94 period as a whole, three countries have experienced growth of three percent or more in real per-capita GDP per annum (Botswana, Lesotho, and Seychelles), and three more have surpassed two percent (Cape Verde, Seychelles, and Mauritius). Many others have had high-growth periods: Cote d'Ivoire, Gabon, Nigeria, and Togo during 1960-75, and Congo and Cameroon during 1975-85. Resource booms and cycles in commodity prices account for some, but not all, of these ups and downs. One important message that comes out of Table 2 is that African countries are able to grow at satisfactory rates over extended periods. This is a hopeful message that reinforces the recent optimism.

At the same time, these figures highlight the enormous instability in economic performance that African economies have experienced as a rule. Even the better performing countries have gone through periods of relatively low growth. Botswana, for example, grew at six percent per annum until the late 1980s, but has had some tough times since then. A second important message is that long-term growth should not be taken for granted, even in countries that have been doing well in the last few years.

This study focuses on the role of trade and trade policy in achieving sustained long-term growth in the region. One major theme is that trade policy in Sub-Saharan Africa works pretty much the same way that it does elsewhere. High levels of trade restrictions have been an important obstacle to exports in the past, and their reduction can be expected to result in significantly improved trade performance in the region. The removal of export restrictions,

dismantling of marketing boards, relaxation of quantitative restrictions on imports, and lowering of import tariffs will sharply increase traditional and non-traditional exports. There is little ground for pessimism in this respect, or for concern that Africa's different conditions—its poor infrastructure, its geography, or its dependence on a limited number of primary products—make it a special case in which exports are not responsive to prices or to the traditional instruments of commercial policy.

While reforms in the area of commercial policy are a potent instrument for raising trade volumes, their influence on economic growth is generally much weaker, which is my second major theme. An increase in the share of national income that is exported does not in itself generate growth in per-capita income. The fundamentals for long-term growth are human resources, physical infrastructure, macroeconomic stability, and the rule of law. Governments that undertake investments in these areas will be rewarded with increased rates of economic growth. The role of trade policy in economic growth is largely auxiliary and of an enabling nature: extremes of export taxation and import restrictions can surely suffocate nascent economic activity, but an open trade regime will not on its own set an economy on a sustained growth path.

The outline of the study is as follows. I begin by placing Africa's trade and trade policies in the global context, focusing on the question of Africa's marginalization in the world economy (section II). Then I take a more detailed look at trade performance by individual African countries and its underlying determinants, including trade policies (section III). Next, I turn to economic growth and analyze the determinants of growth in the regional context (section IV). In section V, I focus on a few countries (Botswana, Mauritius, Ghana, Uganda, Mali, and the Gambia) to add some flesh and nuances to the statistical exercises of the previous sections. The

distributional and political-economy implications of trade reform are discussed in section VI, along with some policy implications. A summary of the findings and policy conclusions are offered in section VII.

II. Africa's trade policies and performance in comparative perspective

Trade policies are notoriously difficult to quantify and compare across countries. Nonetheless, simple averages of tariff rates and coverage ratios of non-tariff measures (NTMs) can be instructive. I begin by reviewing the available evidence on the extent of trade barriers in Sub-Saharan Africa compared to East Asia and Latin America (see Tables 3, 4, and 5). Regional averages for three types of trade restrictions are shown in Table 3. The measures included are tariff rates and coverage ratios for non-tariff measures (NTMs) on intermediate and capital goods, and the black market premium for foreign currency. Tariff rates by sector are shown for individual SSA countries in Table 4, along with averages for other regions. NTM incidence by sector are shown for individual SSA countries in Table 5.

Three facts stand out in these tables. First, government-imposed trade barriers have generally been higher in Africa than in East Asia, although the differences are not huge. Second, until the early 1990s, trade barriers in SSA have been comparable in magnitude to those prevailing in Latin America. Third, the sweeping trade reforms that have recently taken place in Latin American economies—as well as in most of the former socialist economies of Eastern Europe and central Asia—have left SSA as the only region in the world where substantial tariff and non-tariff barriers to trade are currently the norm rather than the exception.[1]

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[1]For a very useful discussion of the recent trade reforms in Africa, focusing explicitly on the implementation side, see Nash (n.d.).

Sub-Saharan Africa's trade has grown at relatively low rates since the 1950s, with the result that today the region's share in world trade stands at around one percent, down from more than three percent in the mid-1950s (Yeats 1997, 1). The decline in Africa's relative standing in global trade is put graphically by Yeats:

> in 1962-64 copper alloys were the region's single largest commodity export, with Sub-Saharan Africa supplying 32 percent of all OECD imports. By 1991-93, however, Africa's market share had dropped more than 22 percentage points to less than 10 percent. Similarly, Africa's market shares for other key commodities (such as vegetable oils, palm oil, palm nuts and kernels, and groundnuts) dropped 47-80 percentage points below earlier levels. For the thirty most important non-oil exports combined, Africa's average shares declined by more than 11 percentage points (from 20.8 percent to 9.7 percent), which implies annual trade losses of about $11 billion.... That figure is almost equal to OECD official development assistance to Africa in 1991—$10.9 billion (Yeats 1997, 1).

Clearly, Africa's participation in world markets has to increase in order to reverse the marginalization of the continent.

At the same time, it is useful to underscore an oft-neglected point. Africa's marginalization in world trade is primarily due to the continent's lagging output growth. It is not due to trade ratios (relative to GDP) that are low by cross-national standards. As the evidence to be discussed below shows, African countries trade on average as much as would be expected by international standards once their individual characteristics (such as income levels and size) are taken into account. Because they have failed to expand their economies at sufficient rates, their importance in world trade has shrunk. Consequently, the way to reverse the trend is not to target the region's trade volumes per se, but to raise overall growth rates.

Table 6 shows the results from cross-national regressions where I use a large sample of countries to relate the observed shares of trade (exports plus imports) in GDP to levels of

national income per capita, population size, and some other geographical characteristics. In each case, I include a dummy variable for Sub-Saharan Africa (as well as other country groupings) to check whether the estimated coefficient is negative and statistically significant, as it would be if SSA were an under-performer. I find little evidence that Africa's trade is too small.

The regression in column (1) shows that country size (as measured by population) and per-capita income are two very strong determinants of the openness of an economy. Smaller and richer countries trade more (as a share of their GDP). The estimated coefficients imply that a doubling of population decreases trade by 16 percent of GDP while a doubling of per-capita income increases it by twelve percent. Interestingly, once size and per-capita income are controlled, SSA countries on the whole do not appear as outliers. The same is not true for the Latin American and East Asian countries: Latin American countries trade too little on average (by 26 percent of GDP) and East Asian countries trade too much (by 29 percent).[2]

In column (2), I have added as a regressor a measure of geographical distance from the world's leading traders (taken from Barro and Lee 1994). As expected, this variable enters with a negative (and statistically significant) coefficient. Otherwise, the results are qualitatively unchanged, and SSA countries on the whole line up quite close to the regression line. (The main difference is that East Asia's positive residual is now even larger.) In column (3), I exclude per-capita income from the right-hand side of the regression. The estimated coefficient on SSA now becomes negative and quite a bit larger (-12.7), with a level of statistical significance of ten percent. Hence SSA begins to look like an outlier only when we neglect the statistical regularity that elasticity of trade with respect to output is larger than unity, i.e. that richer countries trade

more.[3] Finally, column (4) uses as regressor a measure of the gravity component of trade, drawn from the work of Frankel and Romer (1996) who have estimated the expected volume of trade for a large sample of countries based purely on geographical determinants. Once again, the estimated coefficient on SSA is small (and positive) and statistically insignificant.

The dependent variable in these regressions is the sum of exports and imports (as a share of GDP) averaged over the period 1980-89. When more recent trade data is used, taking the average of trade volumes over the period 1990-92, the result is a somewhat worse fit, but otherwise none of the important results change. East Asia trades more than is expected, Latin America trades less, and Sub-Saharan Africa is right on the regression line.

The bottom line is that Africa trades on average as much as is to be expected given its geography and its level of per-capita income. The marginalization of Africa in world trade is the consequence of two factors: first, Africa's GDP per-capita has grown slower than other regions'; and second, the output elasticity of trade exceeds unity, so that as other countries have grown, their trade volumes have expanded more than proportionately. Taking the region as a whole, there is little evidence that trade policies have repressed trade volumes below cross-national benchmarks, unless they have done so indirectly through their depressing effect on incomes. The encouraging message is that the answer to Africa's trade woes is the same as the answer to its broader economic difficulties: a rise in per-capita income.

This may seem a blatantly obvious conclusion, but it has policy implications that differ from those that are often advocated. Yeats, for example, blames Africa's marginalization in

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[2] Remember that trade is measured as the sum of imports and exports. Hence the implication is that the average Latin American country's export-GDP ratio is too low by about 13 percent of GDP, and the average East Asian country's too high by 14 percent of GDP.

trade on domestic interventions in trade policy and transport policy. He concludes: "If Africa is to reverse its unfavorable export trends, it must quickly adopt trade and structural adjustment policies that enhance its international competitiveness and allow African exporters to capitalize on opportunities in foreign markets" (1997, 24). Similarly, Collier links Africa's declining importance in world trade to the fact that "its economies have become more inward-looking while all other economies have become more integrated into the world economy" (1995, 541).

There is a difference here in both emphasis and substance. Commercial and transport policies may well have had the adverse effects claimed by Yeats, but since African trade ratios are not out of line with those for comparable countries elsewhere, these effects must have operated by retarding income growth.[4] As we shall see, the evidence that is available on the determinants of growth does not support the emphasis on trade policy. Secondly, once we shift the focus away from trade to economic growth in general, we are forced to think more broadly about the whole range of growth determinants, not just impediments to exchanges at the border.

III. A closer look at trade performance in SSA

A. The variety of trade performance

While Sub-Saharan Africa as a whole trades in world markets as much as one would expect, there is in fact a tremendous amount of variation in trade performance within the region. This is shown in Table 7, where export growth performance over the 1964-94 period is

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[3] Running the regression in column (1) in double-log form, I get a coefficient of 0.16 on the per-capita income term (with a standard error of 0.05). The implied elasticity of trade with respect to GDP is 1.16.

[4] In fairness to Collier, he ultimately places the blame for Africa's marginalization on the region's high-risk policy environment, which is presumably responsible for low economic performance overall, not just poor trade growth.

summarized for all SSA countries for which data exist.[5] The table shows the annualized growth rate in the dollar value of total exports to the OECD, for the entire 1964-94 period as well as for the three sub-periods 1964-75, 1975-85, and 1985-94. Countries are ranked in decreasing order of export growth over the 1964-94 period. The analogous figures for exports of manufactures are shown in Table 8.

There are several surprises in these Tables. The five countries that have registered the highest rates of export growth over the entire 1964-94 period are Rwanda, Mali, Congo, Gabon, and Nigeria. Three of these countries are oil exporters, but the cases of Rwanda and Mali are harder to explain. Note, however, the very low starting point for both of these countries: in 1964, Mali's total exports to the OECD amounted to $3.5 million (in current dollars) and Rwanda's exports amounted to barely over $100,000! In 1994, these figures stood at $101 million and $36 million, respectively—extremely low numbers and around five percent of GDP in each case.[6]

When we turn to exports of manufactures, the top five performers are Mauritius, Mali, Burkina Faso, Cote d'Ivoire, and Niger. (No data are available for Rwanda's manufactured exports over 1964-75, so Rwanda is not included in the manufactures ranking for the entire period.) These five countries have increased their manufactured exports at an annual rate of around 20 percent or more. But with the exception of Niger, in all cases the highest rates were recorded in the early 1964-75 period, which again reflects the low base from which SSA countries start. Among these countries, only Mauritius has a significant presence in OECD

[5] The data I use are imports reported by OECD countries from individual SSA countries, and come from the United Nations COMTRADE data base. These figures are generally more reliable than export figures reported by the SSA countries themselves, in view of obvious statistical problems in SSA data. But they do not include intra-African trade (or trade with other non-OECD partners). In the regressions reported below, I use both sets of figures, and find that the choice of data makes little difference to the results.

markets, with a total of $860 million in manufactured exports (in 1994). At the other end of the spectrum, there are three countries whose manufactured exports to the OECD in 1994 stood below the level in 1964: Uganda, Guinea-Bissau, and Mozambique. This is quite astonishing since inflation alone would have driven export values up, even without any increase in quantities.

The message that comes out from these tables is similar in spirit to that which I stressed when reviewing the comparative data on per-capita GDP growth rates: Averages for Sub-Saharan Africa hide tremendous variation in economic performance, and there are many examples of good performance alongside the better known cases of dismal failure.

B. Explaining the variation in trade performance within SSA

How much of this variation in trade performance within SSA is due to differences in exogenous and uncontrollable factors such as geography and the external terms of trade, and how much to differences in domestic policies? The evidence suggests that geography and trade policy both play an important role, while the terms of trade have no perceptible impact. This conclusion is based on results from four sets of regressions reported below. The first two of these are pure cross-section regressions, where I regress trade shares in GDP, and the increase thereof, on a range of determinants. The other two sets of regressions carry out the same exercise but with pooled cross-section, time-series data, where the 1964-94 period is split into three sub-periods (1964-74, 1975-84, and 1985-94) to provide up to three observations per country.

Table 9 shows the first set of results on trade shares. The dependent variable in the first five regressions (columns 1-5) is the sum of exports and imports as a share of GDP, averaged

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[6] Note also that Botswana, which belongs in the top tier, is not included in this table as the OECD sources do not report figures on this country.

over 1964-94 (*xmy6494*). As before, I include as regressors the logs of (initial) per-capita income and population. Note that the coefficients on these two terms are quite similar to those reported in Table 6 (once allowance is made for the fact that trade shares are measured as ratios here rather than percentages as before—i.e., I now use 0.55 and not 55 percent). There are additional regressors, however, which greatly improve the fit of the regression. The first of these is a geographical variable, *tropics*, taken from Sachs and Warner (1997): it is a rough measure of the proportion of a country's land area which is subject to a tropical climate. The estimated coefficient on this variable indicates that tropical climate has a significant depressing effect on trade: all else being the same, a country with only 50 percent of its area in the tropical zone has a share of trade in GDP which is 26 percentage points larger than a country entirely in the tropics.[7]

The other new explanatory variables are measures of trade restrictions. The first of these, *itax7093*, is the ad-valorem equivalent of international trade taxes, calculated by dividing tax revenue from all border taxes by the volume of total trade. This indicator has obvious shortcomings as a measure of the restrictiveness of trade policies. It underestimates the effects of extremely high taxes which result in little revenue, ignores non-tariff barriers and the role of implicit export taxation through commodity boards, and overlooks the role of smuggling.[8] But it has the advantage that it is available for a large number of SSA countries. In addition, it is one of

[7] The only countries for which *tropics* is less than one are Botswana (0.5), Lesotho (0), Madagascar (0.9), Mauritania (0.8), and Swaziland (0). One could also read this variable as a dummy for SACU (South African Customs Union). However, adding a separate dummy for SACU countries (Botswana, Lesotho and Swaziland) does not affect the magnitude and statistical significance of the coefficient on *tropics*.

[8] In addition, there is an econometric problem. The dependent variable, which is the volume of trade, enters the construction of the trade-tax measure in the denominator. But there are several reasons to believe that this is not a serious source of bias. For example, import taxes tend to depress export volumes, even though the construction of these two variables is independent. Similarly, the results using partner-country trade data are quite similar.

the few trade-policy measures for which a consistent time series can be constructed for most SSA countries, allowing us to exploit the time-series dimension in regressions discussed below.

I find that this measure of trade taxation correlates strongly with trade performance. The point estimate for the coefficient on *itax7093* in column (1) of Table 9 indicates that a reduction in (effective) trade taxes by ten percentage points increases the share of trade in GDP by 17 percentage points (see Figure 1). Similar results are obtained in the pooled time series, cross-section regressions discussed below. I conclude that this measure of trade taxation is an adequate proxy for capturing at least one dimension of trade restrictions.

The R^2 for this basic specification is 0.82, indicating that a relatively small number of variables (country size, per-capita income, geography, and taxation of trade) account well for the variation in trade shares in the region. I have tried a number of additional explanatory variables, but the results remain largely unaltered. In particular, I experimented with the external terms of trade and found that neither the growth rate of the terms of trade over this period, nor its volatility[9] enters the regression with anything approaching statistical significance.

Regressions in columns (2)-(5) of Table 9 include other measures of trade restrictions on the right-hand side. I first disaggregate *itax7093* into import-tax (*mtax7093)* and export-tax (*xtax7093)* components (column 2). These are calculated as the ratios of import tax revenues to import volume, and export tax revenues to export volume, respectively. Next, I use a measure from Sachs and Warner (1995, 1997), *sopen*, which is the proportion of years during which an economy is considered "open to trade" by these authors (column 3). The next column includes the average black-market premium for foreign currency over this period, *bmp6589* (column 4).

Finally, I include the average coverage ratio for non-tariff barriers on intermediate and capital goods, *owqi*, taken from Barro and Lee (1994) (column 5). All of these variables enter with expected signs, but only *xtax7093* is statistically significant.

The remaining columns in Table 9 employ export shares (rather than total trade shares) as the dependent variable. In columns (6) and (7), the dependent variable is based on exports as reported by national statistics (*xy6494)*, while in columns (8) and (9) it is based on OECD import statistics (*axy6494*). In both cases, the estimated coefficient on trade taxes (*itax7093)* is large and statistically significant. But when I disaggregate, I find that it is export taxes that play a significant role in determining *xy6494*, while it is import taxes that determine *axy6494*.

In Table 10, I check how well the same set of explanatory variables does in explaining growth of trade over the 1964-94 period. The dependent variable in these regressions is the average growth rate of the trade shares used in Table 9. The fit of these regressions is significantly worse, with R^2's in the range 0.08-0.19. This is mainly due to the fact that the exogenous variables (initial per-capita income, country size, and geography) do not seem to play a significant role in determining changes in the volume of trade. However, there is some evidence that (the level of) trade taxes affect export growth (column 2). This evidence becomes stronger when we turn to pooled time-series, cross-section data, which we do next.

One shortcoming of the previous set of regressions is the necessarily limited number of countries in the sample; the requisite data are available for a maximum of 37 SSA countries. In addition, averages taken over a 30-year span hide a lot of variation during this period. The next two tables address both of these difficulties. They display regression results using up to three

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[9] Volatility was measured as in Rodrik (1997a), by taking the standard deviation of the first differences of the log of

observations per country, obtained by pooling trade-performance indicators from the sub-periods 1964-74, 1975-84, and 1985-94.

Table 11 shows results with trade shares as the dependent variable. As before, the fit is generally quite good. Rather than discussing the results in detail, I focus on what is the most striking finding. Trade taxes correlate very strongly, and negatively, with trade volumes. Moreover, now import taxes and export taxes both enter with statistically significant coefficients. The magnitude of the estimated coefficients on import and export taxes are generally statistically indistinguishable from each other, regardless of whether exports or total trade is used. This is a remarkable confirmation of the Lerner symmetry theorem, which says that import taxes are equivalent to export taxes, and vice versa, in all respects. The estimated coefficients suggest that a reduction in import or export taxes of ten percentage points would boost exports by about five percentage points of GDP. A visual sense of the impact is provided in Figure 2, which shows a partial scatter plot relating export shares to trade taxes. There is some evidence that import tax rates have depressed manufactured exports (*mxy2*, column 12). I also find that black-market premia enter with negative and statistically significant coefficients. The Sachs-Warner indicator *sopen* does not enter with a significant coefficient in any of these specifications.

The last three columns of Table 11 show the results when a full set of country fixed effects are included. (Period effects are included in all of the regressions.) The coefficient on trade taxes remains negative and large, and is either significant or borderline significant in the case of the export equations. This is striking in view of the fact that with a full set of country

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the terms of trade.

dummies, the effect of trade taxes on exports is identified purely from the time-series variation within each country, which in this case is limited to a maximum of three observations.

Once again, the terms of trade do not seem to play any role. The estimated coefficients on the growth and volatility of the terms of trade are statistically insignificant when these variables are included in the regressions (results not shown).

Table 12 shows results with growth in trade shares. As with the purely cross-section regressions, the fit is generally poor. But now considerably stronger evidence emerges that trade policies are important. The estimates suggest that trade taxes and black-market premia both have depressing effect on export growth. According to the results in column (2), a ten percent increase in taxes on all trade is associated with a reduction in export growth (as a share of GDP) of three percent per annum (see Figure 3 for a scatter plot). Strikingly, trade taxes remain a statistically significant determinant of trade growth even after a full set of country fixed effects is introduced (columns 5-7). Again, the terms of trade apparently play no role (results not shown).

The main conclusion from these regressions is that trade policies matter in Sub-Saharan Africa, and they matter both in determining the volume of trade and the growth thereof. As suggested by economic theory, import restrictions act as export restrictions. The variation in the trade-GDP ratios among SSA countries can be explained well by a small number of determinants, namely income per-capita, country size, geography, and trade policy. The variation in the growth of trade is less well explained, but we have found strong evidence that trade taxes play a significant role here as well.

IV. Explaining growth performance within Africa

Empirical studies that focus on Africa's growth performance typically use cross-national data sets that span the whole world. Two leading papers in this tradition—Easterly and Levine (1996) and Sachs and Warner (1997)—reach somewhat different conclusions: Easterly and Levine emphasize the role of ethnic fragmentation and poor-quality institutions in keeping growth rates low, while Sachs and Warner stress closed trade policies and geography as significant growth handicaps for Africa. These papers provide some guidance as to why Africa has performed poorly on average. The test of success in these papers is the identification of a set of regressors—ethno-linguistic fragmentation, openness, geography, and so on—which renders the Africa dummy statistically insignificant in a growth regression. These papers do not speak directly to the question of what drives the variation in growth performance within Sub-Saharan Africa, which has been considerable across countries and time periods, as we have seen. For this reason, I focus here on growth regressions limited to a SSA sample of countries.[10]

A second important reason for limiting the sample to SSA countries is the widespread feeling in Africa that the region is structurally so different from the rest of the world that global comparisons are not particularly meaningful.[11] Indeed many African policy makers believe the lessons from East Asia or Latin America do not apply to them because the circumstances differ so much. But African countries surely can learn from each other, and an empirical approach that focuses on performance within the continent can have greater credibility for that reason.

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[10] Savvides (1995) is one of the few papers that econometrically focuses on growth performance within Africa. Using a fixed-effect framework covering 28 countries with four seven-year periods over 1960-87, he finds growth to be correlated with growth in the trade-GDP ratio, investment, initial income, school enrollment, and growth of government.

Third, it is important to know to what extent the growth determinants identified in previous work by Easterly and Levine and Sachs and Warner help explain the variation in growth performance within Sub-Saharan Africa. We can be reasonably suspicious about the usefulness of a variable which works well in a global regression, but has no explanatory power in a regression limited to SSA countries.

In general, I find that long-term growth performance within Africa is determined by a number of fundamentals: human resources, macroeconomic/fiscal policy, demography, and a conditional convergence factor. Trade policies do not play a significant role in growth, either in the medium-run or the long-run. However, excessive levels of export taxation are an important contributor to the relative decline of a few countries. Movements in the external terms of trade are only weakly correlated with growth performance over the long-run, but they play a more important role in the medium-run (of ten years or so). Growth over a decade is less predictable than growth over a 25-30 year horizon.

I begin with pure cross-sectional regressions where the dependent variable is per-capita growth over the 1965-90 period. My starting specification is the one employed by Sachs and Warner (1997), the results of which are reproduced in column (1) of Table 13.[12] The explanatory variables used by Sachs and Warner are initial per-capita income, openness interacted with income, openness, dummies for tropical climate and land-locked countries, life expectancy (and

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[11]For some recent studies on whether trade and other reforms "work" in Africa see Kirkpatrick and Weiss (1995), Sachs and Warner (1997), and Lall and Stewart (1996).

[12] These results differ somewhat from those reported in the main body of Sachs and Warner, as these authors exclude a number of countries which they consider outliers (Botswana, Gabon, Madagascar, Guyana, Israel). I have included these countries as three of them are in Africa, and not all turn out to be outliers when the sample is restricted to SSA. In any case, the results are very similar with or without these countries.

its square), public savings,[13] institutional quality index, share of primary exports, and growth of economically active population relative to general population.[14] When the sample is restricted to SSA, the number of observations shrinks to 22 and I find that most of these variables are no longer statistically significant (column 2). My preferred specification for the SSA sample, therefore, is the one shown in column (4). This specification contains four of the Sachs-Warner variables (initial per-capita income, life expectancy, public savings, growth of economically active population relative to general population) and one of the trade-policy variables used before (export taxation). With this specification, the sample size is 31 and the R^2 a respectable 0.79. All of the variables are statistically highly significant.

Note the following about this specification. First, applying standard test for outliers, two countries, Gabon and Sierra Leone, appear to be outliers. But excluding them from the sample improves the fit without changing any of the other results (column 5). Second, adding each of the excluded Sachs-Warner variables back into the regression individually yields an insignificant coefficient on the added variable, without affecting the significance of the included variables (results not shown). This is why column (4) is my preferred specification.

One important implication is that many of the variables considered important by Sachs and Warner (1997) in a global context, such as geography and the primary share of exports, turn out not to contribute much to understanding the growth experience within Sub-Saharan Africa. For some variables, this may be due to the fact that there is not much variation in the SSA sample, compared to the global sample. Indeed, two of the excluded variables—the dummy for land-locked countries and the institutional quality index—have coefficients of variation within

[13] Actually, central-government budget surplus.

the SSA sample that are substantially lower than in the non-SSA sample. Hence a regression limited to the SSA sample may have difficulty picking up the importance of these two growth determinants. But the same issue does not arise with the other three excluded variables (openness, tropical climate, and primary share of exports), which have coefficients of variation that are comparable in the two samples.

Aside from export taxes, none of the other trade policy variables enters the regression with a statistically significant coefficient. This includes the Sachs-Warner openness index (as already mentioned), import taxes (column 6), and the black-market premium (column 7). Ethno-linguistic fragmentation appears to play no role; in fact, the point estimate on this variable is positive, suggesting ethnic diversity may even be good for growth within Africa (column 8). Also, the regression accounts well for the performance of the two high-growth economies in the region, Botswana and Mauritius. Including dummies for these two countries yields insignificant (and negative) coefficients (column 9). Finally, terms-of-trade growth enters with a coefficient that is only weakly significant at the 90 percent level (column 10).

According to my benchmark specification, the most important determinants of growth differentials within the SSA region have been: human resources (life expectancy), macro/fiscal policy (public savings), demography (changes in the dependency ratio), export policies (my export-tax variable), and a catch-up/convergence factor (initial per-capita income). Partial scatter plots relating each of these variables to growth are shown in Figures 4-8.

We can use these results to undertake a sources-of-growth decomposition for each of the 31 included SSA countries, carried out in Table 14. The first column shows the growth rate for

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[14] Definitions of variables and data sources are in an appendix available from the author.

each of the countries, and the second the difference from the region's average growth. The next five columns are the differences from the region's average growth attributable to each of the determinants discussed above. The numbers in these columns are obtained by multiplying the relevant estimated coefficients with the difference between the values for each of the determinants for a given country and the corresponding regional averages. The final column shows the part of growth that is not explained by the regression model, which tends to be small.

There are only five countries with an unexplained growth residual of one percent or more: Benin, Madagascar, and Zaire, which have negative residuals, and Rwanda and Sierra Leone, with positive residuals. For some of these countries it is possible to think of idiosyncratic reasons for the large residuals. Zaire, for example, suffered from Mobutu's rule, and Rwanda's positive residual is due to a recovery from the drastic collapse of the early 1960s.

The high performers in the table (per-capita GDP growth of two percent or more) are Botswana, Lesotho, Mauritius, Congo, Cameroon, and Rwanda. Rwanda's inclusion in this list is a fluke, as I just mentioned, arising from the specific time span covered in the regressions (1965-90). As Table 2 shows, Rwanda is actually one of the region's worst performers in terms of growth of GDP per capita when we look at the entire 1960-94 period. Looking at the other high performers: the most important contributors to growth were public savings, demography, and human resources in the case of Botswana; human resources and catch-up in Lesotho; human resources and demography in Mauritius; human resources and public savings in Congo; and human resources, public savings, and catch-up in Cameroon. In none of these cases was export taxation (or lack thereof) a significant factor. However, export taxation apparently did play a significant role in some of the worst performers in the table, particularly Uganda and Ghana.

I turn finally to regressions where decade averages of per-capita growth rates for the sub-periods 1964-74, 1975-84, and 1985-94 are regressed on pooled data with up to three observations per country. Aside from increasing the degrees of freedom, these regressions also give us a sense of the determinants of growth over the medium-run (a decade), as opposed to the long-run as before. The first column of Table 15 replicates the benchmark specification with this pooled data. Two things are worth noting. First, the fit of the regression is now significantly worse, with an R^2 of 0.33. Second, two of my determinants are no longer statistically significant: export taxation and demography. Public savings and human resources are still significant. These results reflect a general phenomenon about growth: while long-run growth rates tend to be fairly predictable on the basis of a small number of exogenous and policy variables, growth rates over shorter horizons tend to quite unstable and unpredictable (see, for example, Easterly et al. 1993).

Next, I drop the insignificant variables and public savings (the latter to maximize degrees of freedom) and add the change in the terms of trade over the relevant decade (column 2). The terms of trade now enter with a highly significant coefficient, suggesting that this variable is an important determinant of growth over shorter horizons. The estimated coefficient suggests that a ten percent improvement in the terms of trade per annum over a decade raises the annual average growth rate over the decade by 1.7 percentage points.

Interestingly, the Sachs-Warner indicator of openness (*sopen*), modified to accord with the three-period breakdown, now enters quite strongly as a determinant of growth (column 4). This indicator measures the proportion of years during which a country was open to trade, as

judged by the authors.[15] The results indicate that the difference between completely "closed" (a value of 0 for *sopen*) and completely "open" (a value of 1) is a growth differential of three percent per annum over a decade, which is significant. But there are problems in attributing this result to openness to trade per se. Unlike the measures of trade taxation or black market premia, *sopen* never enters the trade regressions as a significant determinant of trade volumes or trade growth. Consequently, it is somewhat problematic to think of the Sachs-Warner indicator as a measure of trade policy. If *sopen* has no statistically perceptible effect on trade, it is not clear why it should be treated as a measure of trade policy.

It is probable that the index is capturing broader reform efforts, including macroeconomic adjustments and structural reforms going beyond trade liberalization. This is certainly the impression one gets from perusing the underlying data for *sopen* (see Table 16): *sopen* seems to identify countries and periods of intensive reform across a broad spectrum of policy areas. Interpreted in this way, the results of the pooled regressions provide fairly strong evidence that such broad reforms are successful in raising growth rates over a horizon of a decade or so.

Finally, column (6) of Table 15 provides some evidence that membership in the CFA zone has had asymmetric effects on growth in different periods. When a dummy for CFA membership is interacted with the dummy for the 1975-84 period (*cfa2*), the estimated coefficient is positive and borderline significant at the 95 percent level. But when the CFA

[15] Sachs and Warner (1995) classify Botswana as open only since 1979, based on a high black-market premium in the Barro and Lee (1994) data set for this country in the 1970s. This seems to be a misclassification, as Botswana was in a currency union with South Africa and did not have its own currency until 1976. Once the national currency was introduced, there was never a large premium for foreign currency. If I alter the Sachs-Warner indicator to consider Botswana "open" for the entire period, the t-statistic on *sopen* rises further. Similarly, one can quarrel with these authors' decision to classify Cameroon as open since 1993 and Gambia as open since 1985. My preferred date for Cameroon would be 1989 (which is the starting point of significant trade liberalization) and for Gambia 1990 (which is when the groundnut export monopoly was abolished). But making these changes to *sopen* makes no difference to the basic result that *sopen* is highly correlated with growth on a decade-by-decade basis.

dummy is interacted with the dummy for 1985-94 (*cfa3*), the result is a negative coefficient that is significant at the 90 percent level. Hence CFA membership increased growth in the earlier period (by an average of 2.3 percent per annum), but decreased it in the later period (by an average of 1.7 percent). The interpretation is that the fixed exchange rate arrangement, and the price stability to which it gave rise, was an advantage when the underlying external balances were sustainable, but became a hindrance when devaluations were later called for.

V. Some country stories

We now focus on a few countries with distinctive experiences with trade policy and economic performance. These country vignettes add nuances and insights that cross-country regressions cannot provide. I begin with the two unqualified success stories in the region, Botswana and Mauritius. I then turn to cases of significant reforms in the 1980s and 1990s.

A. Botswana

Botswana's phenomenal economic performance—at the level of East Asian tigers—has been based on exports of diamonds, but there is much more to this success story than diamonds. Natural resources in themselves are not always a blessing, as too many African countries have discovered. The variation in natural resource endowments, as proxied, for example, by the share of natural resources in total exports, contributes nothing to explaining growth within SSA. As the growth regressions discussed above show, Botswana's distinctive performance is grounded in prudent fiscal and macroeconomic policies, relatively well-developed human resources, and an early demographic transition which reduced the dependency ratio. The first of these is particularly important, as it accounts for more than half of Botswana's superior performance

relative to the SSA average (see Table 14). The government has managed the diamond boom extremely well: resources have not been wasted, and temporary reversals in export receipts have been met with quick adjustments in the exchange rate and in fiscal policy.

Superior governance in macroeconomic management has apparently been matched in other fields as well.[16] The bureaucracy in Botswana is honest and competent, attaches great value to economic expertise, and has consistently produced sensible macroeconomic policies. There has been no large-scale urban bias and no white elephants (Harvey 1992, 348). The government's philosophy, however, has been far from laissez-faire: for example, government expenditures stood above 50 percent of GDP by the early 1990s, one of the highest levels in the world. What has distinguished economic interventions in Botswana is its quality, not quantity.

Why this has been so is not altogether clear. The initial conditions were not favorable. When it became independent in 1966, Botswana was one of the poorest countries in the world:

> There was not even a capital city before independence; the country was administered from an enclave in Mafeking (now Mafikeng), in the Cape Town Province of South Africa. The education base was negligible. The only tarred roads consisted of a few miles in the towns. There was a railway, built for transit between South Africa and more prosperous colonies to the North, but nevertheless useful to Botswana, an abattoir for the export of beef, and not much else. (Harvey 1992, 338)

Furthermore, Botswana has been virtually surrounded with warfare and violence, as a consequence of wars of independence in Angola, Zimbabwe, and Namibia, and the struggle in South Africa.

One explanation that is often advanced is the rural origin of the political leadership. Harvey, for example, emphasizes the

strong influence of rural exporters on economic policy. A large majority of politicians

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[16] The following account is based on Rodrik (1997b).

> and senior government officials in Botswana own cattle, and an even higher proportion are related to people who own cattle. The income from cattle comes mostly from exporting. (Harvey 1992, 360-1)

This, it is argued, explains why policies in Botswana have not been anti-export, and why the economy has never been allowed to succumb to the Dutch disease. But this is a partial explanation at best. The urban origin of political leadership in other African countries can perhaps explain why export agriculture was taxed; it cannot explain why it was typically taxed excessively. The social origin of the political elites cannot, in itself, explain why some governments have killed their cash cow while others have nurtured it.

An alternative hypothesis focuses on the constraints on trade policy. Along with Lesotho, Swaziland, and South Africa, Botswana has long been a member of the Southern Africa Customs Union (SACU). This means that Botswana has no independent trade policy; goods circulate freely between it and South Africa. The government gets a share of customs revenue collected by South Africa, which amounts to around 20 percent of the value of Botswana's imports, which is high. What matters from our perspective is that government officials have no control over this revenue on a day-to-day basis; nor do they have an ability to interfere with the flow of goods from South Africa. More to the point, domestic producers in the urban areas know that this is so, and therefore realize that lobbying policy makers for favors in the trade arena is futile. Absence of an independent trade policy is an extreme form of an "agency of restraint" (Collier 1995).[17]

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[17]As a small country in SACU, Botswana was essentially forced to inherit South Africa's relative price structure. Its gains from trade derived from the difference between this relative-price structure and that which would have obtained under autarky in Botswana. The fact that the external tariffs in SACU were fairly high—and that South Africa's relative structure was distorted relative to the rest of the world—is largely irrelevant to the existence of gains from trade for Botswana. However, to the extent that the external tariffs in SACU pushed South Africa's relative prices in the direction of Botswana's autarky price ratio, these external tariffs reduced Botswana's gains from trade (relative to free trade outside the SACU structure).

Could this externally-imposed free trade regime be a key reason for Botswana's success on the economic front? Obviously, the government's ability to tax exports, either directly or indirectly, was sharply restricted. But beyond that, the absence of an import-substituting urban lobby—which the free-trade regime ensured—could have led to improved governance on other fronts as well. For example, the admirable manner in which the government responded to a large drop in diamond earnings in 1981, by swiftly devaluing the currency and avoiding exchange controls (see Lewis 1992, 19ff), may have been enabled by the absence of entrenched urban interests. Protected behind non-tariff barriers, these urban groups would have welcomed such controls and other trade restrictions, and would have made it more difficult for the government to undertake the requisite policy adjustments.

B. Mauritius

As in Botswana, the initial conditions in Mauritius were inauspicious.[18] Even though per-capita GDP stood above the African average, in the early 1960s the island was a monocrop economy facing a population explosion. To an important extent, the economy's success was based on the creation of an export processing zone (EPZ) operating under free-trade principles, which allowed an export boom in garments to European markets and an accompanying investment boom at home (see Figure 10).[19]

Yet the island's economy combined this EPZ with a domestic sector that was highly protected until the mid-1980s. Gulhati (1990, Table 2.10) reports an average effective rate of

[18] This account of Mauritius draws on Rodrik 1997b.

[19] The full story is more complicated than that. There were highly profitable sugar exports, thanks to a generous quota in the European market. The EPZ appears to have been spurred, at least in its initial stages, by local capital and domestic investments. Profits from the sugar trade appear to have been the source of the savings that financed early growth in the EPZ.

protection in 1982 for manufacturing in Mauritius of 89 percent, with a range of -24 to 824 percent (see also Milner and McKay 1996, 72-73). Thus Mauritius is an example of an economy that followed a two-track strategy, with part of the economy very open, and the rest quite closed.

The circumstances under which the Mauritian EPZ was set up (in 1970) are instructive. Here is how one account describes it:

> Given the small size of the domestic market and the negative experience elsewhere, import substitution was not regarded as a viable long-term strategy; therefore, as soon as import-substitution opportunities were exhausted, Mauritius switched to an export-oriented development policy, with the EPZ as the main element of its new industrial policy. (Alter 1990, 4)

Were things so easy! As in other countries, policy makers in Mauritius had to contend with the import-substituting industrialists who had been propped up by the restrictive commercial policies of the 1960s. Under the Development Certificates (DC) scheme, local industrialists were provided with tax holidays and protection from imports via tariffs and quantitative restrictions. A range of industries were set up using these incentives. These industrialists were naturally opposed to relaxing the trade regime.

The EPZ scheme provided a neat way around this difficulty:

> A completely outward reorientation was politically unfeasible in the 1970s ... since protection was the key to the prosperity of the import-substituting industry and DC certificate holders constituted a powerful lobby. But the DC certificate holders were not disturbed by the formation of an export-oriented enclave: on the contrary, they welcomed it as another potential source of profits. Mauritian labor also favored economic segmentation: the high-wage sector—sugar and import-substituting industries—constituted a male enclave. The EPZ industries employed women, whose earnings supplemented family incomes and who did not compete with the men. For the export-oriented industries, too, the enclave solution had obvious advantages in that the quasi-extraterritorial status provided a degree of protection against the government's dirigiste tendencies. (Wellisz and Saw 1993, 242)

This passage illustrates the political advantages of the two-track strategy. The creation of the EPZ generated new opportunities of trade and employment (for women), without taking protection away from the import-substituting groups and from privileged male workers. The segmentation of labor markets was particularly crucial, as it prevented the expansion of the EPZ from driving wages up in the rest of the economy, and thereby disadvantaging import-substituting industries.[20] New profit opportunities were created at the margin, while leaving old opportunities undisturbed. There were no identifiable losers.

Starting in the early 1980s, the government began to dismantle most of the quantitative restrictions that had sheltered the non-EPZ part of the economy from foreign competition. By the early 1990s, there was significant tariff reform as well (WTO 1995a). These reforms have given another boost to exports (Figure 10).

C. Reform and recovery: Ghana and Uganda

These two countries have undertaken a broad range of reforms during the 1980s, including extensive trade liberalization, after a prolonged period of economic decline.[21] In both countries, all major economic indicators had sunk to distressingly low levels by the early 1980s (Figures 11 and 12). The culprit was gross mismanagement of the economy, aggravated by civil war in Uganda during 1985-86. The following quote suggests the depth of the crisis in Ghana:

> Rent seekers who can control import licenses are usually a potent source of opposition to devaluation, but the crisis had become so bad in Ghana that the group benefiting from administrative allocation of foreign exchange was extremely limited. Indeed, by the early 1980s, the economy had deteriorated to such an extent that even senior government

[20]This segmentation lasted until the mid-1980s. According to Wellisz and Saw, "as of 1985, the minimum wage for male workers ceased to apply to EPZ enterprises" (1993, 248), after which the EPZ began to compete for male workers with the sheltered parts of the economy, and the share of male workers in the EPZ rose rapidly.

[21] This account relies on the following sources: Dean et al. (1994), Tutu and Oduro (1996), Hadjimichael et al. (1996), Ssemorere (1997), World Bank (1996a and b), and WTO (1995b).

> officials, who normally benefit from access to imported goods even in times of shortage, reported that they were going hungry and were concerned that they could not find food for their families. (Herbst 1991)

Extensive trade reforms began in Ghana in 1983, and in Uganda in 1987. Prior to these dates, the trade regime in each country was characterized by a plethora of trade control instruments: high tariffs, stringent QRs, export restrictions, foreign-exchange restrictions, and a high black-market premium. In both countries, the reforms initially focused on removing the extreme distortions in the market for foreign exchange. In Ghana there were three devaluations over a three-year period and a steady, if slow, reduction in the gap between the official and the parallel market rate. An auction market for foreign exchange was introduced in 1986, and the unification of the exchange rate was finally accomplished the following year. In Uganda, following an initial 77 percent devaluation in 1987, the shilling was adjusted periodically through 1989 and the parallel-market premium steadily declined. Foreign exchange bureaus were licensed in 1990, further narrowing the spread between the parallel and official markets. Finally, at the end of 1993, the exchange system was unified with the introduction of an interbank system.

With regard to QRs, the introduction of a new licensing system in Ghana in 1986 allowed the import of non-consumer goods without restriction. Import licensing was streamlined by moving from a positive to a short negative list. In 1989, import licensing and prohibitions were fully terminated. In Uganda, import liberalization was fairly rapid, beginning with the open general licensing scheme (OGL) in 1987, allocating foreign exchange for the importation of raw materials on a "nondiscriminatory" basis. The list of eligible firms was expanded throughout 1990. By 1993, the OGL scheme was phased out and replaced with a short negative list.

In both countries, there were several rounds of tariff reforms, some aimed at rationalizing the tariff structure and others (especially in Ghana) aimed at making up for protection lost through the reform of the QRs. Overall, the ranges of tariffs and their dispersion have been greatly reduced.

On the export side, Uganda has gone farther, by removing the monopoly of the coffee marketing board and abolishing all export taxes (including the tax on coffee, which however was reintroduced in 1994 following a rise in world prices). Ghana has reduced the taxation of cocoa exports, but the government retains its export monopoly.

As Figures 11 and 12 indicate, there can be little doubt that these reforms, along with better macroeconomic management and external financial support, have helped Ghana and Uganda recover. Both countries are growing after a long stretch of decline. Exports are up in both countries, and in the case of Ghana the export-GDP ratio exceeds the level reached in 1970 even though per-capita GDP still falls short of the 1970 level. Investment is up as well, but is apparently led primarily by public investment. At the same time, it is evident that there remains some doubt about the long-run performance of the two economies. Neither has yet caught up with the level of per-capita income reached in 1970. It is too early to declare victory.

D. Reform without growth: Mali and the Gambia

Mali and Gambia provide an interesting contrast to the experience of Ghana and Uganda. These are two economies that are now substantially open to external trade, but they have yet to reap significant gains on the growth front.[22] Part of the reason is that they have extremely poor

[22] This account is based on World Bank (1996b), Dean et al. (1994), Hadjimichael et al. (1992), Radelet (1993), and Sahn (1994).

human and physical resources, and their growth potential is correspondingly low. Another factor is that their reforms did not come after a protracted period of decline, at least of the order of magnitude experienced by Ghana and Uganda, and therefore they have not had the benefit of a bounce back in economic activity (see Figures 13 and 14).

Mali began its trade reforms in 1986 by eliminating export monopolies. In 1988, the reforms were significantly strengthened with quota liberalization and abolition of import monopolies. In 1990, all QRs and import licensing requirements were abolished, and the following year import tariffs were reduced to a range of 6-41 percent. Until the devaluation of the CFA franc in January 1994, however, the economy was stuck with an uncompetitive exchange rate. There are signs of economic revival since the devaluation.

The Gambia has traditionally been an open economy, free of import quotas and other trade restrictions in the importation or exportation of any good other than groundnuts (Hadjimichael et al.1992). Facing a payments crisis, the government launched a macroeconomic stabilization and adjustment program in mid-1985. The key components of the program were the liberalization of the exchange rate, increases in the prices of traded goods, particularly for groundnuts, and the elimination of government subsidies. Tariffs were rationalized and the average duty rate was reduced. In 1990, the state export monopoly for groundnuts was eliminated and farmers and traders were allowed to sell groundnuts to anyone willing to buy.

Hence there has been substantial trade reform in both countries, perhaps more so than in Ghana and Uganda. But as Figures 13 and 14 show, there is little indication that either economy has been greatly boosted by these measures. Export ratios have generally increased following the

reforms, but the impact on economic growth has been modest at best. These cases support the finding from my cross-national regressions: trade policy has strong and predictable effects on trade volumes, but it is an unreliable instrument for generating economic growth.

VI. Political economy and the strategy of trade reform

Inadequate implementation of reforms is one of the most common themes running through the literature on African economic policy.[23] Despite tremendous pressure from donor governments and multilateral agencies, African policy makers have generally been more skeptical about the value of opening up their economies and reducing the role of government than, say, Latin American or East European governments. Reforms have progressed rather gradually and have been full of interruptions and reversals. A World Bank review of trade policy reforms in Africa concludes:

> Reversal of reform has been frequent. In seven of the countries examined, either restrictions which were removed were reinstated, or some existing barriers were strengthened to offset reductions in others. Nigeria, though it eliminated most quantitative restrictions (quotas and licensing) increased dramatically the number of import bans. Ghana, which was the only country to make great strides in cutting formal tariffs, reversed this with the implementation of large special taxes on imports. Côte d'Ivoire raised tariffs significantly, after having reduced QRs. In some cases the motive for reversal appears to be pressure from import-competing industries as they begin to experience competition from abroad (e.g., Côte d'Ivoire, Ghana). In others, resurgence of foreign exchange shortages have slowed the liberalization of tariffs (Madagascar), or reversed the foreign exchange market reform itself (Kenya). (Dean et al., 1994, 50).

Collier cites the Nigerian example: "in the past decade, Nigerian trade policy has swung from intense foreign exchange rationing, indicated by a parallel market premium over 300 percent, to a completely free market, back to even more intense rationing and most recently back to a free

[23] This section draws heavily on Rodrik (1997b).

market." (1995, 548). The contrast with Latin America, where governments have stuck with ambitious reforms even under severe macroeconomic difficulties—such as during the Mexican peso crisis of 1995—is quite striking. As a result, the credibility of African reforms tends to be low. This reduces the effectiveness of the reforms. The desired supply responses—in investment and exports—are less likely to materialize when significant uncertainty is attached to the continuation of the reforms.

There remains considerable controversy over whether World Bank/IMF-type adjustment programs, of the sort adopted in Latin America, do work in Africa. But there is actually a fair bit of consensus on what constitutes a reasonable trade strategy for African countries, which can be crudely expressed in terms of a number of do's and don't's: de-monopolize trade; streamline the import regime, reduce red tape, and implement transparent customs procedures; replace quantitative restrictions with tariffs; avoid extreme variation in tariff rates and excessively high rates of effective protection; allow exporters duty-free access to imported inputs; refrain from large doses of anti-export bias; do not tax export crops too highly. These desiderata still leave considerable room for policy makers to make their own choices over a wide range of trade and industrial-policy options.

As discussed earlier, some aggressive reformers like Ghana and Uganda (and Mauritius before them) implemented most of the above agenda. Many other countries have done much less. Tariffs remain high, trade monopolies continue to exist in many sectors, export crops continue to be taxed, and trade procedures continue to be characterized by red tape and corruption (see the discussion in Metzel and Phillips 1997).

Why has there been so little progress with reforms that are endorsed by economists of diverse persuasions? Political scientists who study Africa have long argued that distributional issues prevent the adoption of economically sensible policies. Bates (1981), for example, has provided the classic argument for why African governments tax agricultural exporters so exorbitantly: the motive is to transfer wealth from politically unorganized rural groups to vocal urban groups. Bienen (1991) faults the policy makers more directly:

> trade liberalization policies are often extremely hard to formulate and implement in Africa precisely because it is powerful officials (civilian and military) who benefit from the controls that have been established over imports and exports. It is government officials who ration and distribute scarce imports, including foreign exchange. They realize the rents which accrue from the systems they construct and control. Of course, officials have allies—import-substituting manufacturers and urban workers employed by state enterprises who are interested in subsidized urban consumer goods. (1991, 76-77)

Bienen argues that the main constraint is not import-substituting urban producers themselves but self-interested government officials: "... a policy that moves away from tariff protection of domestic industries will not face strong *private* sector capitalists or workers in Africa... Such policy shifts face strong *public* opposition in Africa." (1991, 82).

In Rodrik (1997b), I argued that the difficulty goes beyond the identities of gainers and losers from reform. In a typical African setting, the magnitudes of the distributional impacts tend to be very large. Consider for example one of the simulations carried out in Rodrik (1997b), in which trade restrictions are reduced from a tariff equivalent of 40 percent to a tariff equivalent of ten percent. In this scenario, urban employers incur a real income loss of 35 percent while recipients of trade rents suffer a loss of 41 percent! The gain to farmers is 20 percent. The net gain to the economy is 2.5 percent, which is an order of magnitude smaller than these distributional impacts. Put differently, the efficiency consequences of trade reform pale in

comparison to its redistributive effects. This is the sense in which price reforms, and trade reforms in particular, tend to have high political cost-benefit ratios. It is not only that such reforms entail redistribution, which is well recognized. More significant is that they entail so much redistribution relative to their efficiency benefits—a point that is surely not lost on those groups whose incomes are at stake.

These numbers also make clear why the economist's standard trick of assuming (or advocating) compensation is quite unhelpful to the policy maker. Since there are aggregate gains to the economy—the size of the pie is larger—it is in principle possible to compensate all losers and still leave some groups better off. But what is implicit in this recommendation is the idea that the requisite transfers can be accomplished in a relatively efficient manner—in the limit by employing lump-sum transfers. This is counterfactual, especially in Sub-Saharan African countries where tax instruments and administrative capacity are extremely weak.

In practice, there are two kinds of strategies for getting out of this conundrum. One is to package the trade reform with other reforms that promise to provide substantial all-around gains to significant interest groups in urban and rural groups alike, and thereby dilute the redistributive effects of the former. Such opportunities rarely present themselves, because most reforms do have sharp distributional consequences. An exception is the situation that prevails following a prolonged period of economic decline and macroeconomic instability. There are few identifiable winners in an economy in near-hyperinflation, or where economic institutions and output have completely collapsed. The prospect of stabilization and recovery under such conditions, which would benefit most everyone, allows trade reforms to be packaged along with broader macroeconomic reforms. Consider for the situation prevailing in Ghana during the early 1980s:

> Rent seekers who can control import licenses are usually a potent source of opposition to devaluation, but the crisis had become so bad in Ghana that the group benefiting from administrative allocation of foreign exchange was extremely limited. Indeed, by the early 1980s, the economy had deteriorated to such an extent that even senior government officials, who normally benefit from access to imported goods even in times of shortage, reported that they were going hungry and were concerned that they could not find food for their families. (Herbst 1991)

From this perspective, it is no surprise that the most ambitious trade reforms in Sub-Saharan Africa have been undertaken in countries like Ghana and Uganda where the previous economic decline was sharpest. Extraordinary times provide a window of opportunity for policy makers to undertake reforms that would be politically explosive in normal times.

The second strategy for dealing with redistributive conflict is to undertake partial, or two-track reforms that preserve the privileges of the existing beneficiaries. This type of reform has been raised to an art form in China, where it has been systematically used to neutralize opposition from groups whose privileges would otherwise be threatened by market-oriented reforms. Hence, two-track pricing and incentive systems have operated in rural and urban areas of China, and in trade and investment regulations, apparently with considerable success. In Africa, the case of Mauritius, discussed in the previous section, provides a nice illustration of this strategy. The establishment of an export-processing zone in Mauritius generated additional opportunities for trade and employment at the margin, without harming the privileged position of import-substituting groups and of male workers. The segmentation of labor markets was key, as it prevented the expansion of the EPZ from driving wages up in the rest of the economy.

In some ways, regional trade liberalization schemes within Africa can be viewed as a similar strategy for addressing distributional difficulties. Such schemes often have the advantage of creating clear and identifiable gainers from expanded trade, more so than in the case of

multilateral, across-the-board liberalization. This helps build political support for trade reform in the short-run. However, it is important that regional preferences not be used as a substitute for multilateral trade liberalization. Experience with regional integration in the context of an overall protective set of trade policies has generally been quite disappointing.

VII. Putting it all together

To restate my main conclusions:

1. The marginalization of Africa in world trade seems to be due primarily to the slow growth of African economies. Taken as a whole, the region participates in international trade as much as can be expected according to international benchmarks relating trade volumes to income levels, country size, and geography.
2. There is tremendous variation within Sub-Saharan Africa in terms of economic performance. Many countries have experienced periods of a decade or more of high growth and trade expansion, but these have generally not been sustained.
3. The cross-national variation in trade performance within the region is well explained by the standard determinants of trade, namely trade policies, income levels, country size, and geography. In particular, trade policies, as measured by taxation of imports and exports, are significantly and robustly correlated with volumes of trade as well as the growth of trade.
4. The variation in long-term growth performance within the region is explained largely by a small set of fundamentals: human resources, fiscal policy, demography, and a catch-up factor. External terms of trade also played a role over shorter horizons (of a decade or so).

Trade policies have played a much smaller role in growth performance, although there is evidence that excessive taxation of exports was partly responsible for some dismal failures.

5. Extensive trade liberalization during the 1980s along with other reforms have helped some of the region's leading reformers, such as Uganda and Ghana, recover from long periods of economic decline. But neither Uganda nor Ghana has yet reached the level of income per capita it had attained in 1970. In other reformers, such as Mali and the Gambia, trade reforms have boosted trade volumes, but there is less to show on the growth front.
6. The two most successful countries in the region, Botswana and Mauritius, have combined elements of an open economy with more unorthodox policies in other spheres. As a member of SACU, Botswana has not had an independent trade policy, a factor which may have been crucial in achieving good governance on macroeconomic and other fronts. But it has also had a very large public sector. Mauritius has followed a two-track strategy until the 1980s, with an export processing zone operating on free-trade principles functioning side by side with a highly protected domestic economy.
7. Successful instances like Botswana and Mauritius notwithstanding, trade reform in Africa has generally been erratic and marked by reversals and lack of credibility. At the heart of these difficulties lie the sharp distributional consequences of trade reform. Managing these distributional issues is tricky, yet crucial to successful reform. Two broad strategies for minimizing distributional conflict are: (a) packaging and sequencing trade reforms with other reforms that serve to offset or dilute the consequences of trade liberalization; and (b) proceeding in stages so that winners can emerge early on and provide political support.

These conclusions have both optimistic and pessimistic implications. On the positive side, it is clear that Sub-Saharan African countries are able to grow at rapid rates when the circumstances are right. Trade volumes are responsive to prices, and countries where exports of traditional and non-traditional products have been sharply discouraged by taxes and other restrictions can expect a solid payoff when such policies are removed. There is no evidence that African trade has been significantly affected by external developments. And in general there is little ground for concern that the structure of African economies makes them unsuitable for the application of remedies that have worked in other settings.

At the same time, there are clear limitations to what trade policy, or outward orientation, can accomplish. Growth depends first and foremost on the fundamentals identified above. Investments in human resources and infrastructure and establishing the credibility of the institutions of macroeconomic management are going to take time, as will the demographic transition. Opening an economy to international trade is not a quick fix that can substitute for these harder tasks.

There is obviously great need for more research in many of these areas. The economies of Sub-Saharan Africa remain relatively under-researched, especially where comparative research within the region is concerned. As I have tried to indicate in this study, there is much that Sub-Saharan countries can learn from the successes and failures of their neighbors. The lessons from good practice in trade policies, institutional reforms, and the management of reform are generally more convincing when they emanate from the experiences of countries that are similarly situated (as opposed to those that are half a world away, as in the case of East Asia).

Two areas in particular need further attention. First, what is the link between trade reform and poverty? As discussed above, in many Sub-Saharan countries, more open trade policies can be expected to improve incomes in the rural sector, where poverty is concentrated. To what extent this expectation has been borne out in practice—and is likely to be borne out in future cases of reform—is a question that deserves further study. Second, we need to understand better why some countries are more resilient to external shocks than others. In Rodrik (1997c), I have argued that the effects of external shocks are mediated through latent social conflicts at home (such as ethnic fragmentation or income inequality) and the domestic institutions of conflict management. Preliminary evidence suggests that this hypothesis can help us understand the variation in growth performance over time within Africa (see Rodrik 1997c). If this is correct, improving domestic institutions of conflict management in African societies becomes an even more serious priority.

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Table 1

Worst and best performers in Sub-Saharan Africa

	per-capita income in 1985 dollars							
	1960	***1964***	***1970***	***1975***	***1980***	***1985***	***1992***	***1994***
Part A: 1994 level of per-capita income lower than in 1960								
ANGOLA	930	1038	1237	800	732	767	699	532
BENIN	1102	1127	1118	1053	1114	1108	956	973
BURUNDI	636	446	324	446	479	526	568	467
CENTRAL AFR.R.	737	711	757	705	709	640	530	529
CHAD	757	748	660	593	527	409	408	391
COTE D'IVOIRE	1130	1449	1615	1821	1794	1520	1102	1004
MADAGASCAR	1197	1118	1148	996	983	769	607	585
MALI	513	413	420	461	533	532	520	489
MOZAMBIQUE	1167	1277	1501	1191	926	761	798	944
NIGER	532	591	806	595	716	559	463	457
RWANDA	540	369	641	641	757	763	757	275
SENEGAL	1148	1232	1147	1124	1134	1162	1120	1061
SOMALIA	857	854	768	797	745	654		
UGANDA	597	610	647	618	534	540	547	586
ZAIRE	510	540	671	637	478	442	308	
ZAMBIA	965	911	1110	1252	955	796	671	638
Part B: 1994 per-capita income greater than 20 percent above the 1960 level								
BOTSWANA	534	609	824	1338	1940	2335	2432	2384
CAMEROON	641	658	804	859	1195	1484	1029	916
CAPE VERDE IS.	471	437	633	482	934	1100	1185	1231
CONGO	1083	1024	1599	1645	1887	2699	2244	1971
ETHIOPIA	257	277	296	306	321	300	279	319
GABON	1693	2335	3710	5683	4739	4122	3517	2905
GUINEA-BISS	502	603	701	770	471	650	647	678
KENYA	636	611	586	837	918	805	952	930
LESOTHO	314	408	419	762	993	977	954	1112
MALAWI	380	369	440	509	554	518	496	473
MAURITIUS	2855	3243	2400	3635	3986	4225	6289	6637
NAMIBIA	2196	2807	3384	3711	3010	2733	2966	2924
NIGERIA	718	764	955	1244	1434	1063	980	954
SEYCHELLES	1257	1402	1664	1847	2905	3185	4229	4347
SOUTH AFRICA	2271	2592	3255	3592	3531	3390	3147	3108
SWAZILAND	1172	1679	2530	2573	3062	2200	2406	2373
TANZANIA	314	366	418	492	468	459	522	521
TOGO	367	443	619	617	730	641	551	497
ZIMBABWE	990	918	1082	1349	1206	1226	1167	1215

Table 2

Growth of real per-capita GDP (percent annual average)

country	*1960-94*	*1960-75*	*1975-85*	*1985-94*
BOTSWANA	4.40	6.12	5.57	0.23
LESOTHO	3.72	5.91	2.49	1.44
SEYCHELLES	3.65	2.57	5.45	3.46
CAPE VERDE IS.	2.83	0.15	8.25	1.25
MAURITIUS	2.48	1.61	1.50	5.02
SWAZILAND	2.07	5.24	-1.57	0.84
CONGO	1.76	2.79	4.95	-3.49
GABON	1.59	8.07	-3.21	-3.89
TANZANIA	1.49	2.99	-0.69	1.41
KENYA	1.12	1.83	-0.39	1.60
CAMEROON	1.05	1.95	5.47	-5.36
SOUTH AFRICA	0.92	3.06	-0.58	-0.97
TOGO	0.89	3.46	0.38	-2.83
GUINEA-BISS	0.88	2.85	-1.69	0.47
NAMIBIA	0.84	3.50	-3.06	0.75
NIGERIA	0.84	3.66	-1.57	-1.20
MALAWI	0.64	1.95	0.18	-1.01
ETHIOPIA	0.64	1.16	-0.20	0.68
ZIMBABWE	0.60	2.06	-0.96	-0.10
GUINEA	0.48	0.39	0.36	0.77
BURKINA FASO	0.37	-0.19	1.74	-0.20
MAURITANIA	0.36	1.15	-1.26	0.84
GAMBIA	0.28	1.33	-0.06	-1.09
GHANA	0.27	0.10	-1.43	2.43
UGANDA	-0.05	0.23	-1.35	0.91
MALI	-0.14	-0.71	1.43	-0.94
SENEGAL	-0.23	-0.14	0.33	-1.01
COTE D'IVOIRE	-0.35	3.18	-1.81	-4.61
BENIN	-0.37	-0.30	0.51	-1.44
NIGER	-0.45	0.75	-0.62	-2.24
MOZAMBIQUE	-0.62	0.14	-4.48	2.39
BURUNDI	-0.91	-2.37	1.65	-1.32
CENTRAL AFR.R.	-0.98	-0.30	-0.97	-2.12
ZAMBIA	-1.22	1.74	-4.53	-2.46
SIERRA LEONE	-1.29	0.62	-2.62	-2.14
ANGOLA	-1.64	-1.00	-0.42	-4.06
CHAD	-1.94	-1.63	-3.71	-0.50
RWANDA	-1.98	1.14	1.74	-11.34
MADAGASCAR	-2.11	-1.23	-2.59	-3.04
COMOROS	..	..	..	-1.93
LIBERIA	..	1.77	-1.00	..
SOMALIA	..	-0.48	-1.98	..
SUDAN	..	..	-0.15	0.85
ZAIRE	..	1.48	-3.65	..
Average	**0.51**	**1.59**	**-0.11**	**-0.83**

Note: For sources on all data used in this paper, see the appendix.

Table 3

Regional indicators of trade policy, c. 1985-89

	median values (percent)		
	average tariff on intermediate & capital goods	coverage ratio of NTBs on intemediate & capital goods	black market premium for $
SSA	20.2	6.3	14.6
East Asia	10.6	5.5	6.0
Latin America	15.9	6.4	19.1
World	13.3	8.7	11.2

Source: Barro and Lee (1994).

Table 4

Weighted Average Tariffs by Country and Sector (%)

Product Category	**Primary products**	Food	Agricultural raw materials	Crude fertilizers & mineral ores	Mineral fuels	Non-ferrous metals	**Manufactured Products**	Chemicals	Iron & Steel	Machinery & Equipment	Other Manufactured Products	**All Product Categories**
SUB-SAHARAN AFRICA												
BURUNDI												
80-83	**32.0**	59.2	21.4	9.9	5.1	23.3	**28.7**	17.1	17.7	28.7	38.2	**29.8**
84-87	**40.0**	62.6	19.7	16.8	15.0	17.4	**27.4**	20.9	20.4	24.7	38.6	**30.9**
88-90	**36.8**	61.1	23.2	20.7	15.4	21.5	**25.4**	23.2	18.9	21.2	37.0	**28.9**
IVORY COAST												
80-83	**23.6**	18.0	27.5	17.4	28.5	18.3	**26.8**	27.4	24.7	24.9	31.0	**25.7**
84-87	**18.1**	17.9	9.5	13.9	21.0	18.9	**23.1**	19.7	25.1	19.9	30.8	**21.5**
ETHIOPIA												
80-83	**16.0**	36.1	17.8	9.8	0.7	10.5	**23.9**	18.9	2.7	19.5	39.7	**21.4**
88-90	**16.1**	36.4	17.8	10.4	0.8	10.4	**26.7**	14.5	1.6	21.9	47.0	**23.2**
GHANA												
80-83	**38.5**	45.6	36.1	32.2	34.8	35.2	**40.0**	32.8	35.0	38.3	48.8	**39.5**
84-87	**29.2**	25.9	30.0	29.6	33.4	30.0	**29.4**	29.5	30.0	28.8	30.2	**29.3**
GUINEA												
80-83	**51.1**	72.2	45.4	40.6	32.6	49.6	**74.5**	63.6	39.3	72.6	93.9	**66.9**
84-87	**9.2**	8.3	10.0	9.9	10.0	8.0	**8.0**	8.8	10.0	7.0	9.2	**8.4**
KENYA												
80-83	**28.0**	32.4	34.1	28.0	5.7	28.7	**39.3**	28.3	30.1	36.8	53.0	**36.5**
84-87	**29.4**	32.8	38.0	23.6	9.6	29.9	**38.0**	28.6	33.2	35.8	49.1	**35.9**
88-90	**39.6**	56.1	32.0	21.6	12.3	29.3	**35.9**	29.2	30.0	29.4	54.4	**36.8**
MADAGASCAR												
84-87	**3.0**	6.6	0.5	0.1	0.0	1.6	**6.8**	1.4	4.4	7.1	10.1	**5.6**
88-90	**2.7**	6.7	0.6	0.1	0.0	1.6	**7.0**	0.9	4.7	7.4	10.2	**5.5**
MALAWI												
84-87	**7.4**	13.4	3.8	0.5	1.8	8.0	**16.7**	12.9	9.4	16.1	22.0	**14.1**
88-90	**8.1**	16.0	4.2	0.3	1.3	7.6	**15.3**	10.1	9.3	15.3	20.1	**13.1**
MAURITIUS												
80-83	**12.9**	18.2	4.3	1.0	11.8	4.6	**51.3**	17.7	10.9	62.6	58.4	**38.5**
88-90	**24.4**	28.8	4.9	0.6	28.4	4.4	**32.8**	14.7	13.3	37.4	39.0	**30.1**
NIGERIA												
80-83	**19.8**	23.0	33.1	15.4	8.6	18.6	**26.2**	17.0	14.3	22.0	42.9	**24.6**
84-87	**18.6**	34.6	25.4	11.7	10.1	15.8	**21.0**	14.5	18.9	20.0	29.4	**20.5**
88-90	**22.6**	32.2	26.2	13.6	10.6	28.8	**29.4**	19.7	25.0	22.9	49.6	**27.6**
91-93	**22.2**	32.1	23.9	12.9	10.6	26.4	**28.2**	22.9	24.4	22.6	43.7	**26.5**
SIERRA LEONE												
80-83	**12.6**	11.2	25.4	11.6	10.6	14.1	**25.1**	25.8	12.5	23.0	32.2	**21.3**
84-87	**13.1**	11.2	25.8	11.6	11.6	14.1	**25.1**	25.8	12.5	23.1	32.2	**21.8**

Table 4

Table continued

Product Category	**Primary products**	Food	Agricultural raw materials	Crude fertilizers & mineral ores	Mineral fuels	Non-ferrous metals	**Manufactured Products**	Chemicals	Iron & Steel	Machinery & Equipment	Other Manufactured Products	**All Product Categories**
SUDAN												
80-83	**46.9**	61.4	29.8	39.9	38.1	38.5	**40.9**	22.3	31.7	39.8	56.2	**42.9**
84-87	**41.1**	57.4	45.7	40.2	21.3	54.3	**49.4**	33.6	42.9	46.2	66.6	**47.0**
TANZANIA												
80-83	**16.8**	32.1	28.4	15.9	1.6	15.0	**18.4**	14.3	15.0	16.6	25.3	**17.8**
84-87	**35.0**	35.0	34.1	19.2	38.7	20.0	**35.1**	19.9	20.0	43.7	30.7	**35.0**
88-90	**20.3**	39.8	25.3	21.8	2.1	24.2	**24.1**	20.7	24.2	21.4	31.6	**22.8**
ZAIRE												
80-83	**15.4**	23.8	12.6	10.3	6.6	18.8	**23.0**	16.6	13.4	21.6	32.0	**20.7**
84-87	**14.5**	19.6	16.6	13.7	5.4	19.5	**19.6**	12.1	15.2	17.2	29.8	**18.2**
88-90	**13.4**	22.4	18.0	11.3	5.5	15.6	**18.9**	12.1	16.2	16.7	28.0	**17.1**
ZIMBABWE												
80-83	**3.1**	6.5	0.8	0.2	0.6	4.5	**8.4**	3.9	7.2	6.5	15.6	**6.8**
84-87	**2.7**	5.1	0.9	0.2	0.8	3.4	**6.5**	3.0	4.7	5.0	12.2	**5.4**
88-90	**4.7**	6.9	1.8	0.2	4.1	1.8	**9.0**	3.3	5.2	7.8	15.8	**7.6**
SUB-SAHARAN AFRICA												
80-83 (13 country avg.)	**24.4**	33.8	24.4	17.9	14.3	21.5	**32.8**	23.5	19.6	31.8	43.6	**30.2**
84-87 (13 country avg.)	**20.1**	25.4	20.0	14.7	13.7	18.5	**23.5**	17.7	19.0	22.7	30.1	**22.6**
88-90 (10 country avg.)	**18.9**	30.6	15.4	10.1	8.1	14.5	**22.5**	14.8	14.8	20.1	33.3	**21.3**
LATIN AMERICA & THE CARIBBEAN												
80-83 (4 country avg.)	**16.8**	22.3	20.4	14.1	10.3	16.3	**23.6**	20.1	18.2	23.2	29.1	**21.3**
84-87 (11 country avg.)	**21.1**	25.6	21.8	13.9	14.8	20.4	**25.1**	19.8	20.3	24.2	31.5	**23.9**
88-90 (8 country avg.)	**17.3**	24.5	17.1	11.4	11.1	14.6	**22.7**	17.3	17.0	21.8	29.0	**20.9**
91-93 (9 country avg)	**9.8**	12.8	9.5	5.5	7.4	8.3	**12.5**	9.3	10.1	12.6	15.0	**11.6**
EAST ASIA												
80-83 (5 country avg)	**10.5**	21.9	9.8	6.3	2.1	10.2	**21.6**	15.0	12.4	19.8	31.8	**18.2**
84-87 (7country avg.)	**10.0**	16.3	8.8	4.9	3.6	10.1	**18.1**	13.0	10.1	18.2	23.0	**15.8**
88-90 (7 country avg.)	**11.1**	17.6	8.9	4.8	7.0	9.9	**18.0**	12.8	9.0	18.0	23.3	**15.7**
91-93 (7 country avg.)	**9.9**	16.0	8.3	4.2	6.9	9.3	**17.1**	12.2	9.3	17.3	21.0	**14.7**

Source: UNCTAD (1994).

Weighted Average NTM Incidence by Country and Sector (%)

Product Category	**Primary Products**	Food	Agricultural raw materials	Crude fertilizers & mineral ores	Mineral fuels	Non-ferrous metals	**Manufactured Products**	Chemicals	Iron & Steel	Machinery & Equipment	Other Manufactured Products	**All Product Categories**
SUB-SAHARAN AFRICA												
BURUNDI												
84-87	**27.5**	29.0	2.2	2.9	37.2	6.2	**12.2**	8.3	25.2	1.4	32.7	**16.9**
88-90	**0.8**	2.2	0.0	0.0	0.0	0.0	**0.8**	0.0	0.0	0.4	2.2	**0.8**
IVORY COAST												
84-87	**4.5**	24.2	0.2	7.1	87.4	0.0	**9.9**	9.9	1.3	13.1	5.7	**20.6**
ETHIOPIA												
88-90	**28.3**	64.6	33.1	4.8	0.1	1.6	**10.8**	1.8	9.2	7.7	22.9	**16.7**
GHANA												
84-87	**48.6**	87.7	71.1	63.1	0.4	6.1	**33.5**	18.4	20.1	31.2	50.5	**38.4**
GUINEA												
84-87	**41.4**	85.1	32.5	0.4	0.8	22.8	**39.5**	16.6	23.9	45.6	44.4	**39.9**
KENYA												
84-87	**79.8**	88.5	58.9	6.4	87.4	45.8	**69.8**	19.2	75.6	73.8	89.2	**73.0**
88-90	**31.6**	77.6	4.9	3.2	1.0	19.0	**29.0**	6.5	35.1	16.0	66.9	**29.8**
MADAGASCAR												
84-87	**39.5**	70.0	43.7	65.4	0.0	45.6	**63.4**	2.7	100.0	66.9	81.2	**56.0**
88-90	**0.0**	0.0	0.0	0.3	0.0	0.3	**2.3**	1.2	0.0	1.8	4.5	**1.7**
MALAWI												
84-87	**85.3**	84.5	99.0	86.0	81.3	100.0	**98.5**	98.9	86.6	100.0	98.4	**94.4**
88-90	**83.7**	81.0	99.1	85.5	81.6	100.0	**95.8**	87.3	76.8	100.0	97.3	**91.8**
MAURITIUS												
88-90	**27.5**	43.7	16.5	16.4	15.3	50.0	**38.4**	18.0	53.1	43.5	35.6	**34.8**
NIGERIA												
84-87	**31.2**	53.1	23.7	0.0	14.8	2.0	**12.4**	0.9	0.0	10.8	25.6	**18.4**
88-90	**16.8**	37.7	24.3	0.0	0.0	0.0	**2.3**	0.2	0.0	0.0	8.7	**7.3**
91-93	**19.4**	37.7	24.3	0.0	0.0	0.0	**2.3**	0.2	0.0	0.0	8.8	**7.6**
SIERRA LEONE												
84-87	**100.0**	100.0	100.0	100.0	100.0	100.0	**100.0**	100.0	100.0	100.0	100.0	**100.0**
SUDAN												
84-87	**7.0**	16.0	0.0	0.1	0.0	0.1	**8.4**	5.5	0.0	6.4	16.4	**8.0**
TANZANIA												
84-87	**80.0**	76.0	53.9	69.4	92.3	82.8	**61.1**	84.8	98.3	50.0	60.1	**67.0**
88-90	**85.6**	78.7	80.7	69.9	93.4	95.7	**78.0**	93.7	98.3	67.6	84.6	**80.4**
ZAIRE												
84-87	**68.0**	49.6	72.2	23.4	90.5	100.0	**46.2**	7.5	96.4	35.7	76.2	**53.1**
88-90	**100.0**	100.0	100.0	100.0	100.0	100.0	**100.0**	100.0	100.0	100.0	100.0	**100.0**

Table 5

Table continued

Product Category	**Primary Products**	Food	Agricultural raw materials	Crude fertilizers & mineral ores	Mineral fuels	Non-ferrous metals	**Manufactured Products**	Chemicals	Iron & Steel	Machinery & Equipment	Other Manufactured Products	**All Product Categories**
ZIMBABWE												
84-87	**16.7**	38.1	1.2	0.0	0.0	0.0	**0.1**	0.0	0.0	0.0	0.3	**5.3**
88-90	**99.9**	100.0	99.9	100.0	99.7	100.0	**96.1**	96.7	100.0	97.6	91.6	**97.4**
SUB-SAHARAN AFRICA												
84-87 (13 country avg.)	**48.4**	61.7	43.0	32.6	45.5	39.3	**42.7**	28.7	48.3	41.1	52.4	**45.5**
88-90 (10-country avg.)	**47.4**	58.6	45.9	38.0	39.1	46.7	**45.4**	40.5	47.3	43.5	51.4	**46.1**
LATIN AMERICA & THE CARIBBEAN												
84-87 (11 country avg.)	**42.8**	45.1	19.9	12.4	51.6	23.6	**28.4**	18.4	31.5	25.6	39.0	**32.9**
88-90 (8 country avg.)	**48.6**	51.1	21.9	13.2	57.9	10.0	**20.9**	17.4	26.3	19.3	24.8	**30.3**
91-93 (7 country avg.)	**16.1**	12.6	3.6	0.1	24.1	0.1	**1.8**	1.3	3.3	2.4	0.5	**6.6**
EAST ASIA												
84-87 (7 country avg.)	**31.1**	36.1	24.3	19.8	30.0	14.6	**23.1**	30.3	17.7	24.3	18.0	**25.6**
88-90 (7 country avg.)	**18.8**	19.5	11.4	5.3	22.1	1.4	**8.3**	7.1	20.0	7.8	6.7	**11.8**
91-93 (7 country avg.)	**11.2**	12.6	8.6	4.6	11.8	1.0	**5.5**	1.7	16.5	6.0	3.6	**7.4**

Source: UNCTAD (1994).

Table 6

Does Africa trade too little?

dependent variable: ratio of exports and imports to GDP, 1980-89 (%)				
	(1)	*(2)*	*(3)*	*(4)*
SSA	**-1.8**	**0.2**	**-12.7**	**5.6**
	(7.8)	**(8.4)**	**(7.2)**	**(5.7)**
East Asia	28.8*	41.9*	42.7*	40.0*
	(9.6)	(9.3)	(9.1)	(8.9)
Latin America	-25.6*	-18.8**	-18.3**	0.9
	(7.5)	(7.7)	(7.3)	(6.6)
OECD	-15.7	-19.6	-5.8	
	(9.2)	(10.1)	(7.9)	
ln (population)	-15.5*	-14.4*	-15.9*	
	(1.8)	(1.8)	(1.8)	
ln (per-cap. income)	12.1*	9.9**		
	(3.8)	(4.2)		
ln (distance)		-18.0**	-16.7**	
		(6.8)	(6.9)	
"gravity" component of openness [a]				0.8*
				(0.1)
constant	118.6*	152.3*	242.9*	42.7*
	(36.9)	(41.0)	(18.4)	(4.6)
R^2	0.60	0.64	0.62	0.47
N	119	89	91	130

Notes: [a] Based on Frankel and Romer (1996).
Standard errors are in parentheses. Levels of significance:
* 99 percent
** 95 percent.

Growth of total exports to OECD

in current U.S. dollars, annual percent average

	1964-94	*1964-75*	*1975-85*	*1985-94*
Rwanda	19.44	55.89	9.01	-13.54
Mali	11.23	15.24	13.15	4.21
Congo	11.22	19.28	12.39	0.07
Gabon	10.23	18.06	8.19	2.91
Nigeria	9.77	23.85	5.24	-2.41
Mauritius	9.25	13.37	3.11	11.05
Angola	8.79	12.90	8.04	4.61
Guinea	8.69	9.78	13.66	1.84
Gambia	8.13	13.92	-7.44	18.37
Comoros	7.90	9.18	12.55	1.17
Cameroon	7.51	8.78	16.91	-4.48
Burkina Faso	7.24	14.79	3.25	2.46
Cote d'Ivoire	6.92	11.87	8.10	-0.46
Mauritania	6.76	11.78	4.05	3.65
Benin	5.98	8.34	14.83	-6.74
Kenya	5.87	7.02	7.66	2.48
Madagascar	5.47	8.01	1.32	6.98
Sierra Leone	5.22	10.92	-1.34	5.55
Cent Afr Rep	4.81	6.61	7.75	-0.65
Niger	4.80	10.36	9.83	-7.56
Ghana	4.77	7.66	-2.86	9.73
Uganda	4.57	8.07	5.44	-0.66
Togo	4.27	14.11	0.87	-3.98
Ethiopia	4.09	5.80	4.93	1.04
Zaire	3.71	8.53	4.58	-3.13
Guinea Bissau	3.40	2.83	-10.13	19.13
Chad	3.26	5.60	1.80	2.00
Liberia	3.21	10.18	1.99	-3.97
Burundi	3.18	3.43	7.25	-1.65
Senegal	2.95	8.19	-2.81	2.96
Somalia	1.73	-0.07	5.97	-0.78
Mozambique	1.37	12.04	-16.58	8.26
Malawi				1.89
Tanzania			0.33	1.02
Zambia			-2.29	-1.59
Zimbabwe			21.83	5.54
Seychelles			12.55	-3.91
Cape Verde			7.10	7.76

Source: UN, COMTRADE

Growth of manufacturing exports to OECD

in current U.S. dollars, annual percent average

	1964-94	*1964-75*	*1975-85*	*1985-94*
Mauritius	28.19	47.33	18.95	13.56
Mali	22.83	26.62	25.39	13.84
Burkina Faso	20.24	34.57	6.46	16.22
Cote d'Ivoire	19.61	32.40	13.11	10.08
Niger	18.39	17.45	42.96	-6.98
Somalia	16.19	24.43	3.52	18.19
Ghana	15.03	27.98	-8.39	22.70
Congo	14.60	17.31	4.10	20.66
Gambia	14.32	-11.22	25.95	29.35
Mauritania	13.54	34.14	-9.18	12.25
Ethiopia	13.20	10.75	20.91	6.87
Benin	13.03	13.81	22.74	1.15
Sierra Leone	11.85	30.16	-6.81	9.19
Togo	11.45	11.03	0.56	21.65
Madagascar	10.73	8.94	7.64	14.73
Burundi	10.73	21.36	9.35	-0.65
Liberia	9.30	12.45	-3.03	17.22
Kenya	9.27	10.81	8.16	7.76
Cent.Afr.Rep	7.93	4.00	13.56	5.83
Chad	7.77	14.90	20.55	-13.62
Senegal	6.87	7.82	9.99	2.03
Cameroon	6.35	3.39	12.08	3.22
Comoros	6.27	6.95	4.03	7.15
Nigeria	5.66	2.75	1.66	12.29
Gabon	5.28	7.73	14.04	-6.71
Angola	5.23	7.91	14.79	-7.81
Guinea	4.85	2.13	2.93	9.26
Zaire	4.14	8.34	3.80	-0.57
Mozambique	-0.17	5.02	-22.61	16.57
Guinea Bissau	-0.88	24.92	-13.37	-16.68
Uganda	-4.29	3.48	-15.65	-1.03
Cape Verde			0.86	16.98
Malawi			14.58	3.07
Zambia			-2.34	-1.90
Zimbabwe			15.45	4.62
Seychelles			27.40	-0.33
Rwanda			29.90	-14.06
Tanzania			-4.31	5.89

Source: UN, COMTRADE

Table 9

Determinants of trade volume (cross-section regressions)

	dependent variable								
	xmy6494					*xy6494*		*axy6494*	
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*
itax7093	-1.74*		-2.15*	-2.18*	-2.77*	-1.09**		-1.40**	
	(0.64)		(0.52)	(0.55)	(0.5)	(0.44)		(0.67)	
mtax7093		-0.24					-0.10		-1.05**
		(0.55)					(0.21)		(0.42)
xtax7093		-1.19*					-0.55**		-0.31
		(0.32)					(0.21)		(0.27)
sopen			0.08						
			(0.09)						
bmp6589				-0.01					
				(0.02)					
owqi					-0.06				
					(0.07)				
lnypc64	0.10***	0.10**	0.11	0.10***	0.11**	0.11*	0.12*	0.09*	0.11*
	(0.05)	(0.04)	(0.07)	(0.05)	(0.04)	(0.04)	(0.04)	(0.03)	(0.03)
lpop6494	-0.14*	-0.13*	-0.10*	-0.11*	-0.09*	-0.06*	-0.05**	-0.03	-0.04
	(0.03)	(0.03)	(0.04)	(0.04)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)
tropics	-0.52*	-0.46*	-0.67*	-0.59*	1.68*	-0.09	-0.06	-0.44	-0.32
	(0.08)	(0.06)	(0.24)	(0.09)	(0.3)	(0.11)	(0.13)	(0.43)	(0.43)
N	37	37	33	36	23	37	37	34	34
R^2	0.82	0.83	0.73	0.82	0.87	0.65	0.63	0.39	0.39
Root MSE	0.14	0.13	0.14	0.13	0.08	0.10	0.11	0.13	0.13

Note: Robust standard errors are reported in parenthesis. For variable definitions see the appendix.
Levels of statistical significance are as follows:

* 99% level
** 95% level
*** 90% level

Table 10

Determinants of growth of trade (cross-section regressions)

	dependent variable			
	xmy6494g	*xy6494g*		*axy6494g*
	(1)	(2)	(3)	(4)
itax7093	0.02	-0.31**		0.11
	(0.07)	(0.16)		(0.28)
mtax7093			-0.14	
			(0.12)	
xtax7093			-0.16	
			(0.10)	
lnypc64 (/100)	-0.65	-1.58	-1.40	-1.23
	(0.46)	(1.04)	(1.00)	(1.56)
lpop6494 (/100)	-0.21	0.03	0.02	0.09
	(0.29)	(0.35)	(0.49)	(0.60)
tropics (/100)	-0.33	-1.09	-0.22	-0.87
	(0.85)	(1.17)	(1.66)	(4.19)
N	25	36	36	22
R^2	0.10	0.19	0.18	0.08
Root MSE	0.02	0.03	0.03	0.03

Note: Robust standard errors are reported in parenthesis.
For variable definitions see the appendix.
Levels of statistical significance are as follows:

* 99% level
** 95% level
*** 90% level

Table 11

Determinants of trade volumes (pooled regressions)

	dependent varable														
	xmy					*xy*			*axy2*		*mxy2*		*xmy*	*xy*	*axy2*
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)*	*(14)*	*(15)*
intax	-1.99*		-2.11*		-1.97*	-1.20*			-1.16*		-0.45***		-0.93	-0.84**	-0.64
	(0.37)		(0.40)		(0.44)	(0.23)			(0.39)		(0.24)		(0.74)	(0.35)	(0.42)
mtax		-0.82*		-1.37*			-0.39**	-0.85*		-1.15*		-0.43**			
		(0.31)		(0.38)			(0.21)	(0.22)		(0.32)		(0.18)			
xtax		-1.10*		-0.86*			-0.52*	-0.34**		-0.18		-0.13			
		(0.22)		(0.26)			(0.12)	(0.14)		(0.14)		(0.10)			
bmp			-0.02**	-0.03**	-0.03*			-0.01***							
			(0.01)	(0.01)	(0.01)			(0.01)							
owqi					-0.08			-0.05							
					(0.07)			(0.04)							
lypcint	0.11*	0.12*	0.10**	0.12*	0.14*	0.13*	0.14*	0.13*	0.09*	0.11*	0.04***	0.04***	0.13***	0.10*	0.03
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)	(0.08)	(0.04)	(0.05)
lnpop	-0.11*	-0.11*	-0.11*	-0.11*	-0.09*	-0.04*	-0.04*	-0.02***	-0.02	-0.03***	-0.003	-0.01			
	(0.19)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)			
access	-0.05	-0.03	-0.07***	-0.07***	-0.01	0.002	0.01	0.02	-0.03	-0.04	0.04***	0.04***			
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)			
tropics	-0.58*	-0.50*	-0.62*	-0.57*	1.44*	-0.08	-0.04	0.61**	-0.38	-0.27	0.18*	0.23*			
	(0.09)	(0.09)	(0.10)	(0.10)	(0.42)	(0.07)	(0.08)	(0.29)	(0.37)	(0.34)	(0.07)	(0.08)			
country dummies	no	no	no	no	no	no	no	no	no	no	no	no	yes	yes	yes
N	92	91	83	82	54	92	91	54	79	78	79	78	93	93	79
R^2	0.78	0.79	0.81	0.81	0.74	0.67	0.63	0.73	0.41	0.43	.20	0.22	0.34	0.55	0.31
Root MSE	0.16	0.16	0.15	0.16	0.13	0.10	0.11	0.07	0.13	0.13	0.07	0.07			

Note: Regressions are performed on pooled data covering period averages for 1964-74, 1975-84, and 1985-94. All regressions include dummies for each of the periods (coefficients not shown). Robust standard errors are reported in parenthesis. For variable definitions see the appendix. Levels of statistical significance are as follows:

* 99% level

** 95% level

*** 90% level

Table 12

Determinants of growth of trade (pooled regressions)

	dependent variable							
	xmyg	*xyg*				*xmyg*	*xyg*	*axyg*
	(1)	*(2)*	*(3)*	*(4)*	*(4)*	*(5)*	*(6)*	*(7)*
intax	-0.14	-0.32*		-0.28**	-0.33**	-0.72*	-0.74*	-1.24**
	(0.11)	(0.11)		(0.13)	(0.15)	(0.27)	(0.29)	(0.60)
mtax			-0.18**					
			(0.09)					
xtax			-0.14***					
			(0.08)					
bmp (/100)				-0.57**	-0.52**			
				(0.24)	(0.24)			
owqi					0.02			
					(0.03)			
lnypcint (/100)	-1.32	-1.74**	-1.36***	-1.66***	-3.98**	-5.19**	-5.08***	-15.9**
	(0.81)	(0.82)	(0.79)	(0.91)	(1.72)	(2.60)	(2.81)	(6.72)
lnpop (/100)	-0.01	-0.16	-0.19	0.22	-0.44			
	(0.37)	(0.37)	(0.39)	(0.45)	(0.88)			
access (/100)	-0.14	-1.29	-1.16	-1.38	-3.64***			
	(1.11)	(1.20)	(1.22)	(1.23)	(2.02)			
tropics (/100)	-1.81	-2.27	-1.34	2.51	-35.4**			
	(1.37)	(1.49)	(1.59)	(1.67)	(16.3)			
country dummies	no	no	no	no	no	yes	yes	yes
N	92	83	83	75	47	84	84	73
R^2	0.08	0.13	0.13	0.15	0.29	0.05	0.09	0.06
Root MSE	0.04	0.04	0.04	0.04	0.05			

Note: Robust standard errors are reported in parenthesis. Period dummies are included in all specifications (coefficients not shown). For variable definitions see the appendix.
Levels of statistical significance are as follows:

* 99% level
** 95% level
*** 90% level

Table 13

Growth regressions (cross-section sample)

	dependent variable: gr6590									
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*
xtax7093				-5.58*	-6.07*	-5.55*	-6.86*	-4.99*	-5.42*	-3.97**
				(1.58)	(1.49)	(1.66)	(2.19)	(1.64)	(1.74)	(1.76)
lgdpea65	-1.47*	-2.01*	-1.40*	-1.57*	-1.93*	-1.59*	-1.59*	-1.70*	-1.58*	-1.63*
	(0.19)	(0.43)	(0.32)	(0.30)	(0.34)	(0.30)	(0.30)	(0.33)	(0.34)	(0.33)
lifexp	37.78***	-224.54**	5.61*	6.77*	8.32*	6.78*	6.86*	6.76*	6.80*	5.03***
	(20.94)	(102.13)	(2.01)	(1.94)	(1.55)	(1.94)	(1.89)	(2.06)	(2.07)	(2.51)
pubsav	0.11*	0.27*	0.17*	0.17*	0.17*	0.17*	0.18*	0.18*	0.19*	0.15*
	(0.03)	(0.05)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.05)	(0.03)
geap_pop	0.86**	4.54*	2.31*	1.96*	2.01**	1.96*	1.91*	2.04*	2.73**	2.77*
	(0.42)	(1.20)	(0.81)	(0.72)	(0.77)	(0.75)	(0.72)	(0.75)	(1.34)	(0.98)
sopen x gdp	-1.14*	-3.97								
	(0.34)	(6.77)								
sopen	11.43*	24.96								
	(2.68)	(48.99)								
access	-0.60*	-0.53								
	(0.23)	(0.48)								
lifexp2	-4.39	31.26**								
	(2.71)	(13.82)								
tropics	-0.84*	5.19	-0.69							
	(0.27)	(4.01)	(0.45)							
icrge80	0.31*	0.16								
	(0.08)	(0.16)								
sxpr	-3.95*	0.96								
	(1.34)	(1.63)								
mtax7093						1.68				
						(3.50)				
bmp6589							0.17			
							(0.17)			
elf60								0.58		
								(0.67)		
bots									-1.02	
									(1.43)	
maur									-0.87	
									(1.22)	
ttgr6590										0.13***
										(0.07)
N	84	22	31	31	29	31	31	29	31	30
R^2	0.87	0.93	0.77	0.79	0.85	0.79	0.80	0.81	0.80	0.81
Root MSE	0.77	0.68	0.91	0.86	0.76	0.87	0.87	0.87	0.89	0.82

Note: Robust standard errors are reported in parenthesis. For variable definitions see the appendix.
Levels of statistical significance are as follows:
* 99% level
** 95% level
*** 90% level

Table 14

Sources of Growth Differentials within Sub-Saharan Africa (annual averages in percent)

			growth differential due to:					
	gr6590	*difference from SSA avg*	*convergence factor*	*export taxation*	*human resources*	*public savings*	*demography*	*unexplained*
Benin	-0.96	-1.75	-0.68	0.20	-0.23	0.90	-0.12	-1.82
Botswana	5.71	4.92	0.29	0.27	0.80	2.84	1.00	-0.28
Burkina Faso	1.26	0.47	1.19	0.16	-0.72	-0.44	-0.11	0.39
Burundi	1.39	0.59	1.04	-0.85	0.20	0.44	0.09	-0.33
Cameroon	2.40	1.60	0.29	0.12	0.44	0.21	-0.39	0.94
Central African Republic	-0.50	-1.29	0.35	-0.05	-0.27	-0.75	-0.25	-0.32
Congo	2.85	2.05	-0.50	0.24	1.03	0.88	-0.26	0.67
Cote d'Ivoire	-0.56	-1.35	-0.96	-0.05	-0.20	0.16	-0.28	-0.01
Gabon	1.73	0.94	-1.67	0.20	0.00	2.04	-0.51	0.87
Gambia, The	0.35	-0.44	0.19	0.14	-1.53	0.17	-0.05	0.64
Ghana	0.07	-0.72	-0.26	-0.63	0.74	-0.88	0.19	0.11
Guinea-Bissau	0.49	-0.30	0.56	-0.29	-1.13	1.41	-0.49	-0.37
Kenya	1.61	0.82	0.23	0.26	0.69	-0.58	0.06	0.16
Lesotho	3.45	2.65	1.07	0.20	1.00	0.30	-0.17	0.26
Madagascar	-1.99	-2.79	-0.54	0.02	0.07	-0.21	-0.28	-1.84
Malawi	0.92	0.13	0.95	0.28	-0.51	-0.42	-0.07	-0.10
Mali	0.82	0.03	0.90	0.02	-0.80	0.35	-0.16	-0.28
Mauritania	-0.43	-1.22	-0.16	0.09	-0.94	0.44	-0.16	-0.49
Mauritius	2.50	1.70	-2.26	0.09	2.54	-0.67	2.07	-0.06
Niger	-0.69	-1.49	0.26	0.16	-0.94	-0.06	-0.13	-0.78
Nigeria	1.89	1.09	0.30	0.29	-0.13	0.29	0.20	0.15
Rwanda	3.05	2.25	1.20	-0.59	0.97	-0.36	-0.12	1.16
Senegal	-0.01	-0.80	-0.63	0.19	-0.20	-0.55	0.00	0.37
Sierra Leone	-0.83	-1.63	-0.49	0.05	-1.74	-1.03	-0.16	1.73
Somalia	-0.98	-1.77	-0.35	0.17	-0.76	-0.52	-0.20	-0.10
Swaziland	1.71	0.92	-1.24	0.17	0.03	0.99	0.06	0.91
Tanzania	1.93	1.14	1.11	0.26	0.03	-0.53	0.11	0.15
Uganda	-0.41	-1.20	0.29	-1.12	0.41	-1.00	-0.11	0.33
Zaire	-1.15	-1.95	0.55	-0.46	0.16	-0.75	-0.36	-1.09
Zambia	-1.88	-2.67	-0.59	0.19	0.23	-1.32	-0.20	-0.98
Zimbabwe	0.86	0.07	-0.46	0.29	0.74	-1.33	0.80	0.02
Average	0.79							0.00

Source: Author's computations based on regression (4) in Table 13.

Table 15

Growth regressions (pooled sample)

	dependent variable: gypc					
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
xtax	-1.65					
	(3.07)					
lypcint	-1.13***	-1.44*	-1.61*	-1.63*	-1.46*	-1.42*
	(0.65)	(0.45)	(0.48)	(0.46)	(0.48)	(0.46)
lifexp	0.16*	0.19*	0.14*	0.14*	0.21*	0.19*
	(0.05)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)
pubsav (x100)	0.12**					
	(0.06)					
geap_pop	0.30					
	(0.85)					
totgrowt		0.17*	0.17*	0.15**	0.16**	0.18*
		(0.06)	(0.07)	(0.06)	(0.07)	(0.06)
sopen				3.03*		
				(0.81)		
bmp					-0.09	
					(0.14)	
bots			3.35**			
			(1.64)			
maur			2.31			
			(1.80)			
cfa2						2.33***
						(1.21)
cfa3						-1.72***
						(1.01)
N	78	115	115	104	101	115
R^2	0.33	0.34	0.38	0.38	0.33	0.38
Root MSE	0.03	0.02	0.02	0.02	0.02	0.02

Note: Period dummies included (coefficents not shown). Robust standard errors are reported in parenthesis. For variable definitions see the appendix. Levels of statistical significance are as follows:

* 99% level
** 95% level
*** 90% level

Sachs-Warner indicator of openness to trade

	sub-period		
	1964-74	1975-84	1985-94
Angola	0	0	0
Benin	0	0	0.5
Botswana	0	0.6	1
Burkina Faso	0	0	0
Burundi	0	0	0
Cameroon	0	0	0.2
Central African Re	0	0	0
Chad	0	0	0
Comoros	0	0	0
Congo	0	0	0
Cote d'Ivoire	0	0	0
Ethiopia	0	0	0
Gabon	0	0	0
Gambia, The	0	0	1
Ghana	0	0	1
Guinea	0	0	0.9
Guinea-Bissau	0	0	0.8
Kenya	0.36	0	0.2
Madagascar	0	0	0
Malawi	0	0	0
Mali	0	0	0.7
Mauritania	0	0	0.3
Mauritius	0.63	1	1
Mozambique	0	0	0
Niger	0	0	0
Nigeria	0	0	0
Rwanda	0	0	0
Senegal	0	0	0
Sierra Leone	0	0	0
Somalia	0	0	0
South Africa	0	0	0.4
Tanzania	0	0	0
Togo	0	0	0
Uganda	0	0	0.7
Zaire	0	0	0
Zambia	0	0	0.2
Zimbabwe	0	0	0

Source: Adapted from Sachs-Warner (1995, 1997).

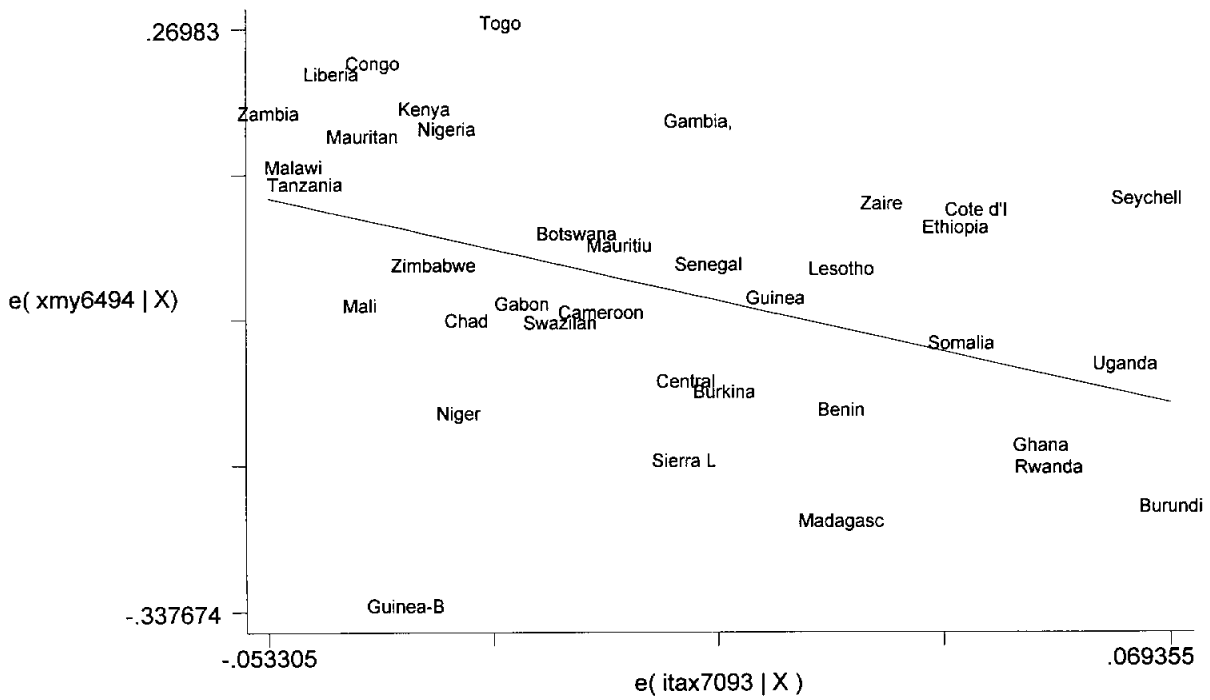

Figure 1: Partial scatter plot of trade/GDP ratios against trade taxes

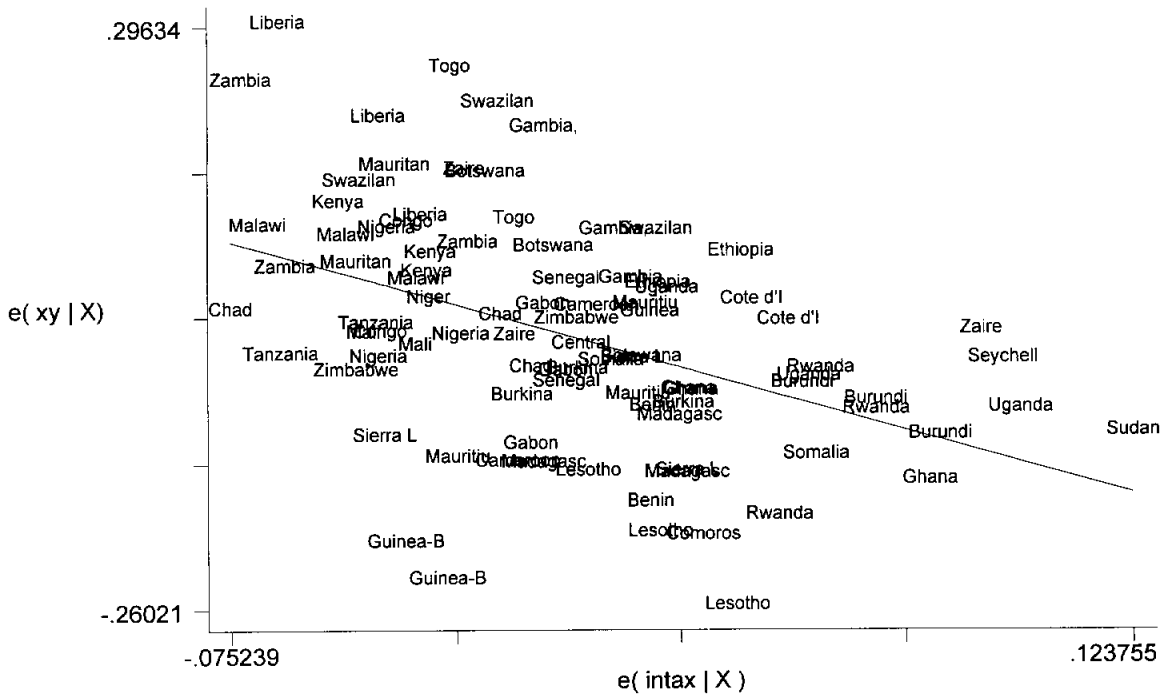

Figure 2: Partial scatter plot of export/GDP ratios against trade taxes

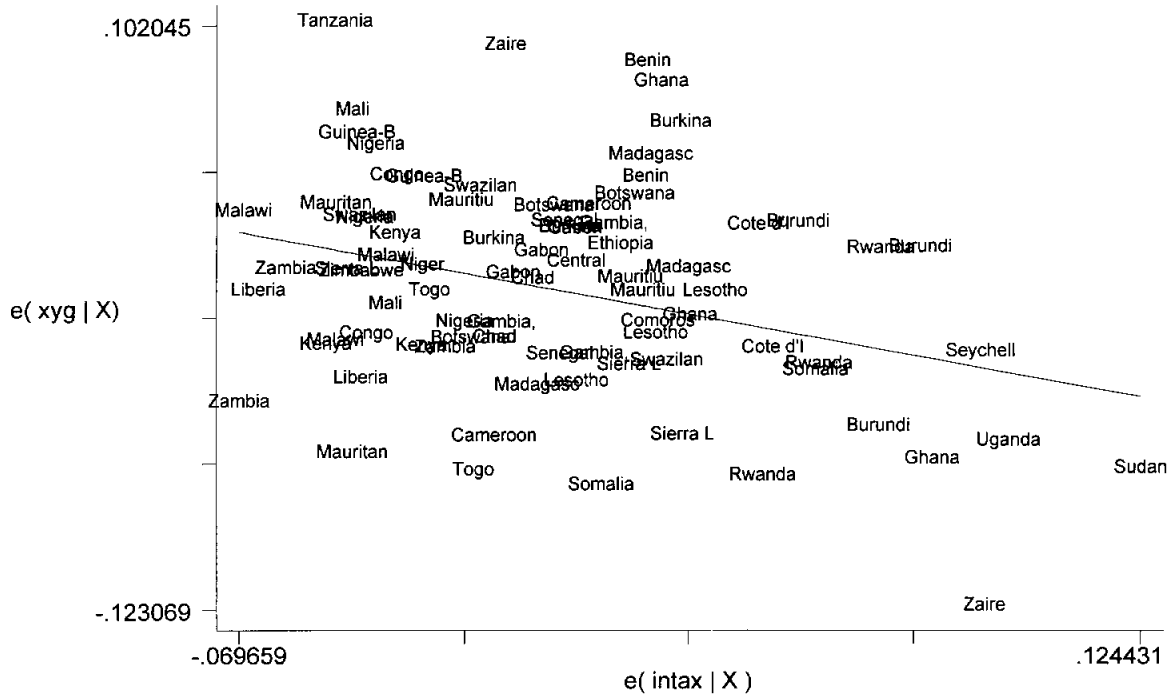

Figure 3: Partial scatter plot of growth in export/GDP ratios against trade taxes

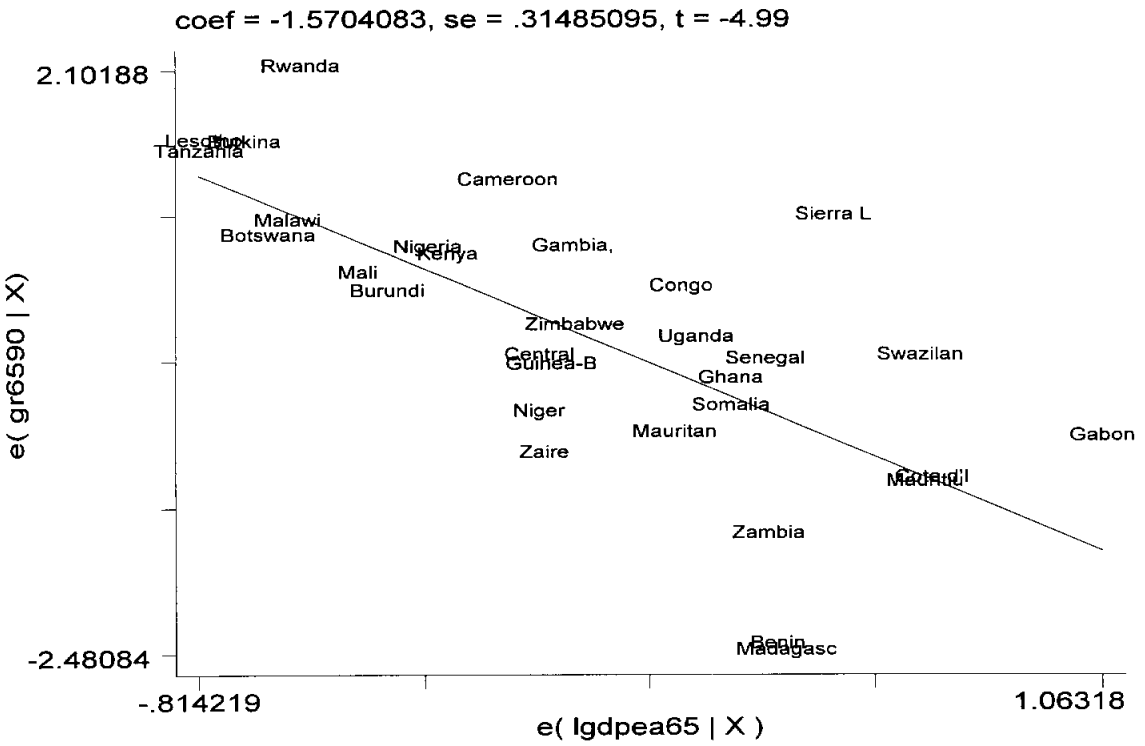

Figure 4: Partial scatter plot of growth against initial per-capita income

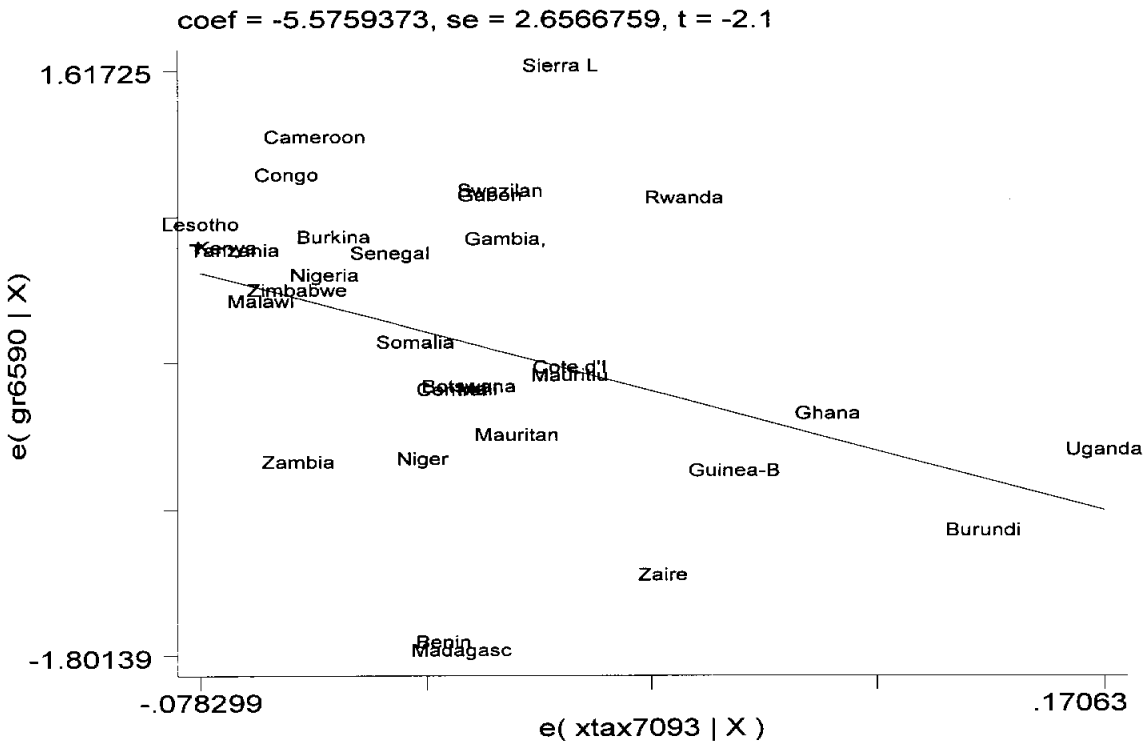

Figure 5: Partial scatter plot of growth against export taxation

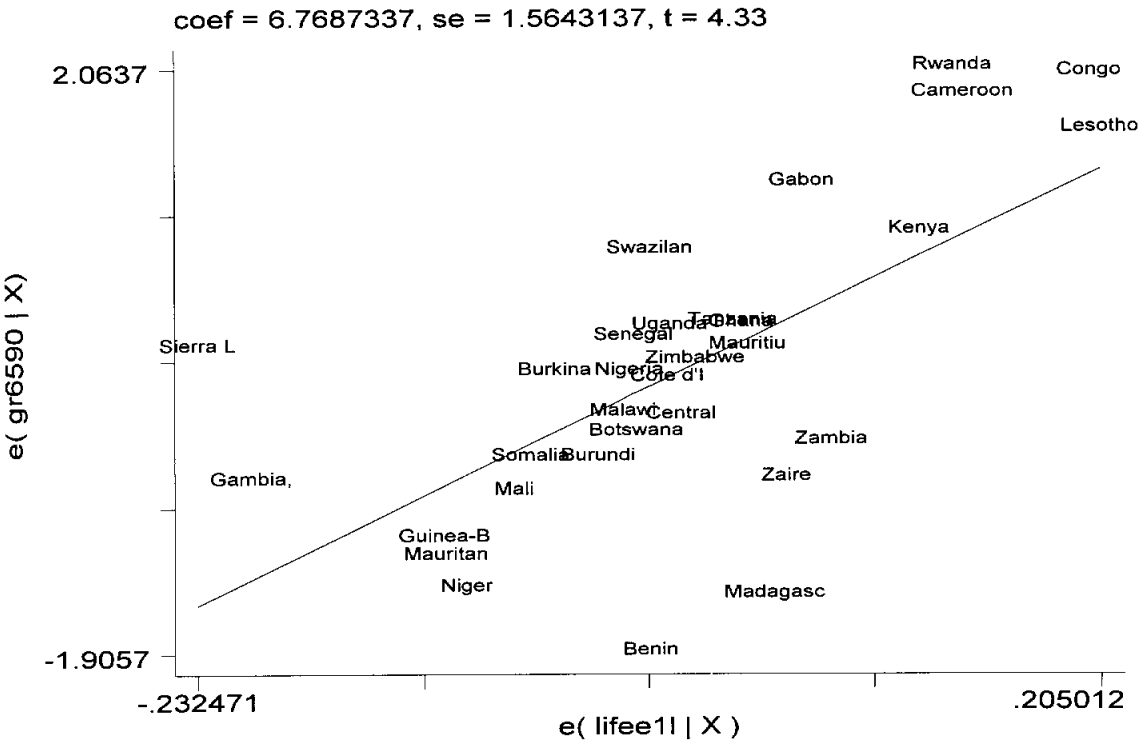

Figure 6: Partial scatter plot of growth against life expectancy

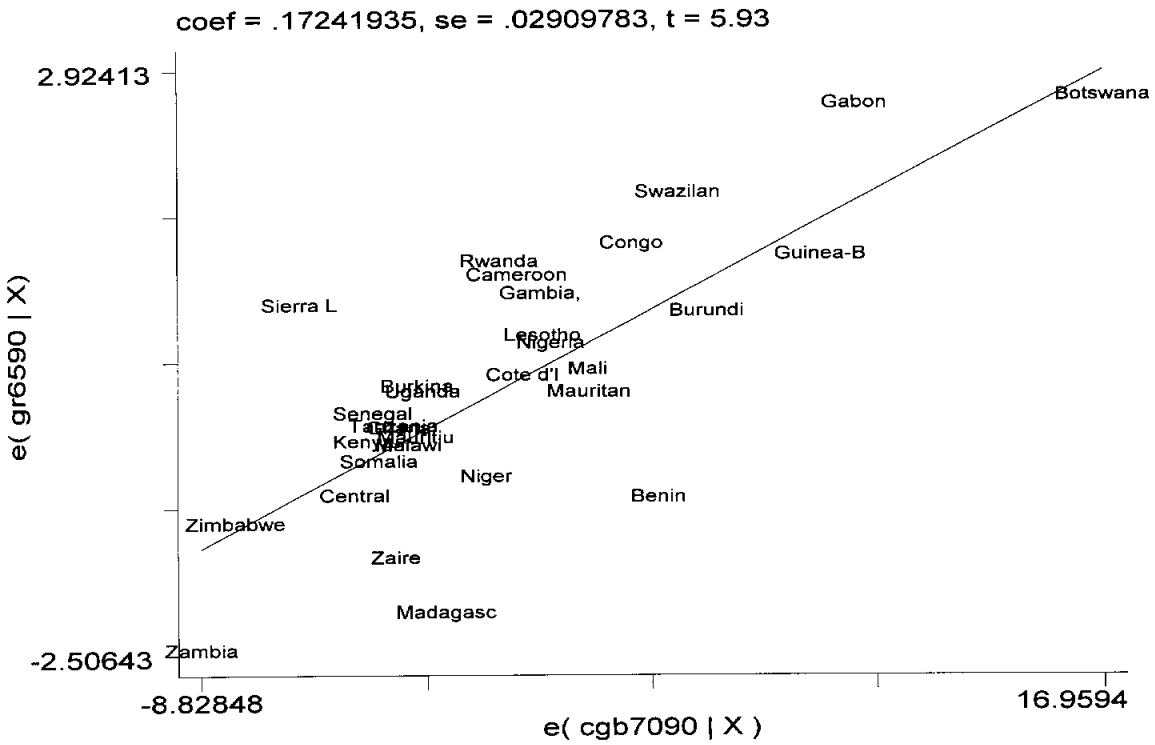

Figure 7: Partial scatter plot of growth against public savings

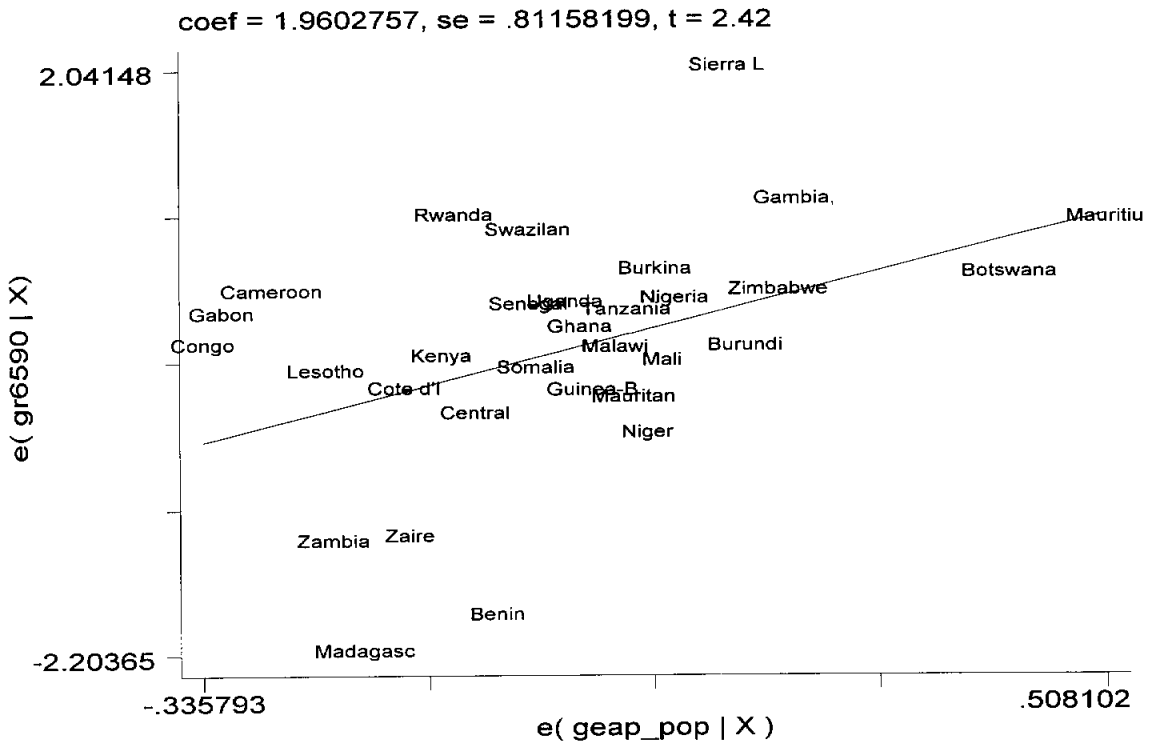

Figure 8: Partial scatter plot of growth against growth of economically active population relative to general population

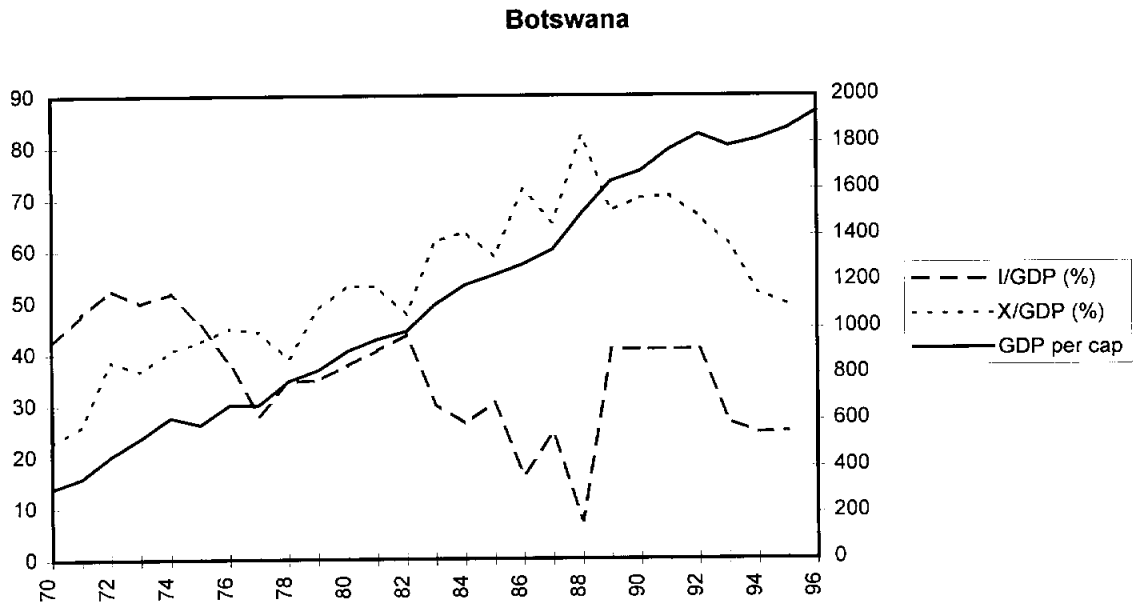

Figure 9

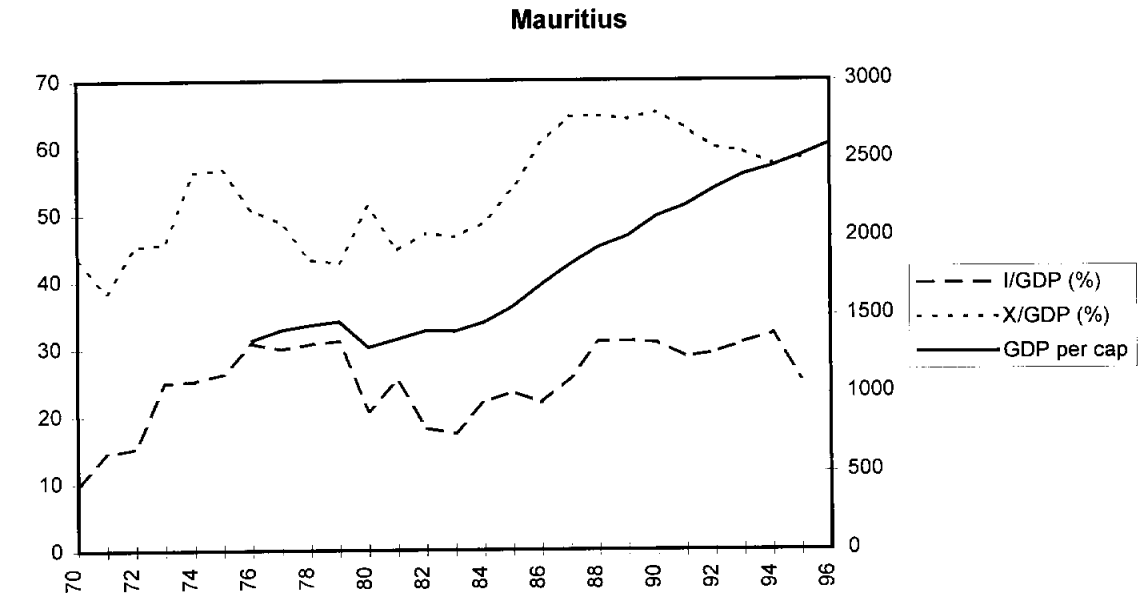

Figure 10

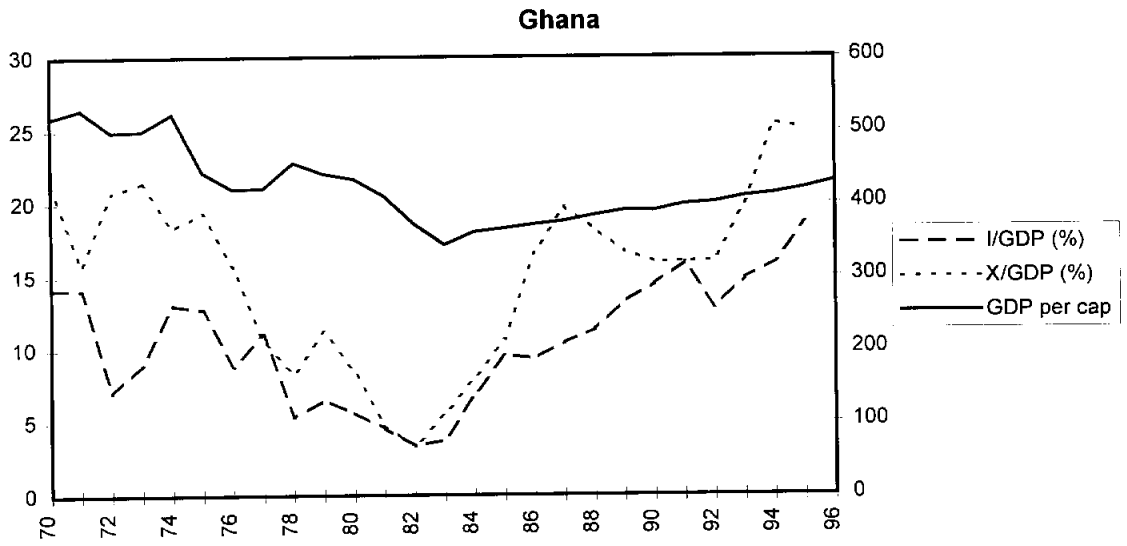

Figure 11

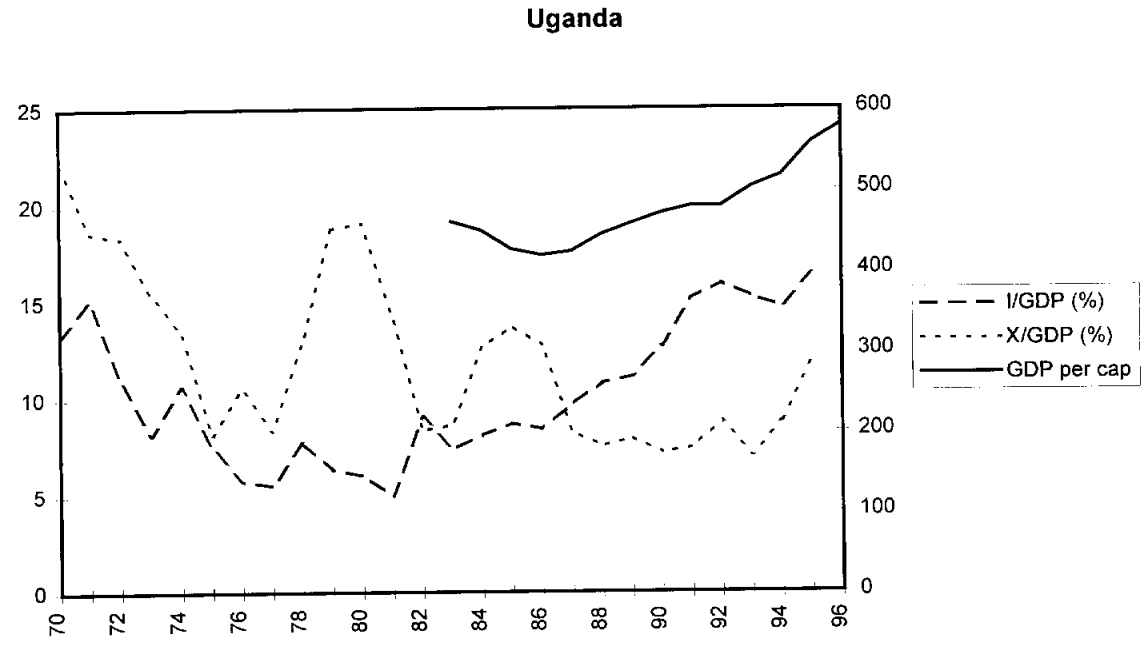

Figure 12

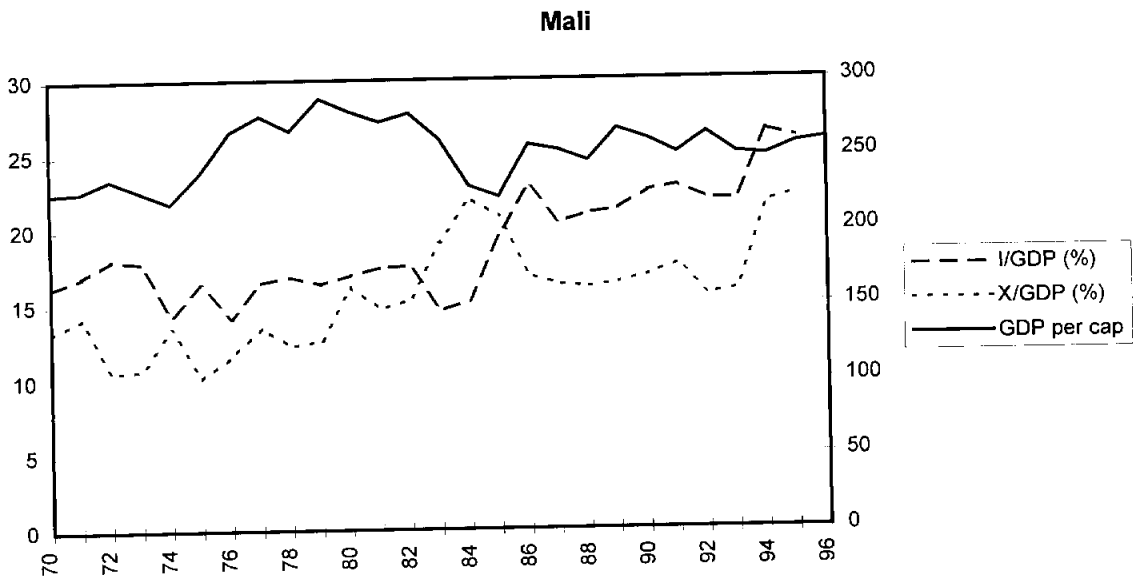

Figure 13

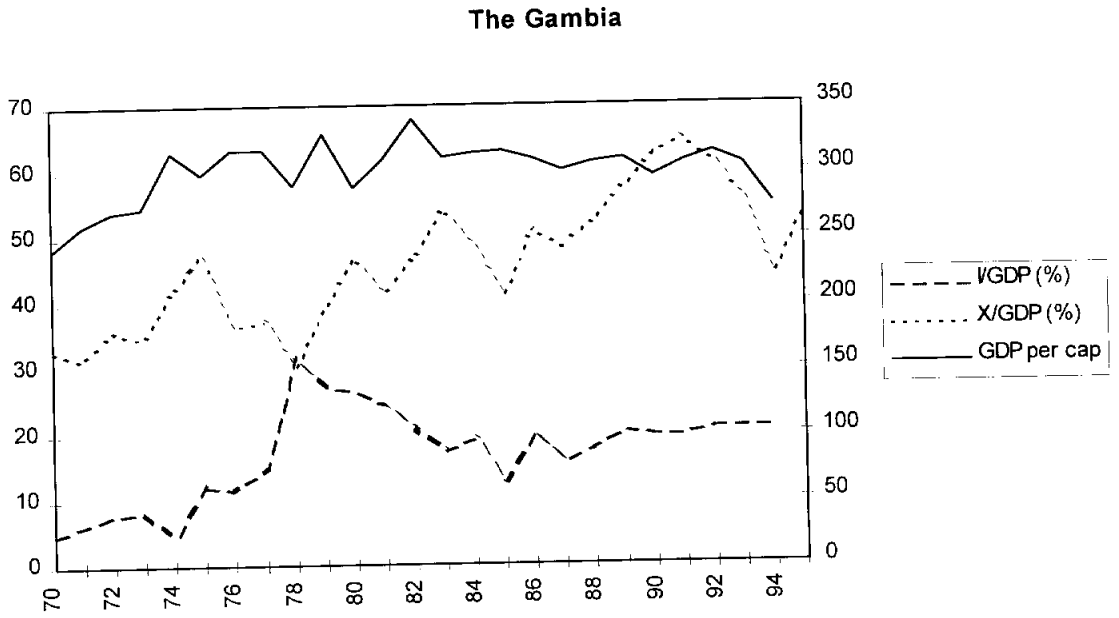

Figure 14