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Understanding the African Growth Record: the Importance of Policy Syndromes and Governance

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Abstract

The current paper, first, finds that although the post-independence growth of African economies has fallen substantially below that of other regions, this comparative evidence is less than uniform across time and countries. Second, it uncovers total factor productivity as the primary culprit underlying the generally dismal growth record. Third, reflecting recent evidence, the paper finds that 'policy syndromes' represent a major culprit explaining the growth performance, with their absence accounting for nearly 3.0 percentage point rise in the annual per capita GDP growth via increases in TFP. Finally, the paper finds that governance exerts positive direct and indirect impacts on growth; the latter is via the potential ability of governance to achieve a syndrome-free regime.

Keywords: African growth, policy syndromes, governance

JEL classification: O11, O43, O55

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Tables and figures appear at the end of this paper.

Abbreviations

AERC	African Economic Research Consortium
CAR	Central African Republic
CFA	Coopération financière en Afrique centrale = Financial Cooperation in Central Africa
CV	Coefficient of variation
DRC	Democratic Republic of the Congo
GDP	Gross Domestic Product
PI	Political instability
SAP	Structural adjustment programme
SAS	South Asia
SB	State breakdown
SF	Syndrome-free
SSA	Sub-Saharan Africa
TFP	Total factor productivity
TOT	Terms of trade

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1 Introduction

Most countries of sub-Saharan Africa (SSA) attained political independence from colonial rule in the late 1950s through mid-1960s. Since 1960, economic performance of this region has substantially lagged behind that of other regions of the world. Nonetheless, the performance has been rather episodic, with the economies of African countries growing fairly strongly until about the late 1970s, when the region's GDP growth began to decline substantially, falling short of population growth. Many countries of Africa[1] have, however, exhibited increasingly strong growth since the mid-1990s.

In 2007, for instance, the GDP growth of SSA economies averaged 5.8 per cent, a rate that was comparable to those in other regions of the world (Arbache et al. 2008). Some 26 African countries, representing 70 per cent of the SSA population and 78 per cent of the GDP, grew by at least 4.0 per cent per year on average (ibid.: table 1). Indeed, since 1995, the annual growth rates of these countries have averaged 6.9 per cent (ibid.), a rate that is comparable to that of India, for instance, whose growth averaged 6.7 per cent over the same period.[2] At the same time, however, about one-third of African countries registered growth rates that averaged 2.1 per cent (Arbache et al. 2008: Table 1). In sum, not only has the African growth record been episodic over time, but has also varied substantially across countries.

1.1 The poverty picture

The above overall historically low SSA economic growth is reflected in the dismal poverty picture over the last 25 years. Based on World Bank (2007) data, the proportion of the population earning less than US$1 decreased only slightly from 42 per cent in 1981 to 41 per cent in 2004 (Fosu 2008a: table 1). Over the same period, this measure of poverty fell substantially for South Asia (SAS), as a reference region, from 50 per cent in 1981 to 31 per cent in 2004, so that the relative SSA/SAS poverty rate gap increased steadily by nearly 50 percentage points (ibid.).[3]

The resurgence in growth in Africa has brightened the poverty picture somewhat during the last decade or so. Indeed, the rates of poverty reduction in SSA and SAS have been comparable since the mid-1990s, falling by 4 and 5 percentage points, respectively, between 1993 and 2004 (ibid.). Similarly, the poverty rate measured at the US$2 standard fell by 4 percentage points and 5 percentage points for SSA and SAS, respectively. There appears, then, to have been a reversal in course for the poverty rate in SSA since the mid-1990s, mirroring the growth pattern. Thus, understanding the growth record should be useful not only in its own right, but also in terms of charting

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1 'Africa' and 'SSA' will be used interchangeably in the rest of the paper.

2 The latter figure is computed by the author using data from the World Bank (2008).

3 However, the differences in performance between SSA and SAS at the US$2 poverty standard since 1981 have been less dramatic. The SSA rate decreased slightly from 74 per cent in 1981 to 72 per cent in 2004, while the SAS rate fell to 77 per cent in 2004 from 88 per cent in 1981. Hence, the SSA/SAS difference in the poverty rate increased by less than 10 percentage points, as compared with nearly 50 percentage points in the case of the US$1 standard (ibid.).

the course of human development as reflected by changes in the poverty rate, for instance.[4]

The current paper, first, discusses the African growth record. Second, it presents evidence on the historical sources of growth. Third, reflecting the main premise underlying a recent research project on growth, the paper employs the taxonomy of 'policy syndromes' to explain the observed growth patterns. Fourth, it extends the analysis to include the role of governance, by exploring its direct impact on growth as well its indirect effect via policy syndromes.

2 The African growth record

GDP of the SSA region grew fairly strongly at an average yearly rate of approximately 5.0 per cent (per capita rate of nearly 2.0 per cent) for about 15 years from 1960, with significant positive contributions from a substantial number of countries (Tables 1 and 2).[5] This record of growth could not be sustained in subsequent years, however, as the growth rate fell to as low as 1.2 per cent per annum during 1981–85, a rate that was much smaller than the population growth of roughly 2.9 per cent. Hence, per capita GDP deteriorated by an average of nearly 2.0 per cent annually during this period. It was not until the latter part of the 1990s that SSA began to grow sufficiently to overcome population growth. As observed above, then, the problem of the overall African growth record is not necessarily a case of consistently dismal performance, but rather one of episodic growth.

As Tables 1 and 2 further indicate, the aggregate evidence masks the considerable disparities in growth among SSA countries. During 1981–85, for example, when growth was at its nadir in SSA as a whole, a number of African countries actually registered growth rates of at least 4 per cent (about 1 percentage point above population growth): including Benin, 4.7 per cent; Botswana, 10.0 per cent; Burkina Faso, 4.2 per cent; Burundi, 5.4 per cent; Cameroon, 9.4 per cent; Chad, 9.2 per cent; and the Republic of the Congo, 10.6 per cent.

It is also interesting to note from Tables 1 and 2 that while the biggest economy, South Africa, led growth in the early periods, it actually began to pull down the SSA average from the early 1970s on. That situation has persisted since, though less so in the most recent half decade. Because the overall SSA average is weighted heavily toward South Africa, which has a large relative weight due to its substantially higher GDP than the rest of SSA, Table 1 reports the simple mean together with the usual weighted average of the growth rates. However, there are extreme values, especially for small economies, which appear to exaggerate the average as well. To avoid statistical dominance by South Africa and the potential distortion from extreme values, the subsequent discussion will

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4 The importance of income distribution cannot be underplayed, though. The current literature suggests that higher levels of inequality could significantly reduce the rate at which growth might be transformed to poverty reduction. For the most recent African evidence, see for instance Fosu (2008a, 2008c).

5 These numbers are the GDP-weighted growth rates presented in the tables, consistent with the usual World Bank statistics.

be based on the SSA weighted average that excludes South Africa (see Table 3 and Figure 1).

Another observation about the African growth record is the heterogeneity in the pattern across countries. Many economies that started as growth leaders in the 1960s had by 2000 become growth laggards (e.g., Côte d'Ivoire, Gabon, Kenya, South Africa, Togo, and Zambia, see Tables 1 and 2). Conversely, several laggards in the earlier period became growth leaders as of the 1990s (e.g., Benin, Burkina Faso, Ghana, Senegal, and Sudan). In contrast, one African country that has exhibited consistently high economic growth is Botswana. Its GDP growth averaged about 10 per cent annually over the entire period, and at least 5 per cent every decadal period. The record since the 1990s has been less than spectacular, though; this result might be attributable to a combination of poor terms of trade (TOT) performance and the high incidence of HIV/AIDS in the country during the more recent period.[6]

Furthermore, African countries have exhibited highly variable growth rates over the last four decades. The standard deviation of the per worker GDP growth for a sample of 19 SSA countries with consistent data averaged 3.2 per cent over 1960–2000, which was the highest among all regions of the world (see Table 4). Indeed, SSA's coefficient of variation (CV) is nearly four times the world average, so that the region exhibited a lower mean growth with higher variance as compared to the rest of the world.

On the basis of primarily cross-country studies, numerous explanations have been offered for the above growth record. These include: governance, geography, ethno-linguistic fractionalization, neighbours, debt, domestic policies, the global setting, political instability, resource endowment, and colonial heritage.[7] A most recent comprehensive study on the subject is provided by the 'Growth Project' of the African Economic Research Consortium (AERC). That study combines both cross-sectional analysis and 26 country cases to explain the African growth record since 1960.[8] Using data generated from the Growth Project, the present study re-explores the implications of adverse policies for growth, based on the 'policy syndromes' taxonomy adopted therein. In particular, I employ here the production-function approach to examine how the 'syndrome-free' (SF) regime influences growth: via its effects on investment levels versus total factor productivity (TFP).[9] Additionally explored is the role of governance

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6 Based on data from the World Bank (2007), which constitutes the source for all subsequent statistics on TOT cited herein, the net barter TOT for Botswana deteriorated in 1991–95 with a yearly average of -1.7 per cent, recovered somewhat during 1996–2000 (2.3 per cent annual average), but then deteriorated slightly more recently (-0.06 per cent during 2001–05). Meanwhile, the HIV/AIDS prevalence rate for the country has been estimated to be high since the 1990s. Revised data show the rate to be 38.0 per cent during 2000–04, as compared with an overall SSA rate of 8.0 per cent (UNAIDS 2006).

7 See, for instance, Collier and O'Connell (2008), Acemoglu et al. (2001), Collier (2000), Collier and Gunning (1999), Easterly and Levine (1997, 1998), Fosu (1992, 1996, and 2001a), Ndulu and O'Connell (1999), and Sachs and Warner (1997).

8 The 'Growth Project' is the AERC Collaborative Research Project, 'Explaining African Economic Growth Performance'. The project output appears in two volumes: Ndulu et al. (2008a, 2008b). An epitomized version of the study is provided in Fosu and O'Connell (2006).

9 A 'syndrome-free' regime means a country-year bereft of any of the identified policy syndromes (to be discussed in greater detail later in section 4).

in growth, both directly and via the SF regime. Finally, relying on the country case evidence generated from the Growth Project, the present paper provides a synthesis of the likely factors underlying policy choice by African governments. Presented first, however, is the historical evidence on the sources of growth.

3 Sources of growth in Africa

Table 5 reports data on the sources of GDP growth for SSA over 1960–2000, based on the Collins–Bosworth decomposition.[10] These statistics show that when SSA grew fairly strongly in the 1960s through the mid-1970s growth was supported about equally by both investment and growth of TFP. When economic growth fell substantially in the early 1980s and again in the early 1990s, however, there was also a large decline in TFP each time. Furthermore, the primary source of the growth recovery in the late 1990s was TFP improvement.

As Table 5 further shows, the overall per worker growth in SSA during the forty-year period was positive but modest. Moreover, both physical capital and education contributed favourably to this growth. In contrast, TFP's contribution was negative, though small. There are also sub-period differences in the overall performance of African countries, in terms of growth as well as its sources, a subject to which I now turn.

3.1 African growth experience, 1960 to mid-1970s

The period from 1960 to the mid-1970s was the era of newly politically independent African states. The sub-period is also characterized by relatively high growth performance (Tables 1 to 5). This high annual per capita growth of about 2.0 per cent is primarily associated with physical capital accumulation and TFP growth, at approximately 45 per cent shares each (Table 5). Growth performance was, however, uneven across countries (Tables 1 and 2).

Country-specific conditions obviously explain some of the differences in country performance during this early period. However, one common factor recognized in the country studies is the dichotomy of political institutions (Fosu 2008b). Nearly all the high growth countries during this sub-period had relatively liberal economic regimes nurtured by conservative political governments, while the reverse was the case for most of the low performing countries. For example, Botswana, Côte d'Ivoire, Ethiopia, Kenya, Lesotho, and Malawi were countries with both high growth and market oriented policies supported by politically conservative governments during this period. In contrast, weak growth performers such as Benin, Burkina Faso, Cameroon, Central

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10 The decomposition is based on the production-function: $q=Ak^{35}h^{65}$, where q, k, and h are GDP per worker, physical capital per worker and human capital (average years of schooling) per worker, respectively, with assumed respective capital and labour shares of 0.35 and 0.65. The exercise is conducted on per country basis, and then aggregated to arrive at the figures for the 19 SSA countries that had consistent data over the sample period. (Ndulu and O'Connell 2003).

African Republic (CAR), Chad, Ghana, Guinea, Senegal, and Zambia had market interventionist policies.[11]

Beyond the control nature of the regime, the poor economic performance in many countries could also be attributed to external factors, political instability, weak institutions, and low capacity. For example, Burundi's dismal performance during the early to mid-1960s (see Tables 1 and 2) may largely be explained by the large trade deficit due to the loss of one-half of its Eastern Congolese export market (Nkurunziza and Ngaruko 2003). Another culprit was the lack of qualified manpower due to decolonization, which gave rise to a substantial drop in capacity utilization of the economy (ibid.).[12] Perhaps most important, though, was the legacy of high ethnic tensions from colonial rule, mainly between the minority Tutsis and majority Hutus, which paralysed institutions and culminated in the first violent political conflict in 1965, followed by a series of destabilizing coups (ibid.).

Ethnic tensions were similarly taking place in Rwanda, with an outbreak of violence in 1964, contributing to the huge drop in TFP of 6.8 per cent per year and an equivalent decrease in GDP during 1960–64 (Appendix table A). Similarly, the weak institutional structure and an outright civil war in Sudan were the main factors behind the country's poor growth performance in the 1960s, with annual GDP growth averaging less than 3.0 per cent (Ali and Elbadawi 2003: table 1). Even in the case of Mauritius, where growth has been strong overall during the entire period, the mid-1960s saw the eruption of ethnic tensions, leading to negative per capita growth in 1965–69, exemplified primarily by TFP deterioration (Nath and Madhoo 2005: appendix table A). Thus, the periods of political instability also coincided generally with negative growths of TFP in these countries during the sub-period.

3.2 Growth performance, mid-1970s to early 1990s

The late 1970s, and particularly the early 1980s as well as the beginning of the 1990s, registered a sharp deterioration in the socioeconomic conditions of most African countries, with a fall in the average annual per capita income of approximately 1.0 per cent (Fosu 2001a). Indeed, the 1980s are referred to as 'Africa's lost decade' since per capita income of Africans at the end of the 1980s had fallen below the level prevailing at the beginning of the decade. The source of the contraction during 1975–94 is primarily deterioration in TFP (Table 5). A major culprit here is very likely the idle

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11 For regime classification, see Collier and O'Connell (2008: table 2.A2). Politically conservative governments tended to have liberal market-oriented economic policies, while the socialist leaning ones would generally resort to (soft or hard) controls on economic activities. As 'policy syndromes', control regimes are expected to inhibit growth. However, as the classifications were conducted independently of growth outcomes, as they should be, a number of cases do not conform to these expectations. For instance, Gabon and the Republic of Congo were classified as control regimes but experienced relatively high growth during this period, while countries like Madagascar, Mauritania, and Rwanda were viewed as syndrome-free regimes for most of the sub-period but experienced low growth. Similarly, Malawi was classified as syndrome-free throughout despite its growth record being checkered. Obviously, factors other than regime classification contributed to growth performance as well.

12 The drop in capacity use would show up in growth accounting exercises as TFP deterioration, for a given level of capital stock.

capacity resulting from over-investment by the state as the dominant investor in most African economies, some of it real and some due to possible over-valuation of new investment at cost rather than based on market value.

The relevant question, though, is why did most African economies perform so poorly during this period? A synthesis of the case studies from the Growth Project reveals that much of this state of economic affairs may be attributable to supply shocks and policy 'syndromes' (Fosu 2008b). The mid-1970s constituted a period of supply shocks, both negative and positive. The negative shocks derived primarily from higher petroleum prices and droughts, which in price control regimes resulted in shortages in a number of African countries. The tendency was for governments to tighten existing controls, or to initiate additional ones. Indeed, not only did the frequency of controls rise in the 1970s and into the 1980s, but also the proportion of controls that were considered 'hard' increased (ibid.).

Meanwhile, the use of price controls as a rationing mechanism provided rent seeking opportunities that proved detrimental to growth. The global negative shocks from petroleum also decimated embryonic Africa based firms, most of which enjoyed protection from foreign competition through tariffs and subsidies. Indeed, the shocks contributed to the fiscal difficulties of most African governments, which could no longer afford to continue subsidizing domestic firms.

While many African countries experienced negative supply shocks, several others actually enjoyed commodity booms, especially in the latter part of the 1970s. Unfortunately, such positive shocks tended to lead to exuberant government spending that would often result in sub-optimal inter-temporal allocation of resources. When the boom invariably ended, governments became cash strapped and were forced to borrow in order to continue the often bloated projects, or would simply abandon the uncompleted projects. In either case, there would be efficiency losses. Such myopic boom bust phenomenon tended to reduce growth overall (ibid.; Fosu and O'Connell 2006; Collier and O'Connell 2008).

In response to revenue windfalls from commodity booms, there was also the tendency for many African governments to engage in adverse redistribution. Such redistributive efforts tended to favour the respective constituencies of the authorities, usually impregnated with ethnic undertones. In turn, when revenues subsequently declined, the resulting pain was seldom shared equally, with the non-favoured constituencies having to bear a disproportionate burden of the cutbacks. The strategy would often contribute to political instability in the form of military coups d'etat, which have become a means for settling scores or misappropriating authority for economic gains (Kimenyi and Mbaku 1993). Furthermore, the resulting (elite) political instability, which has been rather rampant in SSA, has tended to be growth inhibiting (Fosu 1992, 2001b, 2002, and 2003). Adverse redistribution might also sow the seeds for actual open rebellions that could lead to even stronger growth reductions.[13]

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[13] Collier (1999), for instance, finds that a civil war could reduce per capita GDP growth by as much as 2.2 percentage points per year, while Fosu (1992) estimates that African countries classified as high

Although SSA countries generally experienced poor economic growth during this sub-period, there were notable exceptions. For instance, as observed above, when GDP growth reached its historically low point in 1981–85, with a negative mean annual per capita GDP growth rate, a number of countries achieved average GDP growth rates of at least 4.0 per cent annually (about 1.0 percentage points above the population growth rate): Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Chad, Comoros, the Republic of the Congo, Guinea Bissau, Mauritius, and Zimbabwe (Table 1). Furthermore, in most of these countries, it was a continuation of the fairly strong growth of the 1970s. While the explanation of such relatively high growth is likely to differ across countries, one common feature was that nearly all these countries experienced considerable appreciations in their TOT during this period. Among the above countries, for instance, only Benin, Botswana, Comoros, and Mauritius had their net barter TOT growing by less than the 1.5 per cent SSA annual average for 1980–85.[14]

Most African countries, nonetheless, grew dismally during 1981–85, with a number of them actually experiencing negative GDP growth including Ethiopia, Ghana, Liberia, Madagascar, Mali, Mozambique, Namibia, Niger, Nigeria, and Togo (Table 1). Moreover, in all those countries for which the data exist (Ethiopia, Ghana, Madagascar, Mali, Nigeria, and Togo), this negative growth was associated with TFP deterioration (Appendix table A). TOT explain only a part of this dismal growth performance, though. For example, Ghana, Mozambique, Niger, Namibia, and Nigeria experienced substantial losses in TOT, while Togo, Mali, and Madagascar did not. What appears to be a relatively common feature is that most of these poor performing economies were saddled with control regimes inherent in the socialistic strategy of development: e.g., Ethiopia, Ghana, Madagascar, Mozambique, Niger, Nigeria, and Togo.[15] In the case of Liberia, no considerable state controls were apparent; however, there was state failure in the 1980s. Neither were there any significant controls for Mali at the time; nonetheless, political leaders are believed to have looted the country beginning in the late 1960s until circa 1991 (Collier and O'Connell 2008).

In spite of the slight growth recovery for SSA generally in the latter part of the 1980s, the early 1990s were simply calamitous, with similar abysmal growth as in the early 1980s. Much of this underperformance could be attributed to severe political instabilities, as in Angola, Burundi, the Democratic Republic of the Congo (DRC), Liberia, Rwanda and Sierra Leone, all of which experienced negative GDP growth (Table 1). In addition, the net barter TOT for SSA as a whole deteriorated substantially in the late 1980s to early 1990s, falling by an average of about 2.5 per cent per year during 1989–93.

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political instability (PI) would suffer a reduction in their annual GDP growth rates by an average of 1.2 percentage points.

14 All SSA terms of trade statistics are the simple averages based on countries with available data. Note that due to missing data, out of the 48 SSA countries, growth rates could not be computed for 11, 6, 5, 5 and 4 countries, respectively, for the periods: 1981–85, 1986–90, 1991–95, 1996–2000, and 2001–05.

15 See Collier and O'Connell (2008: table 2.A2) for the classification of a 'control regime', which is further elaborated in Section 4 herein.

Indeed, South Africa, the largest economy of SSA, experienced a disappointing mean annual GDP growth rate of less than 1.0 per cent during 1991–95 (Table 1), due in great part to both political uncertainty and deterioration in its TOT. The uncertainty generated by the transition from apartheid to majority rule may have triggered both physical and human capital flight, resulting in over-capacity and a large decline in TFP (see Appendix table A). At the same time, South Africa's net barter TOT declined by an average of 3.3 per cent annually during 1988–92. Thus, the abysmal growth performance of African economies in the early 1990s might be attributable, at least in great part, to a combination of severe political instabilities and negative TOT shocks.[16]

Even the growth star performer, Botswana, managed only a mean annual GDP growth rate of 4.1 per cent during 1991–95, considerably below its historical trend, though still more than twice the SSA (weighted) average. Such below-trend performance may be attributable to the substantial fall in the country's TOT resulting from a decline in the price of diamonds.[17]

Despite the overall dismal growth performance of SSA in the early 1990s, however, there were a number of exceptions. The following countries registered decent growth (at least 4.0 per cent during 1991–95): Benin, Botswana, Burkina Faso, Cape Verde, Equatorial Guinea, Eritrea, Ghana, Lesotho, Mauritius, Namibia, Sudan, and Uganda (Table 1). What is interesting about this list of countries is that none of them experienced large TOT appreciation during the late 1980s or early 1990s. Hence, it would be difficult to explain their relatively strong growth performance on the basis of TOT. Instead, many of these countries had undergone structural adjustment, such as Benin, Burkina Faso, Ghana, Namibia, and Uganda, suggesting that for such countries the structural adjustment programme (SAP) may have aided growth. In the case of at least two of the decent growth performers, though, post-war rebound might constitute the most plausible explanation: Sudan (see Ali and Elbadawi 2003) and Eritrea.

3.3 Growth since the mid-1990s

Considerable recovery of African economies generally has occurred since the mid-1990s (Tables 1 and 2). Annual GDP growth has averaged approximately 4.0 per cent (3.6 per cent when South Africa is included and 4.1 per cent when it is excluded). Indeed, growth has accelerated to 4.5 per cent for non-South African SSA economies since the beginning of the millennium, while South Africa's GDP growth has averaged slightly less at 4.1 per cent (Table 3). This growth can be accounted for by improvements in TFP (Table 5).[18] Bucking the trend during this period are mostly countries experiencing severe political instability, such as Burundi, CAR, DRC, Côte d'Ivoire, Guinea Bissau, Seychelles, Togo, and Zimbabwe.

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16 Indeed, for 1989–93, SSA net barter TOT declined at an average of 2.5 per cent per year, though they grew strongly in 1994 and 1995 at rates of 2.9 per cent and 6.9 per cent, respectively.

17 Botswana's net barter TOT fell by 4.0 per cent, 6.4 per cent and 8.3 per cent, respectively, in 1990, 1991, and 1992, and at an average of 1.7 per cent annually over 1991–95, compared with a mean appreciation rate of 0.6 per cent for SSA. The generally lower growth performance since the 1990s, though, might be attributable in part to the relatively high prevalence of HIV/AIDS affecting approximately a quarter of the population (UNAIDS 2006).

18 Note that Table 5 provides no evidence for the more recent post-2000 period.

One plausible explanation of the post-1995 growth recovery is the set of SAPs undertaken by most of these countries following the dismal performance in the 1980s. Countries like Benin, Burkina Faso, Cameroon, Chad, Ethiopia, Ghana, Mali, Rwanda, and Sudan undertook credible SAPs, leading to improvements of their respective macroeconomic environments for growth. A number of the strong performing countries have, furthermore, experienced booms in their respective exports, especially in oil, but also in other commodities such as coffee, cocoa, gold, and other metals. Indeed, the TOT of SSA as a whole have improved considerably particularly since the late 1990s.[19] Coupled with better macroeconomic environments, these improvements have apparently been translated to sustained economic growth so far.

Not all countries undertook significant policy adjustments during this period, however. It is generally agreed that the most populous African country, Nigeria, for instance, failed to undergo sufficiently credible reform before the millennium (Iyoha and Oriakhi 2004). The country actually experienced negative per capita growth from the mid-1990s until 2002 (Table 2), in spite of a substantial improvement in its TOT in the latter part of the 1990s.[20] The Nigeria case suggests that without a more conducive economic environment, improvements in TOT alone may not suffice for generating solid growth. Furthermore, a number of countries have actually grown well since the mid-1990s despite weak performance in their TOT since the 1990s: for example, Benin, Botswana, Burkina Faso, Ethiopia, Mali, and Mauritius. All these five countries undertook credible SAPs or were considered syndrome-free during the relevant period.[21]

Most of the growth since the mid-1990s is associated with productivity increases, which could have been made possible by the reforms. Nearly all countries with relatively high economic growth rates during 1995–2000 also experienced large TFP growth (Appendix table A). With a few exceptions (Ethiopia, Ghana, Mozambique, and Uganda), capital accumulation does not seem to be behind the growth recovery. Indeed, for several countries (Cameroon, Côte d'Ivoire, Madagascar, Malawi, Mali, and Zambia), the contribution by capital was negative, even though per worker growth was positive (Appendix table A). It is quite possible, though, that physical capital's contribution may have been delayed for many African economies, as in the case of Ghana and Uganda where capital contributions lagged behind TFP improvements. A considerable portion of the improvements in TFP is likely attributable to reductions in idle capacity following reforms, with increases in capital accumulation lagging behind. With gross domestic capital formation as share of GDP in SSA having risen from 16.8 per cent in 2000 to 19.5 per cent in 2006 (World Bank 2007), perhaps significant capital's contribution will be realizable in future growth.

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[19] The growth rates of the net barter TOT for SSA countries averaged 0.6 per cent and 1.5 per cent annually in 1996–2000 and 2001–05, respectively, for a yearly mean of 1.0 per cent since 1996.

[20] Nigeria's net barter TOT actually grew at the astonishing annual average of 20.5 per cent in 1996–2000.

[21] There were also countries, such as Malawi, which undertook credible SAPs but did not fare as well due in great part to TOT deterioration. However, even Malawi's GDP growth rebounded strongly in 2006 to more than 7.0 per cent following a mean annual growth rate of 2.5 per cent during 1996–2005 (Table 1).

As early reformers among SSA economies, Ghana and Uganda stand out as possible shining examples of how reforms may have worked. Until the latter part of the 1980s when reforms were undertaken, Ghana's growth performance was rather poor (Tables 1 and 2), registering negative per worker GDP growth rates in three out of the five half-decadal periods. With the exception of the early 1970s when short-lived reforms were undertaken, growth was positive, even though anaemic, and productivity deterioration accompanied much of the dismal performance (Appendix table A). Following the World Bank-led reforms in the mid-1980s, however, growth has been both considerably high and stable (Aryeetey and Fosu 2003), explained mainly by productivity improvements until the late 1990s, when capital formation kicked in as the primary contributor to growth (Appendix table A).

The Uganda experience is somewhat similar to Ghana's. Except for the early 1960s, Uganda's growth was quite weak through the 1970s, but then picked up in the early 1980s after the overthrow of the Idi Amin regime. Subsequent to the World Bank-led reform in the mid-1980s, however, the country began to record considerable growth, which actually intensified in the early 1990s. Furthermore, the strong growth was associated with substantial improvements in TFP until the latter 1990s when capital formation began to contribute significantly, though productivity increases continued to be the dominant contributor to growth.[22]

4 Explaining the African economic growth record

The growth accounting decompositions discussed above have revealed the relative roles of human capital (education), physical capital accumulation and TFP in the growth of African economies during the post-independence period. The growth or its sources may be accounted for, in turn, by a number of factors such as: colonial origins (Acemoglu et al. 2001), geography (Bloom and Sachs 1998), demography (ibid.), natural resource endowment (Sachs and Warner 2001), economic instabilities (Fosu 2001c), political instability (Fosu 1992, 2001b, 2002, and 2003; Gyimah-Brempong and Traynor 1999),[23] open conflicts (Collier 1999; Collier and Hoeffler 1998; Gyimah-Brempong and Corley 2005), ethnic polarization (Easterly and Levine 1997), governance (Fosu 2008d; Gyimah-Brempong and Munoz de Camacho 2006; Ndulu and O'Connell 1999), and the global (external) environment (Fosu 1990 and 2001a; Sachs and Warner 1997). Although many of the above factors are related to initial conditions that put Africa at a disadvantage, these impediments need not be destiny and should be overcome by an appropriate set of policies.

Indeed, the main thesis of the Growth Project is that policies matter for growth in Africa, despite the initial conditions. The project defines several categories of factors that might be adverse to growth as 'policy syndromes', 'state controls', 'adverse redistribution', 'suboptimal inter-temporal resource allocation', and 'state breakdown',

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22 This account is not meant to imply that the SAP was successful all over in SSA. Mkandawire and Soludo (1999), for instance, argue that SAP has been deleterious to socioeconomic conditions in SSA.

23 For the role of instabilities generally see also, Guillaumont et al. 1999.

with the absence of any of the above syndromes referred to as 'syndrome-free'.[24] Table 6 shows the evolution of these regimes during 1960–2000, a subject that is taken up next.

4.1 State controls

In any given year, a country was classified as having 'state controls' if the government 'heavily distorted major economic markets (labour, finance, domestic, and international trade, and production) in service of state-led and inward-looking development strategies' (Fosu and O'Connell 2006: 38). When African countries generally attained political independence from colonial rule in the late 1950s through the mid-1960s, the reigning development paradigm entailed strong reliance on government as the leader of the development efforts, especially in the light of limited markets and private capital. These countries had also relied externally on their colonial 'masters' for manufactures in exchange with primary products. Leaders of the newly created African countries were determined to free their respective economies from this colonial arrangement, which the leaders viewed as economically disadvantageous. Thus, many African governments opted for inward-looking, import substitution, state-led development strategies.

As the role of government became more pervasive in the economy and bottlenecks developed, resource rationing became necessary. This situation was particularly characteristic of the external sector, where over-valuation of the domestic currency required that foreign exchange be rationed through quotas, with a proliferation of foreign exchange controls in most African countries by the 1970s. State controls were not limited to the external sector, however, as they were pervasive as well in other markets, including the banking, finance, labour, and consumer product sectors.

The quest for greater equity in development, especially in socialist oriented governments, further compelled many of these governments to redistribute resources. Such redistribution was usually via an implicit tax in the form of a substantial wedge between the world price and the government mandated producer price of the exportable, administered by the state marketing boards. It is often argued that this urban biased distortion has been particularly deleterious to growth (Bates 1981). In fairness, however, given the difficulties associated with direct revenue collection, many African governments saw indirect taxation as a more efficient source for funding the various development projects, including infrastructure development (schools, roads, communications, etc.), which were so lacking at the time of independence. The only real issue, then, is not whether the indirect taxation was warranted, but the degree to

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24 Much of the present section derives from Fosu (2008b), which presents a number of case studies to illustrate each syndrome or SF regime. The definitions of the regimes, provided below, form the basis for the classification of each country-year into one or more of the categories by the editorial committee of the Growth Project (for details see Collier and O'Connell, 2006; Fosu 2008b; Fosu and O'Connell 2006). Note that 'classification is based on policies, not growth outcomes' (Fosu and O'Connell 2006: 37). For example, though Sudan grew rather rapidly in the late 1990s it was not categorized during this period as 'syndrome-free' but instead as 'state breakdown'. Conversely, Malawi was designated 'syndrome-free' throughout the post-independence period, yet it stagnated in the 1980s, and so did Côte d'Ivoire in the early 1980s despite its syndrome-free classification during that period.

which it was distortionary in terms of attenuating production incentives, as well as creating rent seeking opportunities.

The inward-looking strategy entailed the use of import tariffs and quotas, as well as other trade restrictions like import licensing, to protect 'infant' manufacturing firms. In particular, agricultural policies often involved government direct investment and establishment of extension services. Meanwhile, a hallmark of monetary policy in most African countries was fixing nominal interest rates amidst a high inflationary environment. This policy tended to limit financial development. The government also became the main employer in the formal labour sector through the establishment of state owned enterprises.

The key feature of macroeconomic policies during the period was the fixed exchange rate regime. This policy often resulted in over-valuation of the domestic currency, which afflicted most African economies.[25] The case of the Coopération financière en Afrique centrale = Financial Cooperation in Central Africa (CFA) countries is especially noteworthy. Designed to achieve total convertibility, the CFA currency was tied to the French franc. While this arrangement fostered monetary and price stability, it also led to an over-valuation of the CFA franc, which stymied growth in the CFA zone. It was not until 1994 that the CFA franc was appropriately devalued to remove the over-valuation drag.[26]

Although many of the government programmes were well intentioned, they ended up creating state controls. Such a regulatory regime was often highly inefficient, as it tended to breed rent seeking behaviour in addition to the usual high transaction costs associated with the monitoring of controls.

When negative supply shocks hit in the mid to late 1970s, thanks to the unanticipated global petroleum price rises as well as drought in many African countries, the state controls became even more binding and widespread.[27] Countries with soft controls tended to upgrade to hard controls (e.g., Benin, Ghana, Madagascar, and Mozambique), while those without controls heretofore adopted them as a rationing mechanism (e.g., Kenya, Mauritius, Nigeria, Sierra Leone, Tanzania, Togo, and Zambia).[28]

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[25] Currency over-valuation has been found to be a major deterrent to growth in African economies (see, for instance, Ghura and Grennes (1993).

[26] The persistence of the CFA over-valuation, just as in the case of other non-CFA currencies, might be explained in part by the tendency of elite coalitions to form around the relatively cheap imports availed by domestic currency over-valuation, as well as the rent seeking opportunities that such an arrangement provided.

[27] While oil-producing countries including those in Africa enjoyed revenue boosts in the 1970s, most SSA countries were not oil producers and actually experienced adverse TOT shocks. For example, of the 33 SSA countries examined by Svedberg (1991: 559), 'nineteen countries saw their barter TOT deteriorate significantly between 1970 and 1985'.

[28] For classification of these episodes, see Collier and O'Connell (2008: table 2.A.2). Different factors other than just TOT, including government changes (as in the case of Ghana, for example), may have also contributed to the adoption or hardening of state controls. The case studies, however, suggest that governments tended to adopt more stringent controls in the face of a negative and inflationary supply shock (see Fosu 2008b). In the case of Nigeria, for example, hard controls began about 1983 when the

The prevalence of controls rose generally in the 1970s, while the incidence of hard controls increased even faster; however, the frequencies of both soft and hard controls waned considerably beginning in the early to mid-1980s (Fosu 2008b: figures 3.1 and 3.2; Table 6 this paper). During 1960–2000, the regulatory syndrome constituted one-third of the country-years; its frequency increased in the 1970s and early 1980s but declined substantially thereafter.

The incidence of state controls is estimated to have reduced per capita annual GDP growth by approximately 1 percentage point, *ceteris paribus* (Fosu and O'Connell 2006: table 7). This estimate is not inconsequential, especially given that SSA's per worker growth deficit with the rest of the world during 1960–2000 averaged slightly above 1.0 percentage point per year (Table 4).

4.2 Adverse redistribution

'Adverse redistribution' is said to occur when redistributive policies favouring the constituencies of respective government leaders lead to polarization, usually regional in nature and with ethnic undertones (Fosu and O'Connell 2006). Redistribution need not be adverse, though, if it promotes harmony (Azam 1995). Actually, governments could use redistribution to buy peace. In many West African countries (e.g., Chad, Côte d'Ivoire, Ghana, and Nigeria), the south, on the one hand, tends to be agricultural and enjoys more financial resources than the north. On the other hand, the north often enjoys greater command over military resources and may use violence, at least potentially, to extract rent from the south. A Pareto-optimal solution would require redistribution from the south to the north, just enough to obviate the latter taking up arms. The resulting peace would be growth enhancing (ibid.).

Redistribution could, however, be adverse to growth if it led to (ethnic) polarization. Such redistribution might also undermine efficient resource mobilization, as it tends to attenuate the propensity to pay taxes (Kimenyi 2006). African political history is replete with examples of redistributive policies partial toward certain ethnic groups, such as: favouring the Tutsis in Burundi during 1975–87 (Nkurunziza and Ngarako 2003), the Kalenjins in Kenya under President Arap Moi (Mwega and Ndugu 2004), the Temnes in Sierra Leone by the All People's Congress during 1969–90 (Davies 2004), and the Kabeyes in Togo by President Eyadema in 1976–90 (Gouge and Evlo 2004). Also classified under adverse redistributive policies is the case of downright looting, such as the regimes of Mobutu in the DRC (1973–97), Idi Amin in Uganda (1971–79), and Sani Abacha in Nigeria (1993–98), (Collier and O'Connell 2008: table 2.A.2).

The frequency of this redistributive syndrome increased steadily right from the time of independence, and it was not until about the early 1990s that it began to reverse course (Fosu 2008b: figures 3.1 and 3.2; Table 6 this paper), perhaps in response to the reforms undertaken in many African countries. During 1960–2000, this redistributive syndrome constituted about 21 per cent of the country-years (Table 6).

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country suffered a major TOT deterioration due to tumbling oil prices in the wake of oil revenue booms in the 1970s.

4.3 Suboptimal inter-temporal resource allocation

'Suboptimal inter-temporal resource allocation' refers to the syndrome of revenue misallocation over time, with over-spending during commodity booms and insufficient expenditure allocation during the subsequent busts (Collier and O'Connell 2008; Fosu 2008b; Fosu and O'Connell 2006). While many of the projects undertaken in many African countries during booms were probably economically justifiable, it is also true that numerous projects were either ill-advised or over-allocated resources relative to their absorptive capacities. When the booms invariably ended, many of the projects were simply abandoned so that their potential values of marginal product could not be realized. Instead, bust periods were often characterized by much larger output declines than would have been the case with more prudent inter-temporal revenue management. In effect, the cumulative impact on growth over the cycle was likely to be negative.[29]

The incidence of this syndrome rose dramatically starting in the early 1970s, maintaining a plateau from the mid-1970s, before finally falling beginning in the latter part of the 1980s (Fosu 2008b: figures 3.1 and 3.2; Table 6 this paper). Over the entire 1960–2000 period, the syndrome accounted for about 9.0 per cent of the country-years (Table 6). It also had the tendency to reduce Africa's overall per capita growth by about 1 percentage point annually (Fosu and O'Connell 2006: table 7).

4.4 State breakdown/failure

'State breakdown' (or 'state failure') refers primarily to open warfare, such as civil wars, but also to acute elite political instability involving coups d'état, for instance, resulting in a breakdown of law and order (Fosu and O'Connell 2006). Such a state is likely to substantially impede efficient resource allocation and to inhibit growth. In addition to causing tolls in human suffering, state failure tends to result in major interruptions in production and distribution, as well as in inefficient reallocation of resources from the productive and social sectors into the non-productive military sector.

Over 1960–2000, state breakdown constituted about 10 per cent of the country-years, which is considerably lower than that of state controls (33 per cent) or adverse redistribution (21 per cent) (see Table 6). Furthermore, despite popular belief, the incidence of state breakdown was historically rare in Africa until more recently in the 1990s, when its relative frequency doubled to 20 per cent of the country-years from 5 per cent in the 1970s (Table 6). Despite its historically low frequency, however, state breakdown is estimated to have exerted a rather substantial negative impact on growth. Its reduction of Africa's per capita annual growth of GDP could be as much as 2.6 percentage points (Fosu and O'Connell 2006: table 7). This estimate is only slightly larger than the 2.2 per cent obtained for civil wars by Collier (1999).

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[29] The misallocation would usually show up as a decline in TFP, as was the case of Nigeria in the late1970s to early 1980s, Cameroon in the 1980s and early 1990s, and Zambia in the 1970s and 1980s (see Appendix table A).

4.5 The syndrome-free regime

The 'syndrome-free' state constitutes the absence of any of the above syndromes, that is, a regime with a combination of political stability and reasonably market friendly policies (Fosu and O'Connell 2006). Interestingly, this regime represented more than one-quarter of the country-years during the entire 1960–2000, higher than any of the above syndromes, with the exception of the regulatory syndrome (see Table 6). It is noteworthy that in the immediate post-independence period of 1960–65, the relative frequency of SF was about 50 per cent (Table 6). The prevalence of SF, however, began to wane starting in the latter 1960s, especially in the 1970s when state controls and other syndromes became dominant. The downward trend continued until roughly the mid-1980s when it reversed course; the upward trend actually accelerated in the 1990s, likely as a result of the World Bank and IMF championed market oriented reforms (Fosu 2008b).

Since the early 1990s, most African countries have undergone substantial economic and political reforms. For instance, the relative frequency of state controls has declined from its peak of over 50 per cent in the early 1980s to just 15 per cent by the dawn of the millennium. Though the incidence of adverse redistribution, mainly regional, has remained relatively high at nearly 20 per cent by 2000, this prevalence is low compared to the peak of approximately 30 per cent in the late 1980s. Meanwhile, the relative frequency of SF has skyrocketed to 45 per cent by 2000, from its nadir of about 10 per cent in the early 1980s.[30]

Over the 1960–2000 sample period, being SF was a necessary condition for sustainable growth and a near sufficient condition for preventing a growth collapse (Fosu and O'Connell 2006). Indeed, such a regime is estimated to have contributed as much as 2 percentage points to per capita annual growth in Africa (ibid., table 6). This estimate constitutes nearly twice Africa's growth gap with the rest of the world during 1960–2000, about a third of its gap with East Asia and Pacific, and more than the gap with South Asia (see Table 4).

5 Empirical exploration: roles of the syndrome-free regime and governance

This section takes advantage of the data generated by the Growth Project to further explore the role of the SF regime in explaining the economic growth of African economies. In contrast with Fosu and O'Connell (2006), for instance, which employs a reduced form model that controls for shocks and geographical endowment,[31] I use a production-function approach in order to further investigate the channels by which SF may have influenced growth: via production factor inputs versus TFP. Moreover, I employ herein a five-year, rather than annual, panel in an attempt to capture the

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30 These statistics are based on the annual data that form the basis of Table 6. See Fosu (2008b, Figure 3.1), for example, for a graphical depiction.

31 Specifically, the controls in the Fosu–O'Connell model are: 'partner growth', 'rainfall', 'coastal', and 'resource rich'. However, accounting for these variables does not seem to appreciably affect the estimate of the SF variable (see Fosu and O'Connell 2006: table 6).

extended impact of SF beyond one year. Also examined is the role of governance in the growth equation.

To explore the channel by which SF affects growth, I postulate as the starting point a simple Cobb–Douglas production-function:

$$Q = AL^{b}K^{c} \quad (1)$$

where Q is output, L labour, and K capital; *A*, *b*, and *c* are the respective parameters. The growth version of Equation (1) is:

$$q = a + bl + ck \quad (2)$$

where *q*, *l* and *k* are the growth rates of output, labour and capital, respectively, and *a*, *b* and *c* are the respective estimable parameters.

Equation (2) is the classical production-function, an augmented version of which has been estimated in many studies.[32] However, in order to more appropriately compare the current results with those of Fosu and O'Connell (2006), Equation (2) is converted to per capita growth as:

$$y = a + (b\text{-}n)l + ck \quad (3)$$

where *y* is per capita growth; population is assumed to grow at the rate of *nl*, with *n*, the ratio of population to labour growth, greater (less) than unity if population grows faster (slower) than labour.

As the Hicks-neutral technological change measuring growth in TFP, the parameter *a* may be especially susceptible to the syndrome nature of the economy. Furthermore, TFP has been found to be crucial in explaining the generally low growth of African economies since the 1960s (Bosworth and Collins 2003). Hypothesizing that SF and governance would affect economic growth via their impacts on TFP, *a* may be expressed as:

$$a = a_1 + a_2 f + a_3 g + \boldsymbol{a_4 x} \quad (4)$$

where *f* and *g* are the SF and governance variables, respectively, ***x*** the vector of other variables, such as TOT as well as country and time fixed effects that might affect TFP; a_1, a_2, a_3 and $\boldsymbol{a_4}$ are the respective coefficients. Combining Equations (3) and (4), the model to be estimated may be specified as:

$$y_{it} = a_1 + a_2 f_{it} + a_3 g_{it} + \boldsymbol{a_4 x_{it}} + a_5 l_{it} + a_6 k_{it} + u_i + v_t + e_{it} \quad (5)$$

where the subscripts *i* and *t* are the respective country and time indexes; *f* and *g* are the measures of the syndrome-free regime and governance, respectively, *l* and *k* are the

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32 The production-function model has traditionally been estimated, alternatively to the Barro-type model, for example, in numerous studies to assess the effectiveness of production factors *vis-à-vis* the role of productivity, on growth. See, for instance, Bosworth and Collins (2003) and also Fosu (2001b, 2008d).

respective growth rates of labour and capital, and $\boldsymbol{x}$ is a vector of other control variables that might influence y; the respective coefficients of the above variables are to be estimated; u and v are the country and time fixed effects, respectively; and e is the random perturbation.

Equation (5) is first estimated with 5-year panel data for 1960–2000, and then also for 1981–2000 in order to account for the effect of TOT for which consistent data are available for the latter period but not for the entire sample. To avoid potential problems of endogeneity, both country and time fixed effects are controlled for. The regression results are reported in Tables 7 and 8 for the above sample periods, respectively.

First discussed are the results for 1960–2000 in Table 7, which are generally as expected. The effect of capital formation, measured by the investment share of GDP, is strongly positive and significant in all equations. In contrast, the estimated impact of the labour variable, though positive, is generally insignificant. This is not surprising, since the coefficient of the labour variable is $(b\text{-}n)$, the difference between the labour growth coefficient in the original production-function, b, and the ratio of population growth to labour growth, n. Indeed, this coefficient cannot be signed; it is more likely to be negative the slower the growth of the labour force is relative to the population.

5.1 Effect of the syndrome-free regime

The coefficient of the SF variable, SFREE, is significantly positive. Indeed, it is striking that the estimated impact of about 2.0 percentage points here (Equations (2), (5), (6) and (7) of Table 7) is nearly identical to that obtained by Fosu and O'Connell (2006), despite the difference in models.[33] Furthermore, that the coefficient of SFREE appears invariant to the exclusion of l and k from the regression (compare for instance Equations (2) and (7) of Table 7) suggests that the effect of SFREE is primarily via TFP, rather than indirectly through the factors of production. Such a finding was not possible under the Fosu–O'Connell reduced form model.[34] Concentrating on investment, further support for this hypothesis is provided by the zero-order correlation coefficient between SFREE and the investment variable of only 0.08, which is insignificant; this compares with the correlation coefficient between SF and growth of 0.26, which is significant at the 0.01 level (Appendix table C.1). Thus, it appears that the apparent dominant impact of TFP observed in the above sources of growth analysis (see Table 5) could be attributed primarily to the prevalence, or lack thereof, of the policy syndromes.

The 1981–2000 results in Table 8 involving the net barter TOT are now discussed. They are qualitatively quite similar to those for the entire period shown in Table 7, with the investment impact quite strong, and the significance of the (positive) labour coefficient mixed, though greater. Indeed, the respective goodness of fit for the models in Table 8 appears much higher than that in Table 7.

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33 As indicated above, the Fosu–O'Connell model is in reduced-form with the following controls: 'partner growth', 'rainfall', 'coastal', and 'resource rich', while the current model is the augmented production-function.

34 Note that the model estimated in Fosu and O'Connell (2006) does not include investment or labour.

Most importantly, the estimated coefficient of SFREE is positive and significant in all the relevant equations in Table 8. Moreover, the SFREE impact is about 30 per cent higher in Table 8 than in Table 7 (see all the corresponding specifications of Table 8, except Equation (9)). The results also suggest that the growth in TOT, measured by TOTG, constitutes a critical variable in the growth equation, especially in assessing the effect of SFREE. When TOTG is omitted from the regression, the coefficient of SFREE declines rather substantially and becomes rather insignificant, while the goodness of fit of the model falls precipitously (Equation (2) versus Equation (9)). Coupled with the result of Equation (8) of Table 7, which suggests that a larger SFREE coefficient may actually hold for the earlier period, this finding implies that the resulting higher coefficient when the model is restricted to the 1981–2000 sample period is not a temporal factor. Instead, accounting for TOT provides a more accurate estimate of the SFREE impact of nearly 3.0 per cent, which is apparently larger than the 2.0 per cent estimate by Fosu and O'Connell (2006).

Why then might the Fosu and O'Connell estimate be on the low side? The most plausible explanation is that an *annual* panel was used in that study. It seems quite likely that the effect of SFREE is felt beyond one year, however. Furthermore, defining SFREE as equal to unity when a given country has been syndrome-free for the entire five-year period (zero otherwise, see Table 7), as is done currently, is a more stringent test than that based on a single year. The current definition yields about 30 per cent and 25 per cent of the sample as SFREE for 1960–2000 and 1981–2000, respectively. These figures are, furthermore, remarkably similar to the respective annual relative frequencies of 27 per cent and 26 per cent (Table 6), suggesting that the five-year aggregation does not lose much information.

5.2 Effect of governance

The results in Tables 7 and 8 show that the impact of governance, as measured by XCONST, the degree of constraints on the government executive, is non-linear: positive initially, but negative beyond a threshold. This finding suggests that there could be too much executive constraint. Using Equation (5) of Table 8, which appears to provide the best fit among the equations where XCONST is included in the model, a threshold value of 3.60 is estimated.[35] While this threshold seems rather low, especially for a variable that ranges from 0 to 7, it exceeds the sample mean of 2.64 (Appendix tables B.1 and B.2), as is to be expected. Of course, this estimate can only be viewed as preliminary. Perhaps the best interpretation is a qualitative one; that is, too much executive constraint can be bad for growth.

Equally important is the observation that SFREE and XCONST might be positively correlated, at least inter-temporally. As Figure 2 depicts, these two variables tend to move together over time. Indeed, XCONST appears to be more (positively) correlated with SFREE than with per capita GDP growth. For the entire 1960–2000 sample period, the respective zero-order correlation coefficients are 0.15 versus 0.26 (Appendix table C.1), and for 1981–2000, they are 0.20 versus 0.33 (Appendix table C.2). Although part of the relatively low XCONST correlation with per capita growth may be

[35] That is 1.875/2(0.26) = 3.60.

due to the non-linear nature of the relationship, the above results suggest that the effect of XCONST transcends its direct impact on growth. It could also augment growth through its positive impact on SFREE.

6 Explaining the anti-growth policy syndromes

Apparently, conditions of the African environment influenced policies undertaken by African policymakers. The above anti-growth syndromes could, therefore, be viewed as endogenous with respect to such conditions. If so, then appropriately altering the environment should aid the pursuit of relatively sound policies for growth.[36] The Growth Project discusses, from a historical perspective, the nature of such endogeneity.[37] A synthesis of the case studies, in particular, provides a number of explanations as to why the anti-growth policy syndromes may have been adopted, including: initial conditions, resource opportunity set and supply shocks, political institutions, and economically driven political expediency (Fosu 2008b).[38] These factors are briefly discussed next.

6.1 Initial conditions

The initial conditions at the time of independence heavily influenced the policies adopted by many African countries. These conditions included: the reigning international paradigms, experiences of the initial leaders, and group identity rivalry.

6.1.1 Reigning international paradigms

A major competing development paradigm in the late 1950s and the 1960s when most African countries attained independence was that socialism, with government as the primary agent for development, was more likely than capitalism to attain development objectives.[39] This school of thought rendered the socialist means of development particularly appealing to many African leaders, especially in the setting where the vast majority of their people lacked investment resources and markets were rudimentary.

The leaders opting for socialistic policies tended to resort to various forms of state controls, which in turn generated rent seeking opportunities as well as adverse redistribution in favour of political constituencies. Meanwhile, the socialistic ideology that government constituted the best agent for development cemented the dominant role of the central authority, with state controls as a primary mechanism for resource allocation.

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36 Indeed, this assumption underlies the Growth Project. For further exposition see, for example, Fosu and O'Connell (2006).

37 Although this assumption does not imply that SFREE is endogenous with respect to growth, which might result in an endogeneity bias in estimating the effect of SFREE on growth, note that both country and time fixed effects have been controlled for in the estimation in order to mitigate such a possibility.

38 This section borrows significantly from Fosu (2008b), which synthesizes the case studies. Thus, the account provided herein is based on the case study evidence.

39 For details see, for example, Ndulu (2008).

6.1.2 Experiences of the initial leaders

The early politically conservative African leaders tended to adopt relatively liberal economic policies, in contrast with their socialist leaning counterparts. Such conservatism was often based on the background of the leadership, internally or externally. Thus, leaders like Jomo Kenyatta of Kenya, Felix Houphouet-Boigny of Côte d'Ivoire, Sir Khama of Botswana, and Sylvanus Olympio of Togo favoured only minimal controls, given their rural or business backgrounds. In contrast, leaders such as Kwame Nkrumah of Ghana, Sekou Toure of Guinea, Julius Nyerere of Tanzania, and Modibo Keita of Mali resorted to hard controls, thanks at least in part to their exposure to Fabian socialism.

Actually, the adoption of controls was not dominant among African countries in the immediate post-independence period. For example, less than 40 per cent of the country-years could be classified as control regimes in the early 1960s, compared with 50 per cent for syndrome-free regimes (Fosu 2008b: figure 3.1; Table 6 this paper).

6.1.3 Group identity rivalry

The physical and political boundaries of many African countries resulted from colonial partitioning that had no regard for relatively well defined (ethnic) groups. Many early African leaders, hence, sought to tame (ethnically) group-based centrifugal political forces. The major mechanism for this purpose was often the adoption of strong central governments accompanied by state controls.

6.2 Resource opportunity set and supply shocks

The resource opportunity set available to countries played an important role in the prevalence of syndromes.[40] For instance, as net importers of oil, most African countries experienced the negative petroleum supply shocks of the 1970s. A number of countries were also the victims of drought in the 1970s that led to diminished supplies of food. Many African governments chose to fix prices in the face of such shocks in order to make goods and services more affordable to the citizenry at large, particularly to the urban elites who seemed to form the political support base for these governments (Bates 1981). Such a policy, however, led to more and/or stricter state controls.

Yet, there were also a number of African countries that experienced positive supply shocks, especially involving commodity booms in natural resource economies during the 1970s. These shocks tended to give rise to the *suboptimal inter-temporal resource allocation* syndrome involving exuberant spending during the boom and subsequent under-spending due to fiscal difficulties: phosphate in Togo, 1974–89 (Gouge and Evlo 2004); oil in Cameroon, 1982–93 (Kobou and Njinkeu 2004); phosphates and groundnuts in Senegal, 1974–79 (Ndiaye 2004); bauxite in Guinea, 1973–84 (Doumbouya and Camara 2003); coffee in Burundi, 1975–85 (Nkurunziza and Ngaruko 2003); uranium in Niger, 1974–85 (Mamadou and Yakoubou 2006); and oil in Nigeria, 1974–86 (Iyoha and Oriakhi 2004). In certain cases, the revenue booms engendered outright looting: e.g., oil in Nigeria over 1974–86 by several governments and during

[40] See particularly Collier and O'Connell (2008) for a detailed discussion of the relationship between resource opportunity and syndromes.

1993–98 by Sani Abacha (ibid.), and coffee in Uganda during the 1971–78 reign of Idi Amin (Kasekende and Atingi-Ego 2004).

Governments saw the opportunity to use revenue windfalls during booms to reward their cronies and ethnic constituencies, usually regionally based, who would in turn support the leaders' political entrenchment. Conversely, during subsequent bust periods, the tendency was to maintain such redistribution at the expense of the rest of the population.[41] Or, political leaders could just loot (Collier and O'Connell 2008). This is the case of *adverse redistribution*. Furthermore, by generating polarization, the above redistributive syndrome could also lead to *state breakdown*, as in the case of, for instance: Angola (1973–2002), Burundi (1988–2000), Chad (1979–84), DRC (1996–2005), Sierra Leone (1991–2000), Togo (1991–93), and Uganda (1979–86), (Collier and O'Connell 2008; Fosu 2008b)

6.3 Political institutions

Following independence, colonial institutions tended to supplant traditional chieftaincies as governing entities in many African countries. Yet, the resulting political practices were only a shadow of these inherited institutions. For example, any inherent checks and balances were often stripped by the new African leaders in order to maintain the centrality of the executive branch of government. This meant that the activities of the executive were subject to little control, allowing it to act in its own self-interest. Unfortunately, such interest seldom coincided with that of the populace at large, but instead with those of the urban and other coalitions able or likely to support the political authority at the time (e.g., Bates 1981).

Meanwhile, Fabian socialism adopted in many African countries contributed to the high frequency of state controls. The executive branch of government became dominant in these countries, usually through the diminution of political checks and balances. Over time, as the executive became entrenched in power, the military was by default the only real competing institution capable of removing it.

The critical role of the military, coupled with the competition for rent made available by the various controls or high revenues from natural resources, contributed to the 'elite' political instability involving high frequencies of coups d'etat (Kimenyi and Mbaku 1993). Meanwhile, where adverse redistribution was severe, polarization was accentuated, eventually resulting in open warfare and state breakdown in many instances.

6.4 Economically driven political expediency

As apparent in Figure 2, there appears to be a U-shape evolution of SF frequencies over 1960–2000. SF and non-SF events were split about equally during the early post-independence period (Table 6). SF then diminished in importance until more recently

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[41] A case highlighted in Fosu (2008b) is the one of Togo where President Eyadema redistributed revenues in favour of his Kabeyes ethnic group. As Fosu (2008b: 147) writes: 'Even in response to the structural adjustment programme begun in the mid-1980s when retrenching of the public sector was in effect, the Kabyes are believed to have retained the lion's share of desirable employment'.

when it began to rise again beginning in the late 1980s. The relatively high frequency of SF in the early period was likely due to chance, as the early leaders were divided roughly equally between socialistic and capitalistic tendencies. In contrast, the most recent upward trend is attributable to reforms necessitated by economically driven political expediency. The socialistic experiments often ran into fiscal difficulties which, especially with the demise of the Cold War, required the assistance of the Bretton Woods institutions in exchange for reforms.

Unfortunately, many African countries also degenerated into political disorder and open conflicts, perhaps as a result in part of the political reforms that ensued in support of economic reforms. Previously authoritarian governments began to lose their grip on power, creating a power vacuum that tended to undermine the cohesion of the state. In other cases, distributive politics replaced authoritarian rule that had previously succeeded in preserving the nation state, opening up wounds of divisionism and accentuating polarization with ethnic undertones. By the 1990s, countries like Burundi, CAR, Comoros, DRC, Djibouti, Liberia, Niger, Rwanda, Sierra Leone, Sudan, and Togo had all descended into severe political instability, most in the form of open conflicts.

While political reforms may be blamed as responsible for many of these outcomes, it is also true that the new international political order that saw the diminution of the Cold War facilitated the overthrow of authoritarian regimes. Thus, as the frequency of the SF cases increased in the 1990s, so did the incidence of state breakdown. Indeed, the increase in the incidence of SF in recent years is accompanied by resurgence in the prevalence of state breakdown (Figure 3).

7 Conclusions and policy implications

The present paper, first, presented the growth record of African economies. It observed that the overall post-independence GDP growth of SSA countries has been quite paltry, especially when compared with the rest of the world. On average, output growth was barely enough to cover population increases. The growth record has, however, been quite episodic. From 1960 until the mid-1970s, African countries generally grew reasonably well, with GDP growth rates of nearly 2 percentage points annually above population growth, though this performance was still below that of other regions. GDP growth declined substantially in the 1980s and early 1990s, however, resulting in decreases in per capita income. Fortunately, there has been growth resurgence in many African economies since the mid-1990s, with per capita SSA growth averaging about 2 per cent once again.

The above aggregate picture fails to properly reflect the heterogeneity in African country performance at a point in time or across time. For example, Botswana and Mauritius have performed spectacularly well during the overall period. Moreover, even when growth declined substantially in the early 1980s and early 1990s, a number of African countries bucked the trend. Unfortunately, the growth of most of the countries has also been episodic, with many of those starting out with relatively strong growth faltering subsequently, and conversely.

Second, the paper has presented evidence on the decomposition of economic growth. Despite some individual country exceptions, it finds that changes in TFP were strongly associated with economic growth performance in Africa generally. When growth was relatively strong in the 1960s and 1970s, TFP was a major contributing factor, which also explained the substantial deterioration in growth in the early 1980s and early 1990s. Similarly, the recent resurgence in growth has been associated with major TFP improvements.

Third, the present paper has attempted to explain the above growth record using the 'policy syndrome' taxonomy adopted by the recent Growth Project by the AERC. Despite country heterogeneity, reviewing the country studies of the Growth Project has revealed a number of commonalities. These have been categorized into a set of anti-growth policy syndromes: state controls, adverse redistribution, sub-optimal inter-temporal allocation, and state breakdown.

The paper finds that the absence of syndromes could have increased annual per capita GDP growth by nearly 3.0 percentage points, which is rather large, especially when compared with the rather modicum growth of less than 1.0 per cent during the post-independence period. Much of this positive effect of the syndrome-free regime is attributed to its positive influence on TFP. Improvements in the TOT would also tend to increase growth, and accounting for them actually increases the importance of SF for growth.

Fourth, the current paper argues, as in the Growth Project, that the syndromes can be explained by the policy environment within which African leaders operated. This observation has the crucial implication that removing the syndromes in order to raise growth would require that the environment be appropriately altered. Fortunately, the evidence suggests that the frequency of SF has been increasing steadily in recent years. The bad news is that this improvement is accompanied by increasing incidence of failing states. Finding a solution to such state failure problems[42], then, is critical if the present momentum toward growth is to be accelerated or at least sustained.

Meanwhile, the role of governance, as measured by the degree of constraints on the executive (XCONST), has not been inconsequential. Its direct impact on per capita GDP growth was found to be positive, that is, up to a point, beyond which additional level of constraint could be counter productive. Moreover, XCONST tends to be more correlated with SF than with GDP growth. Improving this measure of good governance could, therefore, accelerate growth directly as well as indirectly via accentuating SF. Finally, with the additional evidence suggesting that increasing electoral competitiveness can enhance growth in relatively advanced level democracies in Africa (Fosu 2008d),[43] it would be interesting to explore in future research how this form of democracy may be capable of augmenting SF as well as attenuating state breakdown.

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[42] For a comprehensive treatment of such problems see, for instance, Fosu and Collier (2005).

[43] Fosu (2008d) finds that democratization beyond the threshold of approximately 4.4 for the indexes of electoral competiveness (on a 1–7 scale, with 7 as the highest level of democracy) would raise GDP growth among African countries. It is noteworthy that currently, SSA as a whole has transcended this threshold (ibid.).

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Table 1
GDP growth (annual %), 5-year averages

Country Name	Code	61-65	66-70	71-75	76-80	81-85	86-90	91-95	96-00	01-05	2006	*Avg*
Angola	AGO						3.28	-3.78	6.43	10.55	18.56	*4.81*
Benin	BEN	3.28	2.69	1.42	4.09	4.66	0.89	4.25	5.35	3.88	4.10	*3.40*
Botswana	BWA	6.32	11.02	18.15	12.23	10.01	11.87	4.06	8.35	5.43	2.15	*9.55*
Burkina Faso	BFA	2.99	2.91	3.09	3.59	4.18	3.01	3.96	6.78	6.22	6.39	*4.13*
Burundi	BDI	1.94	7.60	0.64	4.23	5.35	3.73	-2.40	-1.34	2.20	5.13	*2.50*
Cameroon	CMR	2.71	1.61	6.70	6.86	9.40	-2.22	-1.86	4.75	3.66	3.76	*3.52*
Cape Verde	CPV					8.62	3.50	5.23	6.40	5.16	6.09	*5.79*
Central African Rep.	CAF	0.71	3.23	1.95	0.70	2.29	0.04	1.09	2.38	-0.88	4.10	*1.34*
Chad	TCD	0.65	1.45	0.90	-4.55	9.18	1.94	2.44	2.65	15.29	0.47	*3.27*
Comoros	COM					4.29	1.62	0.89	1.47	2.79	0.50	*2.15*
Congo, Dem. Rep.	ZAR	2.82	3.84	2.49	-1.45	1.86	0.01	-7.12	-3.89	4.05	5.08	*0.39*
Congo, Rep.	COG	3.40	5.00	8.04	5.15	10.57	-0.26	0.50	2.48	4.32	6.40	*4.40*
Cote d'Ivoire	CIV	8.03	9.73	6.44	4.52	0.32	1.18	1.51	3.22	-0.01	0.85	*3.82*
Equatorial Guinea	GNQ						1.36	7.05	35.43	27.00	-5.56	*16.60*
Eritrea	ERI							12.51	1.17	3.67	-0.98	*5.36*
Ethiopia	ETH					-1.21	5.27	1.34	4.92	5.75	8.99	*3.44*
Gabon	GAB	8.24	5.58	18.09	0.40	2.56	1.73	3.13	0.41	1.74	1.18	*4.58*
Gambia, The	GMB		4.54	5.54	4.41	3.23	4.10	2.11	4.50	3.92	4.50	*4.06*
Ghana	GHA	3.10	2.98	0.01	1.04	-0.25	4.81	4.28	4.32	5.04	6.20	*2.89*
Guinea	GIN				2.60	2.02	4.21	3.90	4.25	3.08	2.82	*3.33*
Guinea-Bissau	GNB			3.20	-0.61	6.45	3.78	3.18	1.06	-0.12	4.20	*2.47*
Kenya	KEN	3.49	5.88	10.02	6.35	2.53	5.64	1.61	2.16	3.61	6.11	*4.62*
Lesotho	LSO	7.64	2.77	5.76	10.26	3.09	5.86	4.00	3.24	2.86	7.17	*5.10*
Liberia	LBR	3.20	6.63	1.61	2.18	-1.88	-16.48	-21.66	39.34	-3.36	7.80	*1.21*
Madagascar	MDG	1.38	4.68	0.66	1.46	-1.55	2.75	-0.28	3.84	2.60	4.89	*1.80*
Malawi	MWI	4.64	4.99	7.60	4.89	2.17	2.32	3.52	3.92	1.06	7.42	*3.98*
Mali	MLI		3.36	3.41	4.92	-2.25	3.86	2.99	5.19	6.39	5.30	*3.53*
Mauritania	MRT	11.62	5.45	0.71	2.86	0.92	2.47	3.26	2.61	4.04	11.70	*3.94*
Mauritius	MUS					4.33	7.39	5.13	5.38	4.15	3.54	*5.21*
Mozambique	MOZ					-4.62	5.62	2.68	7.52	8.60	7.97	*4.11*
Namibia	NAM					-0.19	2.68	4.96	3.51	4.78	2.90	*3.14*
Niger	NER	6.26	-0.46	-2.11	5.37	-2.32	2.60	0.81	2.92	4.22	4.80	*1.98*
Nigeria	NGA	4.54	5.59	5.79	4.05	-2.75	5.42	2.49	3.08	5.71	5.20	*3.80*
Rwanda	RWA	-1.65	7.59	0.84	10.29	2.68	1.50	-3.95	9.80	5.40	5.30	*3.65*
Senegal	SEN	1.99	1.99	2.48	1.19	2.92	2.38	2.09	4.12	4.68	2.30	*2.64*
Seychelles	SYC	3.70	3.81	7.14	8.56	0.92	5.56	2.90	6.28	-1.72	5.30	*4.15*
Sierra Leone	SLE	4.38	4.18	2.36	2.27	0.87	1.09	-5.05	-3.55	13.91	7.37	*2.39*
Somalia	SOM	-1.09	3.99	4.52	3.88	2.54	1.25					*2.43*
South Africa	ZAF	6.81	5.15	3.66	3.12	1.40	1.68	0.89	2.80	3.89	4.99	*3.30*
Sudan	SDN	1.95	1.43	4.99	2.69	0.83	4.55	5.13	6.46	6.48	11.80	*4.01*
Swaziland	SWZ			9.57	3.15	2.61	10.26	2.88	3.31	2.38	2.08	*4.80*
Tanzania	TZA						5.40	1.80	4.08	6.54	5.94	*4.53*
Togo	TGO	10.14	6.66	3.75	5.07	-0.24	2.51	0.61	4.52	2.18	4.10	*3.91*
Uganda	UGA					0.70	5.09	7.05	6.55	5.64	5.44	*5.02*
Zambia	ZMB	6.20	1.59	2.46	0.44	0.53	1.64	-1.28	2.84	4.78	6.20	*2.22*
Zimbabwe	ZWE	3.56	9.37	4.91	1.72	4.36	4.60	1.39	0.89	-5.32		*2.77*
n = 46												
SSA simple average		4.10	4.59	4.61	3.66	2.41	2.92	1.56	5.15	4.58	5.01	*3.76*
WB SSA weighted average		5.19	4.70	4.30	3.11	1.13	2.61	1.17	3.43	4.55	5.60	*3.40*

Source: World Bank 2008.

Table 2
GDP per capita growth (annual %), 5-year averages

Country Name	**Code**	**61-65**	**66-70**	**71-75**	**76-80**	**81-85**	**86-90**	**91-95**	**96-00**	**01-05**	**2006**	***Avg***
Angola	AGO						0.69	-6.73	3.84	7.40	15.26	*1.96*
Benin	BEN	1.44	0.46	-1.13	1.13	1.17	-2.38	0.53	2.19	0.59	0.90	*0.46*
Botswana	BWA	3.64	7.75	14.33	8.12	6.45	8.51	1.27	6.23	4.17	0.93	*6.59*
Burkina Faso	BFA	1.40	0.89	0.80	1.28	1.68	0.16	0.96	3.71	2.89	3.24	*1.57*
Burundi	BDI	0.15	5.70	-0.29	1.87	1.88	0.60	-4.20	-2.63	-1.10	1.08	*0.24*
Cameroon	CMR	0.44	-0.86	3.86	3.73	6.23	-5.15	-4.54	2.25	1.30	1.59	*0.82*
Cape Verde	CPV					6.40	1.30	2.71	3.95	2.71	3.69	*3.43*
CAR	CAF	-1.21	1.08	0.02	-1.74	-0.53	-2.26	-1.64	0.09	-2.49	2.30	*-0.89*
Chad	TCD	-1.51	-0.71	-1.50	-6.52	6.47	-1.20	-0.72	-0.75	11.19	-2.62	*0.46*
Comoros	COM					1.60	-1.00	-1.31	-0.65	0.64	-1.64	*-0.20*
DRC	ZAR	0.11	0.70	-0.58	-4.51	-1.04	-3.07	-10.35	-6.01	1.02	1.79	*-2.54*
Congo, Rep.	COG	0.74	1.99	4.76	1.95	7.28	-3.10	-2.33	-0.29	1.86	4.11	*1.49*
Cote d'Ivoire	CIV	4.06	5.15	1.94	-0.29	-4.20	-2.71	-1.67	0.58	-1.72	-0.91	*0.10*
Equatorial Guinea	GNQ						-0.86	4.56	32.23	24.06	-7.76	*13.91*
Eritrea	ERI							12.19	-1.51	-0.51	-4.47	*2.90*
Ethiopia	ETH					-3.93	1.84	-0.50	1.81	2.98	6.19	*0.66*
Gabon	GAB	7.54	4.45	15.27	-2.23	-0.35	-1.34	0.28	-1.84	-0.03	-0.37	*2.35*
Gambia, The	GMB		1.55	2.04	1.06	-0.21	0.19	-1.62	0.87	0.74	1.61	*0.60*
Ghana	GHA	0.28	0.92	-2.57	-0.93	-3.56	1.82	1.44	1.87	2.71	4.01	*0.30*
Guinea	GIN				-0.19	-0.50	1.10	-0.05	1.91	1.18	0.82	*0.58*
Guinea-Bissau	GNB			0.96	-4.48	3.95	1.10	-0.04	-1.74	-3.13	1.12	*-0.44*
Kenya	KEN	0.22	2.37	6.11	2.45	-1.28	2.00	-1.49	-0.51	0.95	3.34	*1.25*
Lesotho	LSO	5.68	0.71	3.52	7.66	0.49	4.10	2.49	1.38	1.85	6.42	*3.17*
Liberia	LBR	0.47	3.65	-1.32	-0.88	-4.78	-16.32	-21.86	29.50	-5.60	3.67	*-1.78*
Madagascar	MDG	-1.14	2.02	-1.96	-1.27	-4.30	-0.13	-3.18	0.79	-0.26	2.06	*-0.98*
Malawi	MWI	2.18	2.34	4.32	1.51	-0.98	-2.90	2.14	1.03	-1.52	4.69	*0.99*
Mali	MLI		1.29	1.10	2.67	-4.43	1.38	0.34	2.38	3.27	2.16	*1.03*
Mauritania	MRT	8.85	2.76	-1.94	0.15	-1.71	-0.08	0.52	-0.27	1.09	8.74	*1.21*
Mauritius	MUS					3.29	6.55	3.87	4.21	3.18	2.70	*4.16*
Mozambique	MOZ					-6.38	5.30	-0.62	4.71	6.01	5.71	*1.95*
Namibia	NAM					-2.75	-1.85	1.73	0.94	3.28	1.55	*0.32*
Niger	NER	2.88	-3.62	-5.17	2.10	-5.18	-0.50	-2.59	-0.73	0.62	1.20	*-1.30*
Nigeria	NGA	2.12	3.05	3.10	0.98	-5.41	2.38	-0.40	0.33	3.10	2.75	*1.07*
Rwanda	RWA	-3.67	4.10	-2.24	6.73	-0.68	-1.96	0.75	2.00	2.85	2.74	*0.92*
Senegal	SEN	-0.87	-1.09	-0.56	-1.54	-0.04	-0.64	-0.67	1.40	1.99	-0.26	*-0.23*
Seychelles	SYC	1.04	1.33	4.88	6.88	0.01	4.77	1.41	4.71	-2.16	3.18	*2.56*
Sierra Leone	SLE	2.60	2.27	0.58	0.36	-1.16	-1.53	-5.30	-5.23	9.19	4.45	*0.29*
Somalia	SOM	-3.38	1.38	1.55	-5.17	2.57	0.49					*-0.41*
South Africa	ZAF	4.05	2.91	1.35	0.89	-1.14	-0.68	-1.22	0.41	2.58	3.88	*1.08*
Sudan	SDN	-0.36	-1.02	1.96	-0.49	-2.36	2.12	2.46	3.88	4.35	9.41	*1.35*
Swaziland	SWZ			6.54	-0.07	-0.50	6.88	-0.28	0.27	0.77	1.46	*1.93*
Tanzania	TZA						2.13	-1.39	1.53	3.84	3.31	*1.61*
Togo	TGO	8.16	2.10	1.00	2.38	-3.89	-0.84	-2.01	0.84	-0.72	1.31	*0.79*
Uganda	UGA					-2.48	1.24	3.38	3.39	2.33	2.08	*1.59*
Zambia	ZMB	3.06	-1.55	-0.93	-2.79	-2.65	-1.39	-3.84	0.38	2.83	4.22	*-0.66*
Zimbabwe	ZWE	0.22	5.86	1.40	-1.62	0.37	1.11	-0.95	-0.55	-6.00		*-0.02*
n = 46												
SSA simple average		1.64	1.87	1.80	0.55	-0.39	0.13	-0.86	2.29	2.10	2.54	*1.05*
WB SSA weighted average		2.63	2.02	1.52	0.07	-1.76	-0.34	-1.45	0.70	1.97	3.04	*0.65*

Source: World Bank 2008.

Table 3
Half-decadal mean annual SSA GDP growth rates (%), 1961–2005
(second row excludes South Africa)

1961–65	1966–70	1971–75	1976–80	1981–85	1986–90	1990–95	1996–2000	2001–05
5.4	5.1	4.6	2.7	1.0	2.5	1.1	3.3	4.1
3.5	4.1	4.9	3.2	1.7	3.1	2.0	3.9	4.5

Source: Computations by author based on data from World Bank (2007).

Table 4
Annual growth of real GDP per worker, SSA versus other regions:
mean and variability measures, 1960–2000 (%)

	SSA	LAC	SAS	EAP	MENA	IC	Total
Mean (m)	0.51	0.76	2.18	3.89	2.37	2.23	1.63
S. Dev (s)	3.24	2.79	1.47	2.46	3.13	1.77	2.87
CV (s/m)	635	367	67	63	132	79	176

Notes: SSA=sub-Saharan Africa (19), LAC=Latin America and Caribbean (22), SAS=South Asia (4), EAP=East Asia and Pacific (8), MENA=Middle-East and North Africa (11), IC=Industrial Countries (20); figures in parentheses are the respective numbers of countries with consistent data over the period.

Source: Ndulu and O'Connell (2003).

Table 5
Growth decomposition for sub-Saharan Africa

Year	Growth of real GDP per worker	Contribution of growth in		Estimated residual*
		Physical capital per worker	Education per worker	
1960–64	1.33	0.53	0.12	0.68
1965–69	1.74	0.80	0.20	0.75
1970–74	2.33	1.05	0.22	1.06
1975–79	0.19	0.74	0.24	-0.79
1980–84	-1.70	0.16	0.29	-2.16
1985–89	0.45	-0.22	0.34	0.33
1990–94	-1.74	-0.08	0.30	1.95
1995–00	1.51	-0.12	0.26	1.37
Total	0.51	0.36	0.25	-0.09

Note: * Used as a measure of growth of TFP.

Source: Ndulu and O'Connell (2003).

Table 6
Evolution of policy syndromes in sub-Saharan Africa (half-decadal relative frequencies)

Period	Syndrome-free	Controls	Redistribution	Inter-temporal	State breakdown	Soft control	Hard control
1960–65	0.465	0.334	0.128	0.000	0.073	0.775	0.225
1966–70	0.373	0.323	0.194	0.009	0.100	0.707	0.293
1971–75	0.193	0.408	0.237	0.120	0.042	0.730	0.270
1976–80	0.106	0.432	0.245	0.149	0.068	0.633	0.367
1981–85	0.097	0.442	0.255	0.145	0.061	0.630	0.370
1986–90	0.149	0.381	0.276	0.118	0.076	0.708	0.292
1991–95	0.357	0.216	0.191	0.056	0.181	0.935	0.065
1996–00	0.435	0.147	0.176	0.039	0.203	0.956	0.044
1960–00	0.272	0.335	0.213	0.080	0.101	0.759	0.241

Notes: All syndrome/syndrome-free classifications are defined in the text. The frequencies in the first five columns have been adjusted here to sum to 1.0 for each period, as multiple syndromes for a given country-year could occur. The frequencies of the last two columns have also been adjusted here to sum to 1.0.

Source: See Fosu and O'Connell (2006) and Collier and O'Connell (2008) for raw data.

Table 7

Five-year panel estimation with country and time fixed effects
(sample period = 1960–2000), dependent variable: gdppcga

Regr./Spec.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Investment	0.214[a]	0.210[a]	0.235[a]	0.222[a]	0.230[a]	0.218[a]	--	0.216[a]
	(2.75)	(2.64)	(2.92)	(2.79)	(2.80)	(2.67)		(2.73)
Labour	0.313	0.232	0.311	0.310	0.232	0.236	--	0.257
	(1.14)	(0.92)	(1.14)	(1.18)	(0.93)	(0.98)		(1.01)
Xconst	--	--	0.290	2.323[c]	0.190	2.147[c]	--	--
			(0.91)	(1.82)	(0.63)	(1.74)		
$Xconst^2$	--	--	--	-0.307[c]	--	-0.295[c]	--	--
				(-1.85)		(-1.75)		
Sfree	--	1.909[c]	--	--	2.028[c]	1.912[c]	1.818[c]	2.682[b]
		(1.80)			(1.91)	(1.83)	(1.72)	(2.12)
SF8100	--	--	--	--	--	--	--	-1.389
								(-1.45)
Adj. R^2	0.247	0.261	0.246	0.268	0.260	0.280	0.204	0.261
SEE	3.900	3.864	3.963	3.906	3.925	3.873	3.954	3.862
# of obs	n=282	n=282	n=267	n=267	n=267	n=267	n=308	n=282

Note: a significant at 1% level
b significant at 5% level
c significant at 10% level

Note: ***gdppcga*** = per capita GDP annual growth (%).
Source: World Bank 2008.

Note: ***invest*** = investment share of GDP (%)
Source: Center for International Comparisons 2004 (CIC), University of Pennsylvania.

Note: ***labour*** = annual growth average of total labour force
Source: World Bank 2004.

Note: ***xconst*** = degree of executive constraints (range [1, 7]; 7 for 'strict rules for governance', 1for 'no one regulates the authority', and 0 for 'perfect incoherence'
Source: Polity IV Dataset.

Note: ***sfree*** = syndrome-free dummy variable, which equals 1 if the 5-year period is syndrome-free, 0 otherwise.
Source: AERC Growth Project.

Note: ***SF8100 =*** SFREE*D8100, where D8100 equals 1 if 1981–2000, 0 otherwise; t statistics are in parentheses.

Table 8

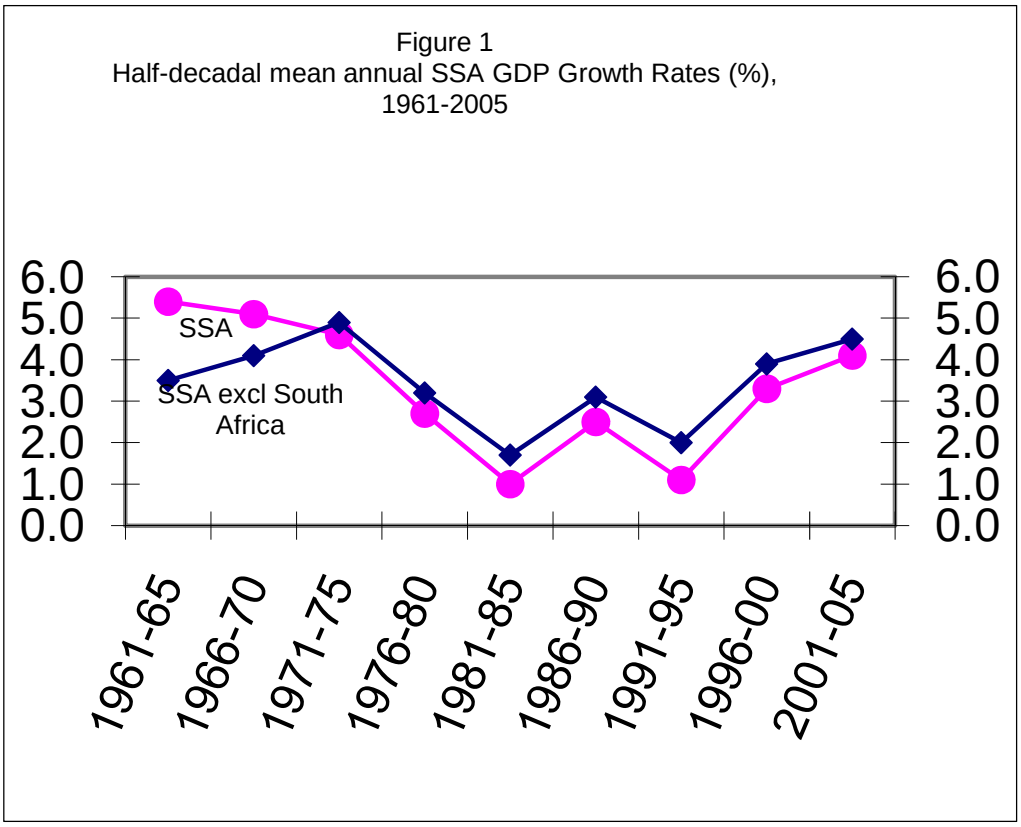
Five-year panel estimation with country and time fixed effects
(sample period = 1981–2000), dependent variable: gdppcga

Regr./Spec.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Investment	0.458[a]	0.459[a]	0.457[a]	0.446[a]	0.448[a]	0.459[a]	0.450[a]	--	0.441[a]
	(5.84)	(5.50)	(5.21)	(5.31)	(5.08)	(5.48)	(5.31)		(4.75)
Labour	0.820[b]	0.659[c]	0.666[c]	0.752[b]	0.613	0.665[c]	0.880[b]	--	0.227
	(2.30)	(1.79)	(1.79)	(2.03)	(1.63)	(1.78)	(2.32)		(0.51)
Totg	0.081[b]	0.092[b]	0.087[b]	0.072[c]	0.083[b]	0.093[b]	0.143	0.104[c]	--
	(2.05)	(2.38)	(2.16)	(1.73)	(2.02)	(2.35)	(1.41)	(1.66)	
totg*sfree	--	--	--	--	--	-0.086	--	--	--
						(-0.06)			
Totg*xconst	--	--	--	--	--	--	-0.023	--	--
							(-0.74)	-	-
Xconst	--	--	0.218	1.948[b]	1.875[b]	--	0.259	--	--
			(0.61)	(2.30)	(2.23)		(0.74)		
$Xconst^2$	--	--	--	-0.263[b]	-0.260[b]	--	--	--	--
				(-2.04)	(-2.04)				
Sfree	--	2.781[a]	2.722[a]	-	2.710[a]	2.770[a]	--	2.997[a]	1.652
		(3.70)	(3.37)		(3.32)	(3.59)	-	(3.19)	(1.43)
Adj. R^2	0.480	0.508	0.495	0.480	0.504	0.504	0.468	0.266	0.213
SEE	3.018	2.935	2.991	3.035	2.963	2.950	3.069	3.614	4.440
# of obs	n=156	n=156	n=150	n=150	n=150	n=156	n=150	n=161	n=172

Note: a significant at 1% level
b significant at 5% level
c significant at 10% level

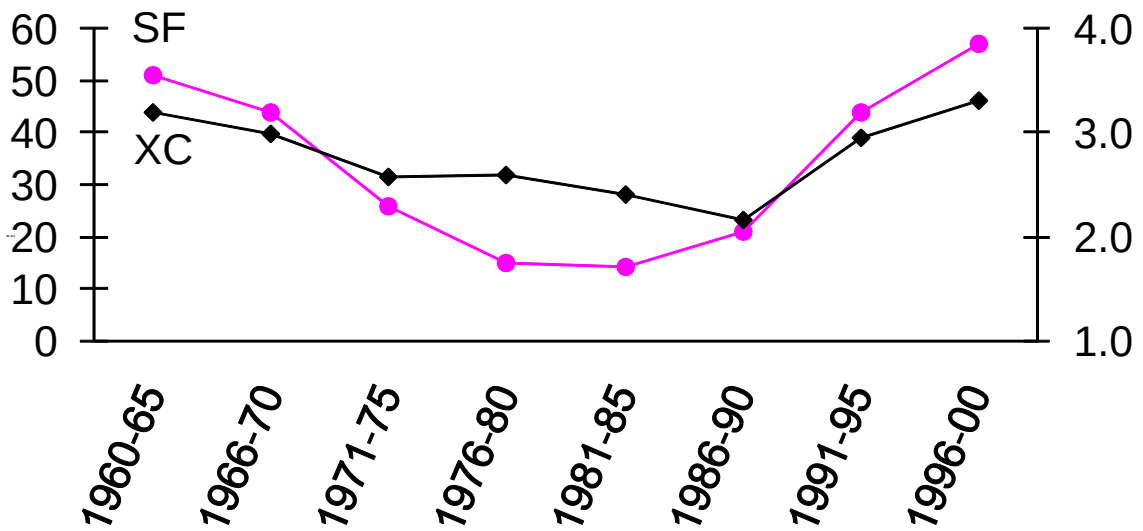
See Table 7; ***Totg*** is net barter TOT annual change (%).

Source: World Bank 2007; t-statistics in parentheses.



Source: see Table 3.

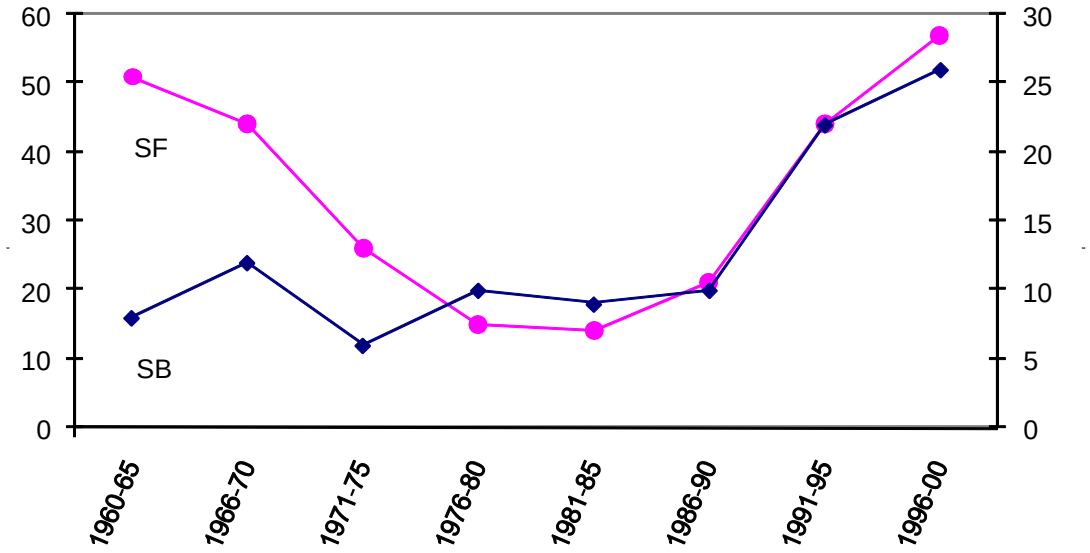
Figure 2
Evolutions of Syndrome-free (SF) and Executive Constraints (XC), 1960-2004



Note: XC = Xconst.

Source: See Tables 6 and 7.

Figure 3
Evolutions of Syndrome-free (SF) and State Breakdown (SB) regimes, 1960-2000 (%)



Source: See Table 6.

Appendix table A: growth accounting decomposition, African economies, 1960–2000

	1960–64	1965–69	1970–74	1975–79	1980–84	1985–89	1990–94	1995–2000	Total
Cameroon									
Growth in real GDP per worker	1.39	-0.49	3.15	6.70	4.63	-2.04	-6.60	1.95	1.10
Contribution of physical capital per worker	-0.19	0.75	1.43	2.25	3.52	1.78	-0.79	-0.79	0.98
Contribution of education per worker	0.12	0.17	0.30	0.35	0.36	0.38	0.28	0.21	0.27
Residual*	1.46	-1.40	1.42	4.11	0.76	-4.20	-6.09	2.54	-0.15
Côte d'Ivoire									
Growth in real GDP per worker	6.99	3.20	3.02	4.56	-6.16	-0.77	-3.75	0.72	0.82
Contribution of physical capital per worker	1.40	1.65	1.52	2.47	0.69	-1.21	-1.88	-0.81	0.43
Contribution of education per worker	0.13	0.13	0.34	0.39	0.42	0.43	0.32	0.29	0.31
Residual*	5.45	1.42	1.17	1.70	-7.27	0.01	-2.20	1.24	0.08
Ethiopia									
Growth in real GDP per worker	2.72	1.68	1.71	-0.20	-0.55	-2.35	-0.14	2.96	0.73
Contribution of physical capital per worker	3.23	2.32	0.88	-0.29	1.42	0.93	0.25	1.13	1.18
Contribution of education per worker	0.05	0.05	0.11	0.13	0.27	0.31	0.28	0.28	0.19
Residual*	-0.55	-0.68	0.73	-0.04	-2.25	-3.58	-0.67	1.55	-0.63
Ghana									
Growth in real GDP per worker	0.62	-0.26	1.54	-3.74	-4.17	1.52	1.05	1.77	-0.18
Contribution of physical capital per worker	1.90	0.65	-0.28	-0.06	-1.19	-1.28	0.05	1.17	0.10
Contribution of education per worker	0.37	1.06	0.43	0.25	0.18	0.15	0.15	0.15	0.34
Residual*	-1.64	-1.97	1.39	-3.92	-3.17	2.65	0.85	0.44	-0.62

Kenya									
Growth in real GDP per worker	0.94	4.14	5.02	1.83	-1.05	2.02	-1.91	-0.94	1.21
Contribution of physical capital per worker	-0.25	0.49	1.72	0.49	-0.52	-0.79	-0.66	-0.28	0.03
Contribution of education per worker	0.26	0.38	0.30	0.69	0.33	0.35	0.36	0.29	0.37
Residual*	0.93	3.26	2.99	0.64	-0.86	2.46	-1.60	-0.96	0.81
Madagascar									
Growth in real GDP per worker	-0.51	1.34	-0.90	-0.84	-3.97	-0.06	-2.56	0.21	-0.89
Contribution of physical capital per worker	-0.20	0.23	0.29	-0.19	-0.28	-0.29	-0.16	-0.57	-0.16
Contribution of education per worker	0.05	0.05	0.19	0.23	0.35	0.38	0.31	0.30	0.24
Residual*	-0.36	1.06	-1.38	-0.87	-4.04	-0.14	-2.71	0.48	-0.97
Malawi									
Growth in real GDP per worker	0.33	5.11	3.59	2.96	-1.65	-0.97	-0.65	3.90	1.67
Contribution of physical capital per worker	4.46	4.45	4.25	2.52	0.07	-0.90	-0.11	-1.29	1.54
Contribution of education per worker	0.06	-0.02	0.24	0.13	0.24	0.18	0.20	0.39	0.19
Residual*	-4.19	0.67	-0.90	0.30	-1.96	-0.25	-0.74	4.80	-0.06
Mali									
Growth in real GDP per worker	1.40	0.67	0.40	5.78	-2.94	-0.77	-0.96	2.74	0.82
Contribution of physical capital per worker	0.71	0.68	0.31	0.26	0.01	0.02	0.27	-0.20	0.24
Contribution of education per worker	0.02	0.05	0.11	0.13	0.09	0.08	0.08	0.10	0.08
Residual*	0.67	-0.05	-0.02	5.39	-3.04	-0.87	-1.31	2.84	0.50
Mauritius									
Growth in real GDP per worker	3.86	-1.88	3.42	4.04	-1.55	4.95	3.37	3.83	2.50
Contribution of physical capital per worker	0.39	-0.40	-0.08	1.02	-0.27	0.63	1.02	0.95	0.42
Contribution of education per worker	0.41	0.53	0.36	0.65	0.41	0.32	0.26	0.24	0.39
Residual*	3.06	-2.01	3.14	2.37	-1.69	4.01	2.09	2.64	1.69

Mozambique									
Growth in real GDP per worker	0.63	4.75	0.49	-6.56	-6.84	4.71	1.05	4.88	0.50
Contribution of physical capital per worker	-0.44	0.19	1.04	-0.88	-0.69	0.05	0.14	1.06	0.10
Contribution of education per worker	0.11	0.09	0.07	0.10	0.20	0.25	0.15	0.12	0.14
Residual*	0.97	4.46	-0.63	-5.78	-6.35	4.41	0.76	3.70	0.26
Nigeria									
Growth in real GDP per worker	1.95	-1.72	8.34	-0.87	-6.93	2.92	0.90	-0.02	0.52
Contribution of physical capital per worker	1.25	1.36	3.18	3.94	0.62	-1.18	0.13	0.41	1.19
Contribution of education per worker	0.10	0.10	0.08	0.07	0.43	0.52	0.53	0.53	0.31
Residual*	0.59	-3.19	5.08	-4.87	-7.98	3.58	0.23	-0.96	-0.98
Rwanda									
Growth in real GDP per worker	-6.76	4.89	-0.43	4.60	0.16	-0.37	-14.03	7.10	-0.26
Contribution of physical capital per worker	-0.08	-0.01	0.83	1.95	2.13	2.04	1.53	-1.50	0.82
Contribution of education per worker	0.10	0.12	0.28	0.25	0.13	0.19	0.23	0.18	0.19
Residual*	-6.79	4.78	-1.54	2.40	-2.10	-2.60	-15.79	8.41	-1.27
Senegal									
Growth in real GDP per worker	-0.24	-2.04	-0.03	0.67	-0.96	0.61	-1.18	2.38	-0.03
Contribution of physical capital per worker	-0.46	-0.79	-0.26	-0.21	-0.25	-0.01	0.06	0.17	-0.20
Contribution of education per worker	0.00	0.04	0.33	0.16	0.14	0.17	0.19	0.20	0.16
Residual*	0.22	-1.29	-0.10	0.73	-0.84	0.44	-1.43	2.00	0.01
Sierra Leone									
Growth in real GDP per worker	2.71	2.75	2.17	0.03	0.49	-0.36	-3.69	-7.37	-0.66
Contribution of physical capital per worker	-0.09	1.02	0.39	-0.18	-0.07	-0.85	-0.33	-1.08	-0.17
Contribution of education per worker	0.09	0.12	0.40	0.28	0.28	0.30	0.24	0.22	0.24
Residual*	2.71	1.60	1.38	-0.07	0.27	0.19	-3.60	-6.51	-0.73

South Africa									
Growth in real GDP per worker	3.46	3.75	3.32	-1.32	0.61	-1.72	-2.15	0.38	0.71
Contribution of physical capital per worker	-0.09	0.84	1.31	1.02	0.61	-0.39	-0.51	-0.14	0.33
Contribution of education per worker	-0.08	0.31	0.12	-0.18	0.58	0.28	0.52	0.43	0.26
Residual*	3.63	2.60	1.89	-2.16	-0.58	-1.61	-2.17	0.09	0.12
Tanzania									
Growth in real GDP per worker	2.20	3.31	2.57	-0.30	-2.16	0.92	-0.59	1.29	0.88
Contribution of physical capital per worker	-0.85	-0.02	0.92	0.66	-0.02	-0.04	0.45	-0.26	0.12
Contribution of education per worker	-0.19	-0.13	-0.08	0.02	0.21	0.16	0.10	0.14	0.04
Residual*	3.25	3.46	1.72	-0.97	-2.34	0.80	-1.14	1.41	0.73
Uganda									
Growth in real GDP per worker	2.18	0.09	-0.58	-5.84	1.16	0.56	2.82	4.22	0.63
Contribution of physical capital per worker	1.10	1.63	1.08	-0.02	0.08	0.09	0.18	1.29	0.68
Contribution of education per worker	0.13	0.21	0.11	0.20	0.16	0.59	0.30	0.21	0.24
Residual*	0.95	-1.75	-1.77	-6.02	0.92	-0.12	2.34	2.71	-0.30
Zambia									
Growth in real GDP per worker	0.96	0.97	1.59	-3.23	-2.07	-0.76	-4.05	-1.09	-1.01
Contribution of physical capital per worker	-0.63	0.75	0.94	-0.61	-1.66	-2.03	-2.02	-1.55	-0.88
Contribution of education per worker	0.26	0.23	0.32	0.55	0.24	0.14	0.59	0.28	0.33
Residual*	1.33	-0.01	0.33	-3.17	-0.65	1.13	-2.63	0.18	-0.46
Zimbabwe									
Growth in real GDP per worker	0.39	2.83	5.98	-4.60	1.56	0.53	0.02	-0.25	0.79
Contribution of physical capital per worker	-1.06	-0.68	0.42	-0.07	-1.08	-0.73	0.78	0.06	-0.27
Contribution of education per worker	0.25	0.23	0.25	0.23	0.56	1.25	0.53	0.31	0.45
Residual*	1.20	3.29	5.31	-4.76	2.07	0.01	-1.29	-0.61	0.61

Source: Ndulu and O'Connell (2003).

Appendix table B.1

Summary statistics (sample period, 1960–2000)

	Average	Std dev.	Min.	Max.
gdppcga	0.771	4.431	-30.453	28.781
investment	10.296	7.361	1.175	48.779
Labour	2.383	1.037	-4.325	9.247
Xconst	2.639	1.775	0	7
Sfree	0.293	0.455	0	1
SF8100	0.128	0.334	0	1

Notes: See Table 7 for definitions of variables and data sources.

Appendix table B.2

Summary statistics (sample period, 1981–2000)

	Average	Std dev.	Min.	Max.
gdppcga	0.174	5.000	-30.453	28.781
investment	9.930	6.455	2.384	46.979
Labour	2.613	0.913	-3.609	7.326
Xconst	2.645	1.750	0	7
Sfree	0.255	0.437	0	1
Totg	0.219	7.012	-17.688	34.617

Notes: See Tables 7 and 8 for definitions of variables and data sources.

Appendix table C.1

Correlogram of variables (sample period, 1960–2000)

	gdppcga	Investment	labour	xconst	sfree	SF8100
gdppcga	1.000					
investment	0.316	1.000				
Labour	0.026	0.019	1.000			
Xconst	0.154	0.093	0.083	1.000		
Sfree	0.259	0.077	0.076	0.263	1.000	
SF8100	0.140	0.048	0.125	0.273	0.726	1.000

Notes: See Table 7 for definitions of variables and data sources.

Appendix table C.2

Correlogram of variables (sample period, 1981–2000)

	gdppcga	investment	labour	xconst	sfree	Totg
gdppcga	1.000					
investment	0.462	1.000				
Labour	0.099	-0.003	1.000			
Xconst	0.198	0.125	0.063	1.000		
Sfree	0.286	0.134	0.079	0.335	1.000	
Totg	0.219	0.124	-0.176	-0.034	-0.091	1.000

Notes: See Tables 7 and 8 for definitions of variables and data sources.