



Why Has Africa Grown Slowly?

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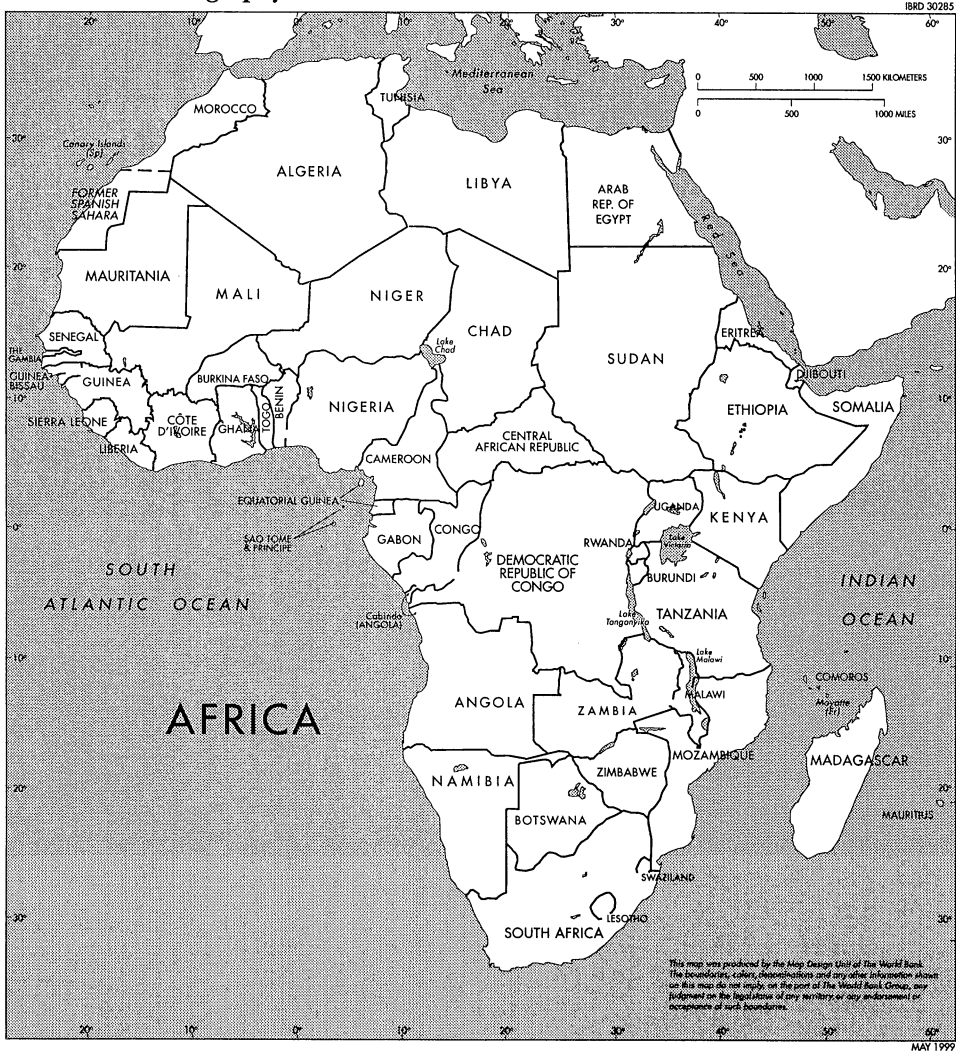
Paul Collier and Jan Willem Gunning

In the 1960s, Africa's future looked bright. On the basis of Maddison's (1995) estimates of per capita GDP for a sample of countries, during the first half of the century Africa had grown considerably more rapidly than Asia; by 1950, the African sample had overtaken the Asian sample. In the 1950s there were uncertainties of political transition, but after 1960 Africa was increasingly free of colonialism, with the potential for governments that would be more responsive to domestic needs. During the period 1960–73, growth in Africa was more rapid than in the first half of the century. Indeed, for this period, African growth and its composition were indistinguishable from the geographically very different circumstances of south Asia (Collins and Bosworth, 1996). Political self-determination in Africa and economic growth seemed to be proceeding hand-in-hand.

However, during the 1970s both political and economic matters in Africa deteriorated. The leadership of many African nations hardened into autocracy and dictatorship. Africa's economies first faltered and then started to decline. While Africa experienced a growth collapse, nations of south Asia modestly improved their economic performance. A good example of this divergence is the comparison of Nigeria and Indonesia. Until around 1970, the economic performance of Nigeria was broadly superior to that of Indonesia, but over the next quarter-century outcomes diverged markedly, despite the common experience for both countries of an oil boom in a predominantly agricultural economy. Since 1980, aggregate per capita GDP in sub-Saharan Africa has declined at almost 1 percent per annum. The decline has been widespread: 32 countries are poorer now than in 1980. Today,

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Figure 1
The Political Geography of Africa



sub-Saharan Africa is the lowest-income region in the world. Figure 1 and Table 1, taken together, offer a snapshot of Africa today. Figure 1 is a map of the continent. Table 1 gives some basic information on population, GDP, standard of living, and growth rates for countries of sub-Saharan Africa. We focus on the sub-Saharan countries, setting aside the north African countries of Algeria, Egypt, Libya, Morocco and Tunisia. This is conventional for the studies of this area, since the north African countries are part of a different regional economy—the Middle East—with its own distinctive set of economic issues. It is clear that Africa has suffered a chronic failure of economic growth. The problem for analysis is to determine its causes.

Table 1
The Economies of Sub-Saharan Africa

Country	Population (Millions) 1997	GDP US\$m at 1990 Prices 1997	GNP per Capita (PPP \$) 1997	GNP Average Annual % Growth per Capita 1965-97	Life Expectancy at Birth (years) 1995	% of Population below \$1 a Day (early 1990s)	Trade as % of GDP (in PPP) 1997
Angola	11.6	9,886	728	...	48	...	77
Benin	5.7	2,540	1,240		48	...	17
Botswana	1.5	4,458	7,440	7.7	66	33	...
Burkina Faso	11.1	3,643	936	0.9	47	...	7
Burundi	6.4	939	661	1.1	51	...	5
Cameroon	13.9	11,254	1,739	1.4	57	...	13
Cape Verde	0.4	393	...	...	66	...	...
Central African Republic	3.4	1,420	1,254	-1.2	50	...	10
Chad	6.7	1,492	978	0.1	49	...	4
Comoros	0.7	251	...	...	57	...	...
Congo	2.7	2,433	1,275	1.7	53	...	80
Congo, Dem. Rep.	48.0	6,094	698	-3.7	...	...	7
Côte d'Ivoire	14.3	13,320	1,676	-0.9	50	18	30
Djibouti	0.4	384	...	...	49	...	...
Equatorial Guinea	0.4	541	...	...	49	...	...
Eritrea	3.4	1,010	990	...	52	...	...
Ethiopia	60.1	11,327	493	-0.5	49	46	7
Gabon	1.1	7,280	6,480	0.4	55	...	58
Gambia	1.0	332	1,372	0.5	46	...	30
Ghana	18.3	7,892	1,492	-0.9	57	...	19
Guinea	7.6	3,699	1,763	...	46	26	14
Guinea Bissau	1.1	306	1,041	0.1	45	88	13
Kenya	28.4	9,879	1,150	1.3	55	50	16
Lesotho	2.1	998	2,422	3.2	62	49	...
Liberia	2.5	...	...	...	57	...	...
Madagascar	15.8	3,187	892	-1.9	58	72	11
Malawi	10.1	2,480	688	0.5	45	...	21
Mali	11.5	3,132	715	0.5	47	...	19
Mauritania	2.4	1,346	1,654	-0.2	53	31	28
Mauritius	1.1	3,755	9,147	3.8	71	...	37
Mozambique	18.3	2,144	541	-0.1	47	...	15
Namibia	1.6	3,141	4,999	0.7	60	...	...
Niger	9.8	2,776	824	-2.5	48	62	9
Nigeria	118.4	34,418	854	0.0	51	31	23
Rwanda	5.9	1,979	643	0.1	47	46	9
Sao Tome & Principe	0.1	56	...	...	...	...	...
Senegal	8.8	6,708	1,670	-0.5	50	54	11
Seychelles	0.1	435	...	...	...	...	...
Sierra Leone	4.4	...	401	-1.4	40	...	24
Somalia	10.4	...	...	...	48	...	...
South Africa	43.3	117,089	7,152	0.1	64	24	23
Sudan	27.9	13,119	...	-0.2	54	...	...
Swaziland	0.9	1,031	...	...	59	...	...
Tanzania	31.5	4,956	608	...	52	11	14
Togo	4.3	1,726	1,408	-0.6	56	...	24
Uganda	20.8	6,822	1,131	...	44	69	6
Zambia	8.5	3,564	900	-2.0	48	85	26
Zimbabwe	11.7	7,904	2,207	0.5	52	41	21

Sources: *African Development Report* (1998); and *World Development Indicators* (1999).

The debate on the causes of slow African growth has offered many different explanations. These can be usefully grouped into a two-by-two matrix, distinguishing on the one hand between policy and exogenous “destiny” and, on the other, between domestic and external factors. Table 2 compares Africa to other developing regions, using this grouping. Until recently it has largely been accepted that the main causes of Africa’s slow growth were external, with the debate focusing upon whether external problems were policy-induced or exogenous. Especially during the 1980s, the World Bank, the International Monetary Fund and bilateral donors came to identify exchange rate and trade policies as the primary causes of slow growth in Africa. Table 2 offers some evidence that official exchange rates in sub-Saharan Africa have been more overvalued relative to (often illegal) market rates than is common for other less developed economies of Asia and Latin America. Tariffs and quantitative trade restrictions have also been higher in Africa than elsewhere. The rival thesis, often favored by African governments, was that the crisis was due to deteriorating and volatile terms of trade, and as Table 2 shows, terms of trade have indeed been more volatile for Africa than for other less developed economies. Jeffrey Sachs and his co-authors have emphasized a further adverse external “destiny” factor: Africa’s population is atypically landlocked. As shown in Table 2, a high proportion of the population is remote from the coast or navigable waters.

Recently, attention has shifted to possible domestic causes of slow growth within African nations, but the debate as to the relative importance of policy-induced and exogenous problems has continued. Sachs and his co-authors have attributed slow growth to “the curse of the tropics.” Africa’s adverse climate causes poor health, and so reduces life expectancy below that in other regions, which puts it at a disadvantage in development. The adverse climate also leads to leached soils and unreliable rainfall, which constrains African agriculture. African nations also appear to have more ethnic diversity than other poor nations of the world, which may make it harder to develop an interconnected economy. In contrast to the domestic destiny argument, Collier and Gunning (1999) have emphasized domestic policy factors such as poor public service delivery. African governments have typically been less democratic and more bureaucratic than their Asian and Latin American counterparts.

Of course, once the conditions for slow growth are established by any combination of these reasons, they can become self-reinforcing in an endogenous process. Weak economic growth helps explain a lower saving rate and a higher proportion of flight capital for Africa compared to the less developed nations of Asia and Africa. Richer countries tend to see their population growth rates drop off, so the poverty of Africa has helped to keep its birth rates high, even as compared to the world’s other less developed economies. Similarly, poverty may have increased the incidence of Africa’s numerous civil wars, as well as being a consequence of them.

In the discussion that follows, we assess the policy/destiny and domestic/external distinctions in various combinations. During the mid-1990s, African per-

Table 2
Africa Compared With Other Developing Regions
(figures are unweighted country averages)

	<i>Sub-Saharan Africa</i>	<i>Other LDCs</i>
Domestic-Destiny		
Life expectancy in 1970 (years)	45.2	57.3
Income in 1960 (1985 \$ PPP-adjusted)	835.5	1855.2
Ethnic Fractionalization	67.6	32.7
Domestic-Policy		
Political Rights, 1973–90	6.0	4.0
Bureaucracy	1.38	1.72
External-Destiny		
Population <100 km from the sea or river (%)	21.0	52.0
Terms of trade volatility	16.4	12.8
External-Policy		
Parallel market exchange rate premium	40.0	26.0
Average tariffs 1996–98 (%)	21.0	13.0
Quantitative Restrictions, 1988–90 (%)	46.0	21.0
Endogenous		
Growth of GDP per capita, 1965–90	0.5	1.7
Investment rate in 1997 (%)	18.0	25.0
Population growth rate, 1980–97 (%)	2.8	1.8
Capital flight/private wealth, 1990 (%)	39.0	14.0

Sources: Life expectancy, World Development Indicators, 1998. Income and growth: Penn World Tables 5.6. The index of ethno-linguistic diversity is on the scale 0–100 with 0 being homogenous (Mauro, 1995). The Gastil index of political rights is on the range 1–7 with 1 being fully democratic. The index of bureaucracy is on the scale 0–6 with high score indicating better quality (Knack and Keefer, 1995). Population living less than 100 km from the sea or a navigable river, from Bloom and Sachs (1999), Table 2, (other LDCs is the weighted average for Asia and Latin America). Terms of trade volatility is the standard deviation of annual log changes 1965–92, (Collins and Bosworth, 1996). Parallel exchange rate premium (%), (Easterly and Levine, 1997). Average tariff: simple average, computed by IMF, we would like to thank Robert Sharer for these numbers. QRs: weighted average incidence of non-tariff measures over product lines; other LDCs is simple average of Latin America and East Asia; from Rodrik (1999, Table 12). Investment rate and population growth rate, World Development Indicators, 1999 Capital flight/private wealth as of 1990 (Collier and Pattillo, 1999).

formance started to improve, with a few countries growing quite rapidly. We conclude by assessing these different explanations as guides to whether this improvement is likely to be transient or persistent.

Four Types of Explanation

Domestic-Destiny

Africa has several geographic and demographic characteristics which may predispose it to slow growth. First, much of the continent is tropical and this may handicap the economy, partly due to diseases such as malaria and partly due to

hostile conditions for livestock and agriculture. Life expectancy has historically been low, with the population in a high-fertility, high infant-mortality equilibrium. With the advent of basic public health measures, population growth became very high. In particular, Africa has not been through the demographic transition whereby fertility rates decline which occurred in Asia and Latin America over the past 40 years. On one estimate, Africa's low life expectancy and high population growth account for almost all of Africa's slow growth (Bloom and Sachs, 1998). The argument is not clear-cut, however. Low life expectancy and high fertility are consequences of low income as well as causes, so the estimates are likely to be biased upwards. The household-level evidence suggests that the effects of poor health on income are small, although these in turn will be biased downwards by the omission of large-scale changes in economic activity which cannot be detected at the household level.

Whether or not Africa's past demographic characteristics have contributed to its slow growth, some African countries seem certain to go through a distinctive and disastrous demographic transition during the next two decades. As a result of AIDS, adult mortality rates will rise dramatically. In Africa, AIDS is a heterosexual disease. During the 1980s in parts of Africa it spread rapidly across the population before the risks became apparent, with up to 20-25 percent of adults now HIV-positive in some countries (World Bank, 1997). This human tragedy will have substantial economic effects during the next decade, especially since infection rates appear to be higher among the more educated, but it does not account for historically slow growth.

A second key characteristic of Africa which may predispose it to slow growth is that soil quality is poor and much of the continent is semi-arid, with rainfall subject to long cycles and unpredictable failure. Soils derive disproportionately from a very old type of rock ("Basement Complex"), which is low in micronutrients and varies considerably between localities. The application of additional macronutrients, which is the fertilizer package associated with the Green Revolution, is generally ineffective with low levels of micronutrients. Africa probably has scope for its own agricultural revolution, but it will depend upon locality-specific packages of micronutrients (Voortman et al., 1999). Since the 1960s, the semi-arid areas of Africa have been in a phase of declining rainfall (Grove, 1991). While there are no estimates of the output consequences of this decline, it may be significant, since agriculture is typically about one-quarter of GDP in this region. Given the lack of irrigation, the unpredictability of rainfall implies high risks in agriculture. With incomplete insurance and a high rate of time preference, households have to use assets for purposes of consumption-smoothing rather than investment. Households can thus become trapped in low-income, high-liquidity equilibria (Dercon, 1997).

A third relevant characteristic of Africa's economies, which can be seen as a result of these semi-arid conditions, is that the continent has very low population density. One by-product is high costs of transport which in turn have added to risk: poor market integration has hampered the use of trade for risk sharing. Another consequence of low population density is that Africa has relatively high natural

resource endowments per capita (Wood and Mayer, 1998). High levels of natural resources can cause several problems. High levels of exported natural resources may lead to an appreciation of the exchange rate, which in turn makes manufacturing less competitive. Yet manufacturing may offer larger growth externalities, such as learning, than natural resource extraction. Natural resources may also increase “loot-seeking” activities. Collier and Hoeffler (1998) find that a dependence on natural resources strongly increases the risk of civil war, which has been a widespread phenomenon in Africa.

A further consequence of low population density is that African countries have much higher ethno-linguistic diversity than other regions; when groups come together less, there is less mingling and merging. Easterly and Levine (1997) find that this high level of diversity is the most important single cause of Africa’s slow growth. There are various interpretations of this result. A common perception is that Africa’s high ethnic diversity accounts for its high incidence of civil war. This turns out to be false: high levels of ethnic and religious diversity actually make societies significantly safer (Collier and Hoeffler, 1999). The effects of ethnic diversity on growth turn out to be contingent upon the political system; diversity has deleterious effects only when it occurs in the context of governments which are undemocratic. Collier (1999) finds that in democratic societies, ethnic diversity has no effect on either growth or the quality of public projects, but that in dictatorships, high levels of diversity reduce growth rates by 3 percentage points and double the rate of project failure relative to homogeneity. Dictatorships tend not to transcend the ethnic group of the dictator, so that the more ethnically fragmented the society, the more narrowly based a dictatorship will be, whereas democratic governments in such societies must be ethnically cross-cutting. In turn, the more narrowly based the government, the greater the payoff to predation relative to the inducement of generalized growth. Africa’s problem was thus not its ethnic diversity but its lack of democracy in the context of diversity.

A fourth characteristic of Africa that may hinder its growth prospects is that because of its colonial heritage, Africa has much smaller countries in terms of population than other regions. Sub-Saharan Africa has a population about half that of India, divided into 48 states. These many states, combined with low levels of income, make Africa’s national economies radically smaller than those of other regions. Very small states might be economically disadvantaged for several reasons. If government has some fixed costs, either in its administrative role or as a provider of services, then it may be hard for a small state to perform at minimum cost. Moreover, the society may forfeit much more extensive scale economies if it combines small scale with isolation. Some domestic markets will be too small even for the minimum efficient scale of production of a single producer; all domestic markets taken alone will be less competitive than in larger economies. Small economies are also perceived by investors as significantly more risky (Collier and Dollar, 1999a). Finally, they may have a slower rate of technological innovation; Kremer (1993) argues the incidence of discoveries may be broadly proportional to the population, so that if discoveries cannot readily spread between societies,

low-population societies will have less innovation. However, in aggregate these effects cannot be large, because growth regressions generally find that state size does not affect a nation's rate of economic growth.

Domestic-Policy

For much of the post-colonial period, most African governments have been undemocratic. The median African government during the 1970s and 1980s was close to autocracy, and far less democratic than the median non-African developing country (as measured by the Gastil scale of political rights shown in Table 2). A typical pattern was that governments were captured by the educated, urban-resident population, with few agricultural or commercial interests. They expanded the public sector while imposing wide-ranging controls on private activity. These choices have been economically costly.

Public employment was expanded, often as an end in itself. For example, in Ghana by the late 1970s the public sector accounted for three-quarters of formal wage employment (Ghana Central Bureau of Statistics, 1988), and even in a more market-oriented economy like Kenya, the figure was 50 percent as of 1990 (Kenya Central Bureau of Statistics, 1996). Indeed, economic decline may have increased pressure for public sector employment. The large number of public sector employees was reconciled with limited tax revenue by reducing wage rates and non-wage expenditures. The ratio of wage to non-wage expenditures in African governments is double that in Asia, and this has lowered the quality of public services; for example, in education, teaching materials are often lacking. The large, ill-paid public sector became the arena in which ethnic groups struggled for resources. For example, in the Ghanaian public sector, the locally dominant ethnic group received a wage premium of 25 percent over other groups after controlling for worker characteristics, and cognitive skills were completely unrewarded (Collier and Garg, 1999). The combination of low wage levels and payment structures, which rewarded social connections rather than skill, made it difficult for managers to motivate staff, and the difficulties of service delivery were compounded by the low ratio of non-wage to wage expenditures.

Since public sector employment was the main priority, managers were not under severe pressure for actual delivery of services from their political masters. Because of the lack of democracy, neither were they accountable to the broader public. As a result, Africa experienced a paradox of poor public services despite relatively high public expenditure (Pradhan, 1996). Poor service delivery handicapped firms through unreliable transport and power, inadequate telecommunications networks, and unreliable courts. For example, manufacturing firms in Zimbabwe need to hold high levels of inventories, despite high interest rates, due to unreliable delivery of inputs tied to poor transportation infrastructure (Fafchamps et al., 1998). A survey of Ugandan firms found that shortage of electricity was identified as the single most important constraint upon firm growth; indeed, the provision of electricity by firms for their own use was almost as large as the public supply of electricity (Reinikka and Svensson, 1998). A study in Nigeria found

that own generators accounted for three-quarters of the capital equipment of small manufacturers (Lee and Anas, 1991). The poor state of African telecommunications was estimated to reduce African growth rates by 1 percentage point, according to Easterly and Levine (1997). (However, since telecommunications was the main infrastructure variable which they could quantify, and since lack of different kinds of infrastructure is probably highly correlated, their estimate is probably a proxy for a wider range of infrastructural deficiencies.) African commercial courts are more corrupt than those in other regions (Widner, 1999). As a result, firms face greater problems of contract enforcement. Some firms can overcome these by relying upon their social networks to screen potential clients, but it is common to restrict business to long-standing clients (Bigsten et al., 1999). Ethnic minorities, such as Asians in East Africa and Lebanese in West Africa, tend to have more specialized social networks and so are better able than African firms to screen new clients (Biggs et al., 1996). The problem of contract enforcement thus makes markets less competitive and reduces the potential gains from trade, while tending to perpetuate the dominant position of minorities in business.

Poor public service delivery also handicapped households through inefficient education, health and extension services. A survey of primary education expenditures in Uganda found that, of the non-wage money released by the Ministry of Finance, on average, less than 30 percent actually reached the schools (Ablo and Reinikka, 1998). The expansion of the public sector has reduced private initiative. Since major areas of economic activity were reserved for the public sector—often including transport, marketing and banking—and African elites looked to the public sector rather than the private sector for advancement, Africa was slow to develop indigenous entrepreneurs.

African governments built various economic control regimes. A few nations, such as Ethiopia, Angola and Tanzania, had wide-ranging price controls under which private agents had an incentive to reduce production—at least officially marketed production. These governments often attempted to counterbalance these incentives with coercive production targets, but the net effect was usually dramatic declines in economic activity. More commonly, firms were subject to considerable regulation. For example, for many years manufacturing firms wishing to set up in Kenya had to acquire letters of no objection from existing producers, which resulted in a predictably low level of competition. In Uganda, when the government removed the requirement that coffee could only be transported by rail, the market for road haulage expanded sufficiently to induce new entry, which in turn broke an existing cartel, nearly halving haulage rates. Similarly, in Tanzania during the long period when agricultural marketing was heavily regulated, marketing margins for grain were double what they were both before regulation and after deregulation (Bevan et al., 1993). In this period, food prices became much more volatile: between 1964 and 1980 the coefficient of variation (that is, the ratio of the standard deviation to the mean) of maize prices at regional centers doubled, falling again sharply when markets were liberalized.

Government interventions undermined the functioning of product markets in many countries. Private trading, which was often associated with ethnic minorities

such as the Indians in East Africa and the Lebanese in West Africa, was sometimes banned. A particularly damaging intervention, practiced even in relatively market-friendly economies such as Kenya, was to ban private inter-district trade in food. Where government marketing monopolies were focused on ensuring the food supply to urban areas, this provision discouraged farmers from specializing in non-food export crops, since they could not rely on being able to buy food locally.

Since the political base of governments was urban, agriculture was heavily taxed and the public agronomic research needed to promote an African green revolution, based on locally-specific packages of micronutrients, was neglected. The main source of agricultural growth has been the gradual adoption of cash crops by smallholders, a process slowed down by government pricing policies (Bevan et al., 1993). While governments favored manufacturing, the basis for industrial growth in this area was also undermined, since trade and exchange rate policies induced industrial firms to produce under uncompetitive conditions and only for small and captive domestic markets.

The same urban bias initially led governments to favor the urban wage labor force. In the immediate post-colonial period, minimum wages rose and unions acquired influence, so that wages increased substantially. However, post-independence inflation has usually eroded minimum wages, so that in most of Africa, wage rigidities in the labor market are not currently a significant impediment to the growth process. The exceptions are South Africa, where the labor market may just be going through such a real wage adjustment now, and the low inflation environments of Ethiopia and the countries in the "franc zone," the 13 former colonies of France in west and central Africa which had currencies pegged to the French franc. While high wage levels are not normally a hindrance to African economies, the job matching process appears to be inefficient, so that job mobility offers unusually high returns (Mengistae, 1998). This is an instance of the high costs of market information; for example, newspapers are expensive and have low circulation.

Financial markets were heavily regulated, with bank lending directed to the government, public enterprises or "strategic" sectors, very limited financial intermediation and virtually no competition between financial institutions. A common proxy for the extent of financial intermediation, known as "financial depth," is the broad money supply, M2, relative to GDP. But although Africa has even less financial depth than other developing areas, currently available evidence suggests that this may have had only a modest impact on its growth. For example, Easterly and Levine (1997) estimate that lack of financial depth reduced the annual growth rate by only 0.3 percentage points. Similarly, microeconomic survey evidence on manufacturing firms indicates that the lack of external finance is not currently the binding constraint on industrial investment (Bigsten et al., 1999).

External-Destiny

Africa is better located than Asia for most developed economy markets. However, most Africans live much further from the coast or navigable rivers than in

other regions and so face intrinsically higher transport costs for exports (as shown in Table 2). Further, much of the population lives in countries which are landlocked, so that problems of distance are compounded by political barriers. Even a relatively open border like the one between Canada and the United States appears to be a substantial impediment to trade, in the sense that trade across Canadian provinces or across U.S. states is far greater than trade of equal distance between Canada and the United States (McCallum, 1995). Landlocked countries face national borders on all sides, which may constitute an irreducible barrier to trade even if they have good relations with their neighbors. Typically, growth regressions find that being landlocked reduces a nation's annual growth rate by around half of 1 percent.

A further aspect of external destiny is that Africa's exports are concentrated in a narrow range of commodities, with volatile prices that have declined since the 1960s. The deterioration in the terms of trade for such commodities has undoubtedly contributed to Africa's growth slowdown. However, there is controversy over whether its atypical exposure to terms of trade volatility has been damaging. Deaton and Miller (1996) find little evidence of detrimental effects in the short run. However, case study evidence suggests that shocks have often had longer-run deleterious effects. Investment has been concentrated into short periods, during which construction booms have raised the unit cost of capital, and government budgets have been destabilized, with spending rising during booms but being difficult to reduce subsequently (Schuknecht, 1999; Collier and Gunning, 1999b).

Africa has attracted much more aid per capita than other regions. Donor allocation rules have typically favored countries which have small populations and low incomes, and were recent colonies—and African countries met all three criteria. There has been a long debate as to whether aid has been detrimental or beneficial for the growth process (for recent overviews, see Gwin and Nelson, 1997; World Bank, 1998). Early critics claimed that aid reduced the incentive for good governance (for example, Bauer, 1982). Since the 1980s, the World Bank and the International Monetary Fund have attempted to make policy improvement a condition for the receipt of aid. Econometric work does not find that aid has had a significant effect on policy: to the extent that aid encourages or discourages policy changes, the two effects apparently offset each other. However, the effect of aid on growth has been shown to be policy-dependent. Where policies are good, aid substantially raises growth rates, where they are poor, diminishing returns rapidly set in so that aid cannot significantly contribute to growth. This result holds whether the measure of policy is objective indicators of the fiscal and exchange rate stance (Burnside and Dollar, 1997), or subjective but standardized ratings of a broader range of policies done by the World Bank (Collier and Dollar, 1999). Until recently, many African policy environments were not good enough for aid to raise growth substantially. Hence, the evidence does not support Bauer's (1982) claim that Africa's large aid receipts were a cause of its slow growth, but does suggest that Africa largely missed the opportunity for enhanced growth which aid provided.

Excluding South Africa and the oil exporters (whose terms of trade have

improved), the net aid inflows since 1970 have been around 50 percent greater than the income losses from terms of trade deterioration. The combination was thus somewhat analogous to an increase in export taxation: the terms of trade losses taking money from exporters, while the aid provided money to governments.

External-Policy

In recent decades, African governments adopted exchange rate and trade policies which were atypically anti-export and accumulated large foreign debts. On a range of indicators, Africa has had much higher trade barriers and more misaligned exchange rates than other regions (Dollar, 1992; Sachs and Warner, 1997). Exchange rates were commonly highly overvalued, reflecting the interest of the political elite in cheap imports. Tariffs and export taxes were higher in Africa than in other regions of the world, partly because of the lack of other sources of tax revenue to finance the expansion of the public sector. Exports were sharply reduced as a result of export crop taxation. For example, Dercon (1993) shows that Tanzanian cotton exports would have been 50 percent higher in the absence of taxation. Quantitative restrictions on imports were also used much more extensively, despite yielding no revenue. They often arose because of the difficulties of fine-tuning import demand in a situation where government was attempting to keep exchange rates fixed with few reserves. They probably persisted because they generated large opportunities for corruption, since someone could often be bribed to circumvent the quantitative limits.

The international growth literature has reached a consensus that exchange rate overvaluation and tight trade restrictions are damaging, but controversy continues over the effects of more moderate trade restrictions (Rodrik, 1999). However, there are reasons why Africa's poor export performance may have been particularly damaging. Since 1980, African export revenue per capita has sharply declined, which in turn has induced severe import compression of both capital goods and intermediate inputs. Moreover, because African economies are so much smaller than other economies, external barriers of a given height have been significantly more damaging (Collier and Gunning, 1999).

By the 1990s, several African economies had accumulated unsustainable international debts, largely from public agencies. Clearly, this is one way in which poor decisions of the past become embedded in the present. There is a good theoretical argument that high indebtedness discourages private investment due to the fear of the future tax liability. There is some supporting evidence for this claim, although since poor policies lower GDP, using high debt/GDP as an explanatory variable may simply be a proxy for poor policies more broadly (Elbadawi et al., 1997).

Policy or Destiny?

The dichotomy between policy and destiny is of course an oversimplification: some apparently exogenous features of Africa have often been induced by policy, and conversely, African policies may reflect exogenous factors.

Consider, first, some of the “exogenous” factors that we have discussed under destiny. For example, the claim by Sachs and Warner (1997) that geography and demography almost fully account for Africa’s slow growth rests largely upon the lack of a demographic transition to lower fertility rates in Africa, as has happened in most of Latin America and Asia. However, it is more plausible to regard these continuing high fertility rates as a consequence of slow growth than a cause. The lack of employment opportunities for young women has prevented the opportunity cost of children from rising, and the low returns to education in an environment where many of the “good” jobs are allocated by political criteria have reduced the incentive for parents to educate their children.

Similarly, the argument that the concentration of Africa’s population in the interior is an external force holding down growth can also be seen as an endogenous outcome; specifically, the population has remained in the interior because of the failure of Africa’s coastal cities to grow. In turn, this is partly because the failure to industrialize has slowed urbanization, and partly because policy has often been biased against coastal cities; for example, in both Nigeria and Tanzania the capital was relocated from the coast to the interior. Where policy was less biased, as in the Côte d’Ivoire during the 1970s, the coastal population grew so rapidly that it supported massive emigration from the landlocked economy of Burkina Faso: at its peak, around 40 percent of the Ivorien population were immigrants.

Further, being landlocked need not be an economic disadvantage. Developed landlocked economies, such as Switzerland, have atypically low international transport costs because they have oriented their trade towards their neighbors. By contrast, Africa’s landlocked economies trade with Europe, so that neighboring countries are an obstacle rather than a market. These patterns of trade are partly a legacy of the colonial economy, but they also reflect the high trade barriers within Africa erected by post-independence governments, and the slow rate of growth. Ultimately, landlocked economies were faced with neighboring markets that were both inaccessible and unattractive, which did not make it desirable to reorient the economy to trade with them. Finally, Africa’s continued export concentration in a narrow range of primary commodities, which we discussed earlier as reflecting the destiny of resource endowments, probably also reflects a number of public policy decisions. Other export activities have been handicapped either directly through overvalued exchange rates, or indirectly, through high transactions costs. Poor policy has given Africa a comparative disadvantage in “transaction-intensive” activities such as manufacturing.

Now consider the reverse situation; that is, how some of the dysfunctional policies that we have discussed can also be considered the outcome of exogenous forces. The anti-export policies which we argue hindered growth can be viewed as a consequence of the fact that most of the population lives far from the coast (Gallup and Sachs, 1999). In such societies, it might be argued that the elasticity of growth with respect to openness is lower and so the incentive for openness is reduced. However, at present Africa offers little evidence for this hypothesis. According to the World Bank’s standardized ratings of policy (currently confiden-

tial), all five of the worst-rated countries on the continent are coastal whereas many of the best-rated countries are landlocked. As another example, it is possible that restrictive import policies are adopted, at least initially, in response to trade shocks like those created by an external dependence on commodity exports (Collier and Gunning, 1999b). The prevalence of natural resources may bring forth a variety of other policy errors, as well. For example, it may worsen policy by turning politics into a contest for rents or, through crowding out manufactured exports, prevent the emergence of potentially the most potent lobby for openness.

Along with being endogenous to fixed effects like geography, policies are also affected by experience. Societies which have experienced high levels of economic risk may place a higher priority on income-sharing arrangements such as expanded opportunities of public employment, rather than focusing on income generation. Societies also learn from past failure. The African nations which have recently implemented the strongest economic reforms, such as Ghana and Uganda, tended to be those which had earlier experienced the worst economic crises. However, African countries facing the challenge of reversing economic failure have lacked significant role models within the continent. In east Asia, Hong Kong, Singapore, Taiwan and Korea provided early role models, as did Chile since the late 1970s in Latin America. Within-continent models may be important because the information is both closer to hand and more evidently pertinent. Once Africa develops examples of success, the scope for societal learning across the continent will make it unlikely that Africa is “destined” to poor policies by its geography: although its geographic characteristics may have given it some weak tendencies towards poor policies in the initial post-independence period.

Sorting out the policy effects from the destiny effects is a difficult econometric problem. In the ordinary least squares regressions common in the analysis of African growth, the dependent variable is typically the average growth rate over a long period, and a variety of policy and destiny variables enter as the explanatory variables. Depending upon the specification, either policy or destiny can appear important.

An alternative approach is to consider the extent to which African slow growth has been persistent, to take advantage of the insight that policies have varied, whereas destiny-like geographic disadvantages remain constant over time. Along these lines, Diamond (1998) provides a convincing explanation from a historical perspective of why geographic reasons, such as the north-south axis of the continent, caused African agriculture to develop only slowly prior to European colonization, due to a combination of technological isolation and small scale. However, since colonization gradually relaxed some of these constraints (while introducing others), pre-20th century experience is of limited pertinence for explaining patterns of growth in the last few decades.

More recent experience tends to argue that destiny plays less of a role than policy. After all, the economies of Africa did grow relatively quickly through the first half of the 20th century, and up until the early 1970s, which tends to argue that they were not obviously destined for lower growth. The arrival of slow economic growth

in the 1970s coincides with a phase in which African economic policy became both statist and biased against exports. Moreover, the main exception to African economic collapse, Botswana, experienced the most rapid growth in the world despite the seeming exogenous disadvantages of being landlocked and having very low population density.

The most sophisticated econometric test of whether something about Africa seems intrinsically connected to slow growth is the study by Hoeffler (1999). She searches for a continental fixed effect using panel regressions of five-year periods over 1965–90. She first estimates a simple growth model in which the explanatory variables are initial income, investment, population growth, and schooling. She then uses the coefficients on these variables to compute the residuals, and regresses the residuals on regional dummies. The Africa dummy is small and insignificant, that is, there is no continental fixed effect to explain. However, she does find that both being landlocked and being tropical significantly reduce growth, and these are indeed locational characteristics of much of Africa. Between them they would reduce the African growth rate by around 0.4 percentage points relative to that of other developing regions.

Whereas in the distant past the economies of Africa may well have been intrinsically disadvantaged by factors like less easy access to water transportation or the geography of the continent, the thesis that this has persisted into recent decades is less plausible. Remember that by 1950 Africa had a higher per capita income than south Asia and its subsequent performance was indistinguishable from that region until the mid-1970s. Coastal Africa is not intrinsically markedly worse-endowed in any geographical sense than much of coastal Asia or Brazil, although its soil types pose distinct challenges for agronomic research.

By contrast, it is easy to point to policies which until very recently have been dysfunctional. Even as of 1998, Africa had the worst policy environment in the world according to the World Bank ratings. Microeconomic evidence shows how these policies damaged the growth of firms. Poor infrastructure, poor contract enforcement and volatile policies all make the supply of inputs unreliable. Firms have responded to this risky environment partly by reducing risks: they hold large inventories, invest in electricity generators, and restrict their business relations to known enterprises. They have also responded by reducing investment. A striking implication is the conjunction of a high marginal return on capital and a very low rate of investment, even for firms that are not liquidity constrained. In Africa, the elasticity of investment with respect to profits may be as low as 0.07 (Bigsten et al., 1999). Some of the effects of poor policy are highly persistent. Most notably, the colonial governments of Africa provided little education, especially at the secondary level. Although independent governments rapidly changed these priorities, for the past 30 years Africa has had a markedly lower stock of human capital than other continents. The rapid growth in education has, however, gradually narrowed the gap with other regions.

Even if one disagrees with this view that policy is more important in explaining Africa's slow rate of growth and finds the "destiny" explanations more persuasive,

this by no means condemns Africa to growing more slowly than other regions. Some of the economic disadvantages of being tropical may be overcome, for example, by the discovery of vaccines or new strains of crops. Moreover, Africa has two potential growth advantages over other regions which should offset against any locational disadvantage. It has lower per capita income and so could benefit from a convergence effect with richer countries, and it has higher aid inflows and so could benefit from aid-induced growth. If public policies were as good as in other regions, aid and convergence should enable even those countries which are landlocked and tropical to grow more rapidly than other developing regions for several decades. Although the growth regressions would imply that in the long term such countries would converge on a lower steady-state income than more favorably located countries, even this is doubtful. If the coastal African nations grew, then being landlocked would cease to be disadvantageous, since the gains from trading with close neighbors would expand.

Domestic or External?

Until recently, there was broad agreement that Africa's problems were predominantly associated with its external relations, although some analysts emphasized the policy-induced lack of openness and markets, while others attributed poor performance to over-dependence on a few commodities, the prices of which were declining and volatile. In our view, the argument that Africa's poor performance originates in its overdependence on commodities has looked weaker in recent years: Africa has lost global market share in its major exports, often spectacularly. The focus of the discussion has consequently shifted to underlying reasons for poor domestic performance, and in turn to domestic factors. The domestic factors, as we have argued, can be divided into those that smack of destiny, like the fact that much of Africa has a tropical climate, and those that are related to policy. Indeed, we believe that domestic policies largely unrelated to trade may now be the main obstacles to growth in much of Africa.

To illustrate our argument, we focus on Africa's failure to industrialize. It might appear that Africa is intrinsically uncompetitive in manufactures because of its high natural resource endowments give it a comparative advantage in that area (Wood and Mayer, 1998). But while Africa may have a comparative advantage in natural resources in the long run, at present African wages are often so low that were African manufacturing to have similar levels of productivity to other regions, it would be competitive. Hence, it is low productivity which needs to be explained.

African manufacturing has been in a low-productivity trap. Because African firms are oriented to small domestic markets, they are not able to exploit economies of scale, nor are they exposed to significant competition, and their technology gap with the rest of the world is unusually wide—yielding large opportunities for learning. This suggests that African manufacturing might have atypically large potential to raise productivity through exporting. However, most African firms fail

to step onto this productivity escalator. This is because they face high costs for other reasons. As discussed already, transactions costs are unusually high. With transport unreliable, firms typically need to carry very large stocks of inputs to maintain continuity of production, despite higher interest rates than elsewhere. Telecommunications are much worse than other regions. Malfunctioning of the courts makes contract enforcement unreliable, so that firms are reluctant to enter into deals with new partners, in turn making markets less competitive.

These high transactions costs have a relatively large impact on manufacturing. Compared with natural resource extraction, manufacturing tends to have a high share of intermediate inputs and a low share of value-added to final price. Consequently, transactions costs tend to be much larger relative to value-added. Africa's intrinsic comparative advantage in natural resource exports may thus have been reinforced by public policies which have made manufacturing uncompetitive relative to resource extraction. African policies may have given the region a comparative disadvantage in transactions-intensive activities.

Conclusion: Will Africa Grow?

During the mid-1990s, average African growth accelerated and performance became more dispersed. A few countries such as Uganda, Côte d'Ivoire, Ethiopia and Mozambique started to grow very fast, whereas others such as the Democratic Republic of the Congo and Sierra Leone descended into social disorder. "Africa" became less meaningful as a category. Both the improvement in the average performance and the greater dispersion among countries were consistent with what had happened to policy. During the 1990s many of the most egregious exchange rate, fiscal and trade policies were improved. By 1998, although Africa still ranked as the region with the worst policies on the World Bank ratings, it was also the region with by far the greatest policy dispersion.

However, the faster growth coincided not only with better policies but with improvements in the terms of trade. Further, investment in Africa as a share of GDP is currently only 18 percent. This is much lower than other regions: for example, 23 percent in South Asia and 29 percent on average in lower middle-income countries. Even these figures may understate Africa's true investment shortfall. Capital goods are more expensive in Africa than the international average, so that once the investment share is recalculated at international relative prices it approximately halves. Although it is not possible to disaggregate investment into its public and private components with complete accuracy, estimates suggest that the shortfall in African investment is due to low private investment. Thus, growth may be unsustainable unless there is a substantial increase in private investment.

On an optimistic interpretation of the evidence, Africa's slow growth from the early 1970s into the 1990s has been due to policies which reduced its openness to foreign trade. Since these policies have largely been reversed during the last decade, if this is correct then Africa should be well-placed for continued growth.

The pessimistic interpretation is that Africa's problems are intrinsic, often rooted in geography. This view implies that economic progress in Africa will be dependent upon international efforts to make its environment more favorable, such as research to eradicate tropical diseases, and finance to create transport arteries from the coast to the interior. The thesis that Africa's economic problems are caused by ethno-linguistic fractionalization has similarly intractable implications.

Our own interpretation lies between these extremes. We suggest that while the binding constraint upon Africa's growth may have been externally-oriented policies in the past, those policies have now been softened. Today, the chief problem is those policies which are ostensibly domestically-oriented, notably poor delivery of public services. These problems are much more difficult to correct than exchange rate and trade policies, and so the policy reform effort needs to be intensified. However, even widespread policy reforms in this area might not be sufficient to induce a recovery in private investment, since recent economic reforms are never fully credible. Investment rating services list Africa as the riskiest region in the world. Indeed, there is some evidence that Africa suffers from being perceived by investors as a "bad neighborhood." Analysis of the global risk ratings shows that while they are largely explicable in terms of economic fundamentals, Africa as a whole is rated as significantly more risky than is warranted by these fundamentals (Haque et al., 1999). Similarly, private investment appears to be significantly lower in Africa than is explicable in terms of economic fundamentals (Jaspersen et al., 1999). "Africa" thus seems to be treated as a meaningful category by investors.

The perception of high risk for investing in Africa may partly be corrected by the passage of time, but reforming African governments can also take certain steps to commit themselves to defend economic reforms. Internationally, governments may increasingly make use of rules within the World Trade Organization, and shift their economic relations with the European Union from unreciprocated trade preferences to a wider range of reciprocated commitments. Domestically, there is a trend to freedom of the press, and the creation of independent centers of authority in central banks and revenue authorities, all of which should generally help to reinforce a climate of openness and democracy, which is likely to be supportive of economic reform.

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References

- Ablo, Emanuel and Ritva Reinikka.** 1998. "Do Budgets Really Matter? Evidence from Public Spending on Education and Health in Uganda." Policy Research Working Paper No. 1926, World Bank.
- African Development Bank.** 1998. *African Development Report*. Oxford: Oxford University Press.
- Bates, Robert, H.** 1983. *Essays in the Political Economy of Rural Africa*. Cambridge: Cambridge University Press.
- Bauer, Peter, T.** 1982. "The Effects of Aid." *Encounter*. November.
- Bevan, David, L., Paul Collier and Jan Willem Gunning.** 1993. *Agriculture and the policy environment: Tanzania and Kenya*. Paris: OECD.
- Biggs, T., M. Raturi and P. Srivastava.** 1996. "Enforcement of Contracts in an African Credit Market: Working Capital Financing in Kenyan Manufacturing." RPED Discussion Paper, Africa Region, World Bank.
- Bigsten, Arne, P. Collier, S. Dercon, B. Gauthier, J.W. Gunning, A. Isaksson, A. Oduro, R. Oostendorp, C. Pattillo, M. Soderbom, M. Sylvain, F. Teal and A. Zeufack.** 1999, forthcoming. "Investment by Manufacturing Firms in Africa: a Four-Country Panel Data Analysis." *Oxford Bulletin of Economics and Statistics*.
- Bloom, John and Jeffrey Sachs.** 1998. "Geography, Demography and Economic Growth in Africa." *Brookings Papers in Economic Activity*. 2, 207-95.
- Burnside Craig and David Dollar.** 1997. "Aid, Policies and Growth." Policy Research Working Paper No. 1777, World Bank.
- Collier, Paul.** 1999. "The Political Economy of Ethnicity," in *Proceedings of the Annual Bank Conference on Development Economics*. Pleskovic, Boris and Joseph E. Stiglitz, eds. World Bank, Washington, D.C.
- Collier, Paul and David Dollar.** 1999. "Aid Allocation and Poverty Reduction." Policy Research Working Paper 2041, World Bank, Washington DC.
- Collier, Paul and David Dollar.** 1999a. "Aid, Risk and the Special Concerns of Small States." Mimeo, Policy Research Department, World Bank, Washington DC.
- Collier, Paul and Ashish Garg.** 1999, forthcoming. "On Kin Groups and Wages in the Ghanaian Labour Market." *Oxford Bulletin of Economics and Statistics*, 61:2, pp. 131-51.
- Collier, P. and J.W. Gunning.** 1999. "Explaining African Economic Performance." *Journal of Economic Literature*. March, 37:1, 64-111.
- Collier, P. and J.W. Gunning.** 1999a, forthcoming. "The IMF's Role in Structural Adjustment." *Economic Journal*. World Bank, Washington, DC.
- Collier, P. and J.W. Gunning with associates.** 1999b. *Trade Shocks in Developing Countries: Theory and Evidence*. Oxford: Oxford University Press (Clarendon).
- Collier, Paul and Anke Hoeffler.** 1998. "On the Economic Causes of Civil War." *Oxford Economic Papers*. 50, pp. 563-73.
- Collier, Paul and Anke Hoeffler.** 1999. "Loot-Seeking and Justice-Seeking in Civil War." Mimeo, Development Research Department, World Bank, Washington DC.
- Collier, Paul and Catherine Pattillo, eds.** 1999. *Investment and Risk in Africa*. Macmillan: London.
- Collins, S. and B.P. Bosworth.** 1996. "Economic Growth in East Asia: Accumulation versus Assimilation." *Brookings Papers in Economic Activity*, 2, pp.135-203.
- Deaton, A. and R. Miller.** 1996. "International Commodity Prices, Macroeconomic Performance and Politics in Sub-Saharan Africa." *Journal of African Economies*. 5 (Supp.), pp. 99-191.
- Dercon, Stefan.** 1997. "Wealth, Risk and Activity Choice: Cattle in Western Tanzania." *Journal of Development Economics*. 55:1, pp. 1-42.
- Dercon, Stefan.** 1993. "Peasant supply response and macroeconomic policies: cotton in Tanzania." *Journal of African Economies*. 2, pp. 157-94.
- Diamond, Jared.** 1998. *Guns, Germs, and Steel: The Fates of Human Societies*. New York: W.W. Norton & Co.
- Dollar, David.** 1992. "Outward-Oriented Developing Economies Really do Grow More Rapidly: Evidence from 95 LDCs 1976-85." *Economic Development and Cultural Change*. 40, pp. 523-44.
- Easterly, William and Ross Levine.** 1997. "Africa's Growth Tragedy: Policies and Ethnic Divisions." *Quarterly Journal of Economics*. CXII, pp. 1203-1250.
- Elbadawi, Ibrahim A., Benno J. Ndulu, and Njuguna Ndung'u.** 1997. "Debt Overhang and Economic Growth in Sub-Saharan Africa," in *External Finance for Low-Income Countries*. Iqbal, Zubair and Ravi Kanbur, eds. IMF Institute, Washington, DC.
- Fafchamps, Marcel, Jan Willem Gunning and Remco Oostendorp.** 1998. "Inventories, Liquidity and Contractual Risk in African Manufactur-

ing." Department of Economics, Stanford University, mimeo.

Gallup, John L. and Jeffrey D. Sachs. 1999. "Geography and Economic Growth," in *Proceedings of the Annual World Bank Conference on Development Economics*. Pleskovic, Boris and Joseph E. Stiglitz, eds. World Bank, Washington, DC.

Ghana Central Bureau of Statistics. 1988. *Quarterly Digest of Statistics*. Accra.

Grove, A.T. 1991. "The African Environment," in *Africa 30 Years On*. Rimmer, Douglas, ed. London: James Currey.

Gwin, Catherine and Joan Nelson. 1997. *Perspectives on Aid and Development*. Johns Hopkins for Overseas Development Council, Washington DC.

Haque, Nadeem U., Nelson Mark and Donald J. Mathieson. 1999. "Risk in Africa: its Causes and its Effects on Investment," in *Investment and Risk in Africa*. Collier, Paul and Catherine Pattillo, eds. London: Macmillan.

Hoeffler, Anke A. 1999. "Econometric Studies of Growth, Convergence and Conflicts." D. Phil. Thesis, Oxford University.

Jaspersen, Frederick, Anthony H. Aylward and A. David Cox. 1999. "Risk and Private Investment: Africa Compared with Other Developing Areas," in *Investment and Risk in Africa*. Collier, Paul and Catherine Pattillo, eds. London: Macmillan.

Stephen Knack and Philip Keefer. 1995. Institutions and Economic Performance: Cross-Country Tests Using Alternative Institutional Measures." *Economics and Politics*. 7:3, pp. 207-28.

Kenya Central Bureau of Statistics. 1996. *Statistical Abstract*. Nairobi.

Kremer, Michael. 1993. "Population Growth and Technological Change: One Million B.C. to 1990." *Quarterly Journal of Economics*. 108:3, pp. 681-716.

Lee, K.S. and A. Anas. 1991. "Manufacturers' Responses to Infrastructure Deficiencies in Nigeria: Private Alternatives and Policy Options," in *Economic Reform in Africa*. Chibber, A. and S. Fischer, eds. World Bank, Washington DC.

Maddison, Angus. 1995. *Monitoring the World Economy*. Paris: OECD.

Mauro, P. 1995. "Corruption and Growth." *Quarterly Journal of Economics*. 110, pp. 681-712.

McCallum, J. 1995. "National Borders Matter: Canada-U.S. Regional Trade Patterns." *American Economic Review*. 85, pp. 615-23.

Mengistae, Taye. 1998. "Ethiopia's Urban Economy: Empirical Essays on Enterprise Development and the Labour Market." D.Phil. Thesis, University of Oxford.

Pradhan, Sanjay. 1996. "Evaluating Public Spending." World Bank Discussion Paper 323, Washington DC.

Reinikka, Ritva and Jakob Svensson. 1998. "Investment Response to Structural Reforms and Remaining Constraints: Firm Survey Evidence from Uganda." Mimeo, Africa Region, World Bank.

Rodrik, Dani. 1999. *Making Openness Work: The New Global Economy and the Developing Countries*. Overseas Development Council, Washington DC.

Sachs, J.D. and Mark Warner. 1997. "Sources of Slow Growth in African Economies." *Journal of African Economies*. 6, pp. 335-76.

Schuknecht, Ludger. 1999. "Tying Governments' Hands in Commodity Taxation." *Journal of African Economies*. 8:2, 152-81.

Voortman, R.L., B.G.J.S. Sonneveld and M.A. Keyzer. 1999. "African Land Ecology: Opportunities and Constraints for Agricultural Development." Mimeo, Centre for World Food Studies, Free University, Amsterdam.

Widner, Jennifer, A. 1999. "The Courts as Restraints," in *Investment and Risk in Africa*. Collier, Paul and Catherine Pattillo, eds. London: Macmillan.

Wood, Adrian and J. Mayer. 1998. "Africa's Export Structure in Comparative Perspective," forthcoming in the UNCTAD series *Economic Development and Regional Dynamics in Africa: Lessons from the East Asian Experience*.

World Bank. 1997. *Confronting Aids*, Policy Research Report. Oxford University Press.

World Bank. 1998. *Assessing Aid: What Works, What Doesn't, and Why*, Policy Research Report. Oxford University Press.

World Bank. 1999. *World Development Indicators*. Development Data Center, Washington, D.C.