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Explaining African Economic Performance

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Abstract: Africa has had slow growth and a massive exodus of capital. In many respects it has been the most capital-hostile region. We review and interpret the aggregate-level and microeconomic literatures to identify the key explanations for this performance. There is a reasonable correspondence of the two sets of evidence, pointing to four factors as being important. These are a lack of openness to international trade; a high-risk environment; a low level of social capital; and poor infrastructure. These problems are to a substantial extent attributable to government behaviour and the paper includes a review of the political economy literature which addresses that behaviour.

1. Introduction

African economic performance has been markedly worse than that of other regions. During the 1980s per capita GDP declined by 1.3 percent p.a., a full 5 percentage points below the average for all low income developing countries. During 1990-94 the decline accelerated to 1.8 percent p.a. and the gap widened to 6.2 percentage points. A literature has rapidly developed which attempts to explain this performance by growth regressions. This approach is highly aggregative and reduced form and is as yet unrelated to both case-studies and microeconomic research. We review these literatures and compare them to see whether they identify the same causes of slow growth.

Section 2 reviews the explanations offered by the endogenous growth literature, grouping them into six factors. Slow growth can in part be explained in terms of a few variables measuring the environment and institutions. However, initially studies found that a significant Africa dummy remained: Africa was growing inexplicably slowly. Subsequent research has focused on trying to eliminate this dummy. In the next two sections we shift from this aggregate perspective to the evidence on agents and markets. Section 3 focuses on two agents: rural households and manufacturing firms. Both have had to contend with high risks. Farm households have responded by devising institutions which have mitigated risk, by sacrificing income for security, and by retreating into untaxable activities, notably subsistence. Manufacturing firms have been less able to adapt and so have fared particularly badly. Drawing on the new literature on 'social capital', we argue that neither households nor firms have as yet sufficiently created the social institutions which promote growth. Section 4 focuses on factor and product markets. Both regulation and the high risk environment have constrained the development of financial markets. The early literature on African labour markets emphasised dysfunctional government intervention through wage regulation. We suggest that the process which accentuated financial repression, inflation, liberalised labour markets. Product markets have been characterised by extensive government interventions through taxation, price setting and public trading monopolies. Recently, many of these interventions have been reversed. However, such liberalisations have not been fully credible and so the effect of controls has proved persistent. In Section 5 we bring together the argument. Both a hostile environment, particularly high risks, and inadequate social capital, particularly dysfunctional government, have lowered the returns on investment. The low returns on investment have caused capital flight on a massive scale.

Social capital is now improving. Although many African governments continue to be dysfunctional, some have now substantially liberalised controls and improved service provision. Democratisation is both underpinning these policy changes politically, and permitting formerly repressed civic institutions to emerge, so building social capital. While high natural risks are persistent, those risks arising from government behaviour are starting to diminish. However, since these improvements are recent, their effect on growth remains largely prospective.

2. Aggregate Performance

In Table 1 we present four regressions which purport to explain African growth performance. In each, the dependent variable is the average growth rate of per capita GDP over two decades or longer. These regressions use a near-global sample of countries and impose the same specification for all regions save for the inclusion of regional dummies as level or interaction effects. Africa's slow growth is 'explained' if it is fully accounted for by differences between Africa and other regions in the standard explanatory variables. If successful, this implies that the Africa dummy will be insignificant. Some regressions have found the Africa dummy to be both large and significant (e.g. Barro and Lee, 1993; Easterly and Levine, 1997), others eliminate it (Sachs and Warner, 1997; Collier and Gunning, 1997; Temple, 1998), though to an extent by transferring the puzzle elsewhere. Sachs and Warner find a significant 'tropics' dummy. We find the Africa dummy significant when interacted with some of the explanatory variables (as given in Table 1); interactions with the other variables in the regression are all insignificant.

Africa's slow growth is thus partly explicable in terms of particular variables which are globally important for the growth process, but which are low in Africa. This shifts the question to why they are low. Partly, slow growth is explicable in terms of a distinctive effect of variables in Africa, which shifts the question to explaining this different response. We now organise the growth regression evidence on Africa, which includes the above regressions but ranges much wider, into six sets of variables.

Table 1: The Africa Dummy in Four Growth Regressions

Variable	Barro-Lee	Easterly-Levine	Sachs-Warner	Collier-Gunning
Period covered	1965-85	1960-89	1965-90	1960-89
Policies				
Investment/GDP	0.078 (0.028)			0.0013[4.72]
Africa*Inv/GDP				0.00043[2.48]
Openness	0.033 (0.0087)	0.020 [4.63]	8.48 [3.41]	0.0184[5.21]
Log GDP*Openness			-0.77 [2.52]	
Africa*Openness				0.0111[1.88]
Institutions			0.28 [3.49]	
Financial depth		0.015 [2.54]		
Fiscal stance	-0.131 (0.037)	-0.088 [2.88]	0.12 [5.34]	
Initial Conditions				
Initial Income	-0.026 (0.0038)	0.066 [2.69]	-1.63 [7.89]	
Idem squared		-0.005 [3.10]		-0.0009[6.97]
Labour force-pop			1.20 [3.41]	
Landlocked			-0.58 [2.63]	-0.00789[2.40]
ELF		-0.016 [2.54]		-0.0148[3.76]
Male schooling	0.0090 (0.0044)			
Female schooling	-0.0052 (0.0047)			
Schooling		0.009 [2.28]		0.0148[1.64]
Life expectancy	0.0712 (0.0148)		45.53 [2.58]	
idem squared			-5.40 [2.39]	
Natural res. exports			-3.28 [3.30]	
Social disturbance	-0.0163 (0.0087)	-14.874 [1.56]		-0.000004[0.10]
Tropics			-0.85 [3.54]	
Latin America	-0.0087 (0.0037)	-0.017 [4.74]		-0.0132[4.27]
East Asia	0.0040 (0.0057)			
Africa	-0.0116 (0.0051)	-0.012 [2.46]	0.02 [0.05]	-0.0052[0.98]

Notes: The dependent variable is the growth rate of per capita GDP, measured over the full period in Barro and Lee and Sachs and Warner, and as decade averages (with decade dummy variables) in Easterly and Levine and Collier and Gunning. Openness: proxied by the parallel market premium, except for Sachs and Warner who devise their own classification. Fiscal stance is measured by Barro and Lee as G/Y, by Easterly and Levine and Sachs and Warner as fiscal surplus/Y. Schooling is enrolment in secondary schooling in 1960; Easterly and Levine and Collier and Gunning enter this as the log of enrolment. Social disturbance is proxied by revolutions in Barro and Lee, by assassinations in Easterly and Levine, and by months of civil war in Collier and Gunning. For test statistics on the first three regressions see the original sources. For our regression: n=236, formed from an unbalanced panel of decade average growth rates for 84 countries, of which 21 are in Sub-Saharan Africa; $adjr^2$ = 0.56; F [13,222] = 23.91; Breusch-Paqgan chi-squared= 58.8; results are corrected for heteroskedasticity. Standard errors are shown (-), t-scores are shown [-].

A Lack of Social Capital

Social capital can be generated both by the community and by the government. Civic social capital is the economic benefits which accrue from social interaction. These economic benefits can arise from the building of trust, which lowers transaction costs, from the knowledge externalities of social networks, and from an enhanced capacity for collective action. Public social capital consists of the institutions of government which facilitate private activity, such as the courts. We will argue that African governments have behaved in ways which are damaging to the long term interests of the majority of their populations because they have served narrow constituencies. They have been damaging partly through 'sins of commission', such as agricultural taxation, and partly through 'sins of omission', such as a failure to provide adequate infrastructure.

On various measures Africa is relatively lacking in both types of social capital (Table 2). These measures have been found to be significant in growth regressions, but there is no evidence that their effect in Africa differs from that elsewhere. We now consider why Africa is short of social capital.

Possible barriers to social interaction are ethno-linguistic fractionalisation and inequality. Africa has a strikingly high level of fractionalisation. An index of ethno-linguistic fractionalisation has been constructed, based on a measure created by Soviet anthropologists.[1] On this measure the average African country is more than twice as fractionalised as other developing regions. This is likely to be the result of the historical low population density of Africa. Inequality measures are not very reliable for Africa. We use the income share of the third and fourth quintiles, which is sometimes referred to as the income share of the middle class. On this measure Africa is identical to other developing countries. Hence, regardless of the effect of inequality on growth it cannot account for any part of the difference in growth performance. The growth regression in Table 1 shows that fractionalisation has a significant negative effect. According to Easterly and Levine it directly accounts for 35% of Africa's growth shortfall, and, because it is also correlated with poor policies, overall it accounts for 45% of the growth shortfall. However, the negative growth effect of ethnic diversity only applies in societies lacking political rights. In countries with dictatorships, ethnic diversity reduces the growth rate by 3% per annum. Conversely, in countries with full democratic rights diversity has no detrimental effect (Collier, 1998).

Ethnic diversity has indeed been costly in Africa but this is because of the low level of political rights. The governments which came to power in independent Africa had two distinctive inheritances. They were drawn from a tiny elite of educated young men and so were separated from the mass of the population. This lack of representativeness rapidly became institutionalised. By 1975 most African states lacked a legislature and most chief executives were unelected: over 60% of the population lived under such regimes (Ferree *et al*., 1996). Secondly, the modern part of the economy was owned by ethnic minorities.[2] The combination of the divorce of the government from the

[1] The underlying measure is of the probability of two randomly drawn citizens being from different ethno-linguistic groups.

[2] Ironically, the first independent African government to face these concerns was the Afrikaner Nationalist government of South Africa, which on coming to power found that 99 of the top hundred

population and the lack of African ownership of the 'commanding heights' induced a policy of taxing export agriculture to finance the expansion of industry. Interventions also tended to be grandiose: in Tanzania the majority of the rural population was relocated in a single year, 1974.

Table 2: Socio-Political Indicators: Differences between SSA and other LDCs

	SSA	Other LDCs
Corruption	4.97	6.03
Bureaucracy	1.38	1.72
Enforceability	1.95	2.09
Civil war	1.27	0.72
Fractionalisation	67.6	32.7
Social development	1.10	-0.43
Inequality	31.0	31.0

Note: Corruption: data from International Country Risk Guide for 1982, low scores indicate high corruption.
Quality of bureaucracy: source as corruption, high scores indicate better quality; range is 0-6.
Enforceability of contracts: data from Business Environmental Risk Intelligence for 1972; low scores indicate weak enforceability; range is 0-4.
The index of fractionalisation is on the range 0-100 with completely homogeneous societies scored as zero.
Adelman-Morris Index of 'social development' as of the early 1960s is constructed on the effective range 1.86 (least) to -1.91 (most) over 74 countries which they classified as developing at that time.
Inequality: the income share of the third and fourth quintiles.
Sources: Corruption and fractionalisation from Mauro (1995); bureaucracy and enforceability from Knack and Keefer (1995); civil war (months per year) from Singer and Small (1994); A-M Index and inequality, from Temple (1998).

As the government expanded its own employment, it and its industrial allies came to have an interest in cheap urban food. Subsidising industry and urban food was financed by explicit and implicit taxation of exports: minerals where these were available, otherwise, agricultural exports. This was supported by controls on the banking system which both lowered interest rates and directed credit to the favoured sectors, thus beginning financial repression. This bias against export agriculture in favour of import-substituting industry was common to both socialist regimes (Ghana, Tanzania, Zambia, Uganda, Ethiopia, Mozambique and Angola), and more market-oriented ones (Nigeria, Zaire, Zimbabwe). The exceptions were where the political elite itself had a strong interest in export agriculture (Côte d'Ivoire, Kenya, Malawi). These anti-export policies were widely adopted between the mid-1960s and the mid-1970s. In some countries their effects were temporarily disguised by the commodity booms of 1975-79, but by the early 1980s most African economies were declining. Although there was some increase in accountability between 1975 and 1980 this was largely reversed by 1985. After the opening of Eastern Europe there was a wave of

companies were English rather than Afrikaner owned.

political liberalisation in Africa, but even by 1991 only 13% of the population was living in states in which legislators had been chosen in contested multi-party elections, and only 10% in states in which the chief executive had been so chosen.[3]

Being insulated from the mass of the rural population and having only limited legitimacy, governments were acutely exposed to pressures from their own narrow base of supporters. As is common with control regimes, although the intensity of controls raised the costs borne by the majority of the population, they also raised the benefits to the minority. Much of the industrial sector was entirely reliant upon the controls. For example, in Ghana during the control regime a quarter of manufacturing output was estimated to be produced at negative value-added at world prices (Rimmer, 1990), and in Nigeria manufacturing output declined by a third in the decade after the end of the oil boom as state subsidies and protection were reduced.

In summary, as Bates (1981) argued:

They ['the mass of rural producers'] suffer from government attempts to implement an adverse structure of farm prices, and they fail to benefit from the compensatory payments conferred through the subsidy programs. Because of official repression they lack political organisations with which to defend their interests. (p.121)

One corollary of poor public social capital was a high incidence of corruption. In many cases, because the state was weak as well as autocratic, corruption was uncoordinated and hence competitive. Such corruption is much more costly to society than the centralised and therefore monopolistic corruption of Asia: bribes exceed the revenue-maximising level and can even eliminate transactions (Shleiffer and Vishny, 1993). Another corollary of poor public social capital has been that governments have adopted damaging economic control regimes with high trade barriers while attaching low priority to the delivery of public services. We consider these in turn.

A Lack of Openness to Trade

The main manifestation of African control regimes was the restriction of international trade, whether directly through quotas, tariffs and export taxes, or indirectly through foreign exchange controls and marketing boards. By the 1980s Africa had become less open than other regions. On one measure not only was Africa the area with the highest trade restrictions, but the gap between it and the next most restrictive area, the Middle East, was wider than that between the Middle East and the most liberalised region, the Far East (Dollar, 1992). On a second, binary measure almost all African economies were closed whereas 37% of other developing countries were open (Sachs and Warner, 1995, 1997).[4] Table 3(a) summarises various measures of trade policy.

The effects on growth can be substantial: Sachs and Warner (1997) make the largest claim, finding that restrictive trade policy, poor access to the sea and Dutch disease

[3] We wish to thank Ferree, Singh and Bates for providing us with re-calculations of their data to show the population percentages reported here and above.

[4] Rodrik (1998) criticises both of these measures. He finds that Africa's participation in international trade is normal for its non-policy characteristics. Coe and Hoffmaister (1998) using a gravity model show that Africa's participation is abnormally low.

between them account for a 1.2% per annum growth shortfall. A more typical estimate would be the 0.4% found by Easterly and Levine (1997).

Table 3: Openness Indicators: Differences between SSA and other LDCs

	SSA	Other LDCs
(a) Policy:		
Sachs and Warner index(1=open)	0.04	0.37
parallel premium (%)	0.40	0.26
RER misalignment (%)	0.13	0.07
(b) Endowment:		
landlocked (1=yes)	0.45	0.06
market access	0.23	0.04
natural resources	0.14	0.11

Sources: Sachs and Warner index: Sachs and Warner (1995)
parallel premium: Easterly and Levine (1997)
RER misalignment: Elbadawi and Ndulu (1996)
landlocked: Sachs and Warner (1995a)
market access: Sachs and Warner (1997)
natural resources: Sachs and Warner (1995)

Not only have trade restrictions been more severe in Africa, but this has been in the context of very much smaller economies. There is therefore a reasonable presumption that on average a given level of restriction would be more damaging. In Table 1 we investigate this by adding to a standard growth regression a term which interacts an Africa dummy with a trade policy proxy, the parallel premium.[5] The term is negative and significant: a given level of trade restrictions is around half as damaging again in Africa as in other developing areas.

Thus, openness explains why Africa has grown more slowly than other regions both because openness is important for growth while Africa has been much less open than other regions, and because a given level of trade restrictions has been more damaging in Africa than elsewhere.

Deficient Public Services

The restrictive trade policies adversely affected public service delivery, lowering the return on public sector projects (Isham and Kaufmann, 1995). Public services have also worsened due to the lack of civic social capital. Because African governments have permitted only a low level of civil liberties, ordinary people are denied the channel of popular protest and this worsens project performance (Isham *et al.*, 1995). A minority of the population feels sufficiently confident to protest when its interests are

[5] The Sachs and Warner index gives similar results.

threatened, whereas the majority has been excluded and is quiescent. Since protest is effective, this bifurcation of the population has entrenched the control regime with its highly selective beneficiaries, while permitting more generalised service delivery to be inefficient. A dramatic instance of these selective priorities is that expenditure per student in tertiary education is 44 times that on a primary school pupil compared with a range elsewhere in the world of 3-14 times (Pradhan, 1996, Table 4.11). However, the return on African projects remains significantly lower than elsewhere even controlling for the policy environment and civil liberties. The public sector has been used to create employment rather than to deliver services and this reduces productivity. To finance extra employees non-wage expenditures are squeezed and wages are reduced, being compensated by declining effort. Because Africa had the most rapid educational expansion in the world, pressure for job creation was unusually severe (Gelb *et al.*, 1989). There is also evidence that wages in the public sector reward kin group connections rather than skills (Collier and Garg, 1998). Hence, there are several channels causing public service delivery to be deficient.

Table 4: Government Expenditures as a Percentage of GDP, average over 1985-89

Purpose	SSA	S Asia	E Asia	Latin America
Total Expenditure	26.0	23.5	22.9	20.4
(Defence Expenditure)	1.8	2.6	2.1	1.6
(Interest Payments)	2.9	3.5	3.0	3.6
Total Potentially Productive Expenditure	21.3	17.4	17.8	16.2
General Public Services	6.9	6.2	6.3	5.3
Education	3.1	1.8	4.8	2.8
Health	1.3	0.9	1.7	1.2
Social Security and Welfare	0.5	1.4	0.7	0.9
Economic Services	5.7	7.2	6.1	3.7

Source: Pradhan (1996), Tables 2.10 and A2.2.

The share of public expenditure in GDP is generally higher than in other developing regions, and expenditure on the most evidently non-functional items, defence and interest payments, is lower. Whereas other developing regions allocate 16-17 percent of GDP to potentially productive public expenditures, African governments allocate 21 percent (Table 4). Despite this, the actual delivery of public services has been poor.

The public service which has received most attention in growth regressions has been education. Paradoxically, education is the one public service in which African performance has not been markedly worse than other regions. Although Africa has a lower stock of education than other regions, it has had a faster rate of growth of the stock (Nehru *et al.*, 1995). If the growth of output is determined by the growth of inputs then Africa should have grown rapidly. Conversely, if the level of human capital directly affects the rate of growth then the lack of education might be an important

explanation of slow African growth. At present these issues are unresolved, partly because until very recently educational growth rates have been very poorly proxied by enrolment rates (Gemmell, 1996; Pritchett, 1996). However, one unambiguous effect of the low level of education has been high fertility rates. African population growth has exceeded labour-force growth by 0.4% p.a., and this reduces per capita growth approximately *pro rata* as established in the Sachs and Warner regression.

Despite the growth in enrolments, there is evidence of serious deficiencies in the implementation of educational policies. There is a wide gap between plans and schools: less than 10% of education policies have been implemented (Craig, 1990), and even when money is voted for a specific purpose, much of it does not reach its intended destination. Less than 30% of the money allocated by the Ugandan Ministry of Finance on the primary school non-salary vote in 1991-95 actually reached primary schools (Ablo and Reinikka, 1998). Generally across the social services, even when money reaches the service provider, wages are prioritised over non-wage recurrent inputs: compared with South Asia, Africa spends double the amount on wages per dollar of non-wage recurrent expenditure. As a result, services suffer. For example, in Ghana the average public clinic had 2.2 times the number of staff and a 25% lower probability of having drugs than private facilities. In Kenya public clinics had ten times more staff and twenty times the number of days without antibiotics as the private facilities. In both the resulting lower quality of public facilities reduced their usage.[6]

There is less infrastructure than elsewhere. For example, the density of the rural road network is only 55 kilometres per square kilometre, compared to over 800 in India, and there are only one tenth the telephones per capita of Asia. The quality of infrastructure is also lower. The telephone system has triple the level of faults of Asia, and the proportion of diesel trains in use is 40% lower. Prices of infrastructure use are much higher. Freight rates by rail are on average around double those in Asia. Port charges are higher (for example, a container costs $200 in Abidjan as opposed to $120 in Antwerp). Air transportation is four times more costly than in East Asia. Much of international transport is cartelised, reflecting the regulations of African governments intended to promote national shipping companies and airlines. As a result of these high costs by 1991 freight and insurance payments on trade amounted to 15% of export earnings whereas the average for developing countries is only 6%. Further, the trend has been rising for Africa whereas it has been falling elsewhere: the comparable figures for 1970 were 11% and 8% (Amjadi and Yeats, 1995).

The evidence on the growth effects of such underprovision is as yet scant. There is some evidence that the infrastructure expenditure of African governments is growth-enhancing (Ghura and Hadjimichael, 1996; Oshikoya, 1994) and that deficiencies in the operation of social services and infrastructure have lowered the rate of return on public projects to significantly below that in other regions.[7] The most specific aspect to be investigated has been telephone provision, for which the deleterious effects are found to be large (Easterly and Levine, 1997).

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[6] See Lavy and Germain (1994) and Mwabu *et al*. (1993).

[7] Isham *et al*. (1995) find this from a study of the rates of return on all 3,435 World Bank projects over the period 1974-93 as calculated from *ex post* evaluations, and show that this is a reasonable proxy for the rate of return on public sector investments in general.

Geography and Risk

Africa is distinctive with respect to climate, location and comparative advantage.

Sub-Saharan Africa is predominantly tropical. There is some evidence that this has reduced African growth, an important channel being proneness to malaria (Sachs and Warner, 1997; Gallup and Sachs, 1998). Much of the continent is semi-arid, and this has made agricultural production intrinsically risky. One-third of the available land is too dry for rain-fed agriculture and about one-half of the rest is of marginal quality (FAO, 1986, Wood and Mayer, 1998). Soil quality is poor. Since the 1960s there has been a trend deterioration in African rainfall.[8] However, there is too little evidence to infer its effect on growth. A corollary of these semi-arid conditions is low population density. Because of this transport costs are intrinsically high even aside from policy-induced deficiencies of infrastructure. This is compounded by the fact that the African population is disproportionately landlocked. Table 3(b) summarises some endowment-related reasons why Africa is relatively closed to international trade.

Low population density implies that the African population is relatively well-endowed with natural resources. Wood and Mayer (1998) show that this gives Africa a comparative advantage in natural resource exports. However, a consequence of export concentration in natural resources is that Africa's terms of trade are determined by commodity prices. As a result, Africa's terms of trade have been volatile. These shocks have had large short-term effects on output: a shock worth one percentage point of GDP directly changes constant price GDP by 0.6% (Deaton and Miller, 1996). Most evidence suggests that this volatility has reduced growth.[9] However, this is contentious. Exposure to trade shocks is potentially beneficial: if the economy is flexible resources can be deployed in whichever sector has the highest prices. Deaton and Miller construct export price series for 36 African countries and find no negative effect of price shocks on growth and investment in the short term.[10]

Since the 1980s the terms of trade have also tended to deteriorate, although there is surprising variation in the estimates, ranging between 6% and 36% (Collier and Gunning, 1997, Table 7). This deterioration in the terms of trade has been estimated to account for a reduction in the African growth rate relative to that of other developing countries of 0.7 percentage points (Elbadawi and Ndulu, 1996).

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[8] Grove (1991) compares mean rainfall in the period 1960-89 with that during 1930-59. In the driest zone, covering the Sahel, the Sudan, and Northern Ethiopia, rainfall was 20-30% lower in the post-1960 period and in the intermediate zone, Natal-Kalahari, it was 10-20% lower. In the wet Equatorial zone, where marginal changes in rainfall were probably least important, mean rainfall increased by 10%.

[9] See Wheeler (1984) and Helleiner (1986). Bevan *et al*. (1987a, 1990) and Collier and Gunning (1998) argue that African trade shocks have caused economic decline because over-regulation has prevented private agents from responding efficiently, while the governments have lost control of public expenditure. They find that even favourable shocks give rise to large contractions in GDP in the post-shock period.

[10] As Deaton and Miller note, their approach rules out long term effects since reversion to trend is imposed.

This natural volatility is compounded by policy volatility.[11] Although the two sources of shocks are conceptually distinct, in practice in Africa they are correlated since governments have used trade policy to equilibrate the balance of payments. Variation in the real exchange rate is a useful proxy for these effects since it reflects the sum of policy and terms of trade shocks. African real exchange rates have been atypically volatile and there is some evidence that this has reduced growth.[12] Table 5 summarises a range of variability measures.

Table 5: Volatility Indicators: Differences between SSA and other LDCs

	Inflation	Terms of Trade	Real Exchange Rate	Tax Revenue GDP	Macro-Financial	GDP
Sub-Saharan Africa	9.0	16.4	15.1	3.3	1.048	6.14
South Asia	7.5	10.4	10.4	1.7	0.733	4.38
East Asia	6.0	11.2	6.6	1.7	0.733	4.38
Latin America	13.9	15.4	14.9	2.2	1.121	5.17
Middle East	7.2	14.3	11.2	1.2	1.094	8.01

Notes: For the Macro-Financial and GDP measures of volatility Asia is treated as a single aggregate. The same figure has been used for East and South Asia.

Sources: Inflation: (Variance, 1960-89), King and Levine (1993); Terms of Trade shocks: standard deviation of annual log changes (X100), 1965-92, Collins and Bosworth (1996): Real Exchange Rate: (Standard Deviation of changes, 1966-88), Pritchett (1991); Tax Revenue/GDP: (Standard deviation of changes, 1974-89), Bleaney *et al.* (1995); Macro-Financial: (Standard deviation of equal-weighted average of four underlying measures of volatility: public deficit/GDP; monetary growth; real exchange rate misalignment; current account deficit/GDP, 1961-94), Elbadawi and Schmidt-Hebbel (1997); GDP: (Standard deviation of per capita GDP, 1961-94), Elbadawi and Schmidt-Hebbel (1997).

A Lack of Financial Depth

As discussed in Section 4, Africa has much less financial depth than other developing areas: M_2/GDP is 37% lower GDP (Table 6). This is usually interpreted as being due to the curtailment of the banking system through financial repression. However, while M_2/M_0 is indeed lower in Africa than elsewhere, the difference is only 16% so that the main cause is the low level of M_0/GDP. The low holdings of currency are probably attributable to the large share of the subsistence economy, in turn related to the high implicit taxation of agriculture.

[11] The volatility of commodity prices may itself reflect policies rather than natural endowments since the specialisation in commodities is the result of the hostility of the policy environment to other exports.

[12] Real exchange rate variability has yet to be used in growth regressions but has been found to reduce African investment (Ghura and Grennes, 1993; Hadjimichael and Ghura, 1995; Bhattacharya, Montiel and Sharma, 1996; Fielding, 1993).

Although the lack of financial depth in Africa has reduced growth the effect has been modest: a loss of only 0.3 percentage points (Easterly and Levine, 1997). There is also some evidence that it has reduced investment.[13] Thus, the lack of financial depth is probably more a by-product of a lack of openness than of financial policies and has had only limited effects on growth. This contrasts with the considerable emphasis placed on financial liberalisation in reform programmes.

Table 6: Financial Depth and Growth: Differences between SSA and other LDCs

	Means of Explanatory Variables	
	SSA	Other LDCs
M_2/GDP	0.22	0.35
M_2/M_0	2.18	2.61
savings rate	10.45	17.52
fiscal deficit	-0.049	-0.042

Sources: M_2/GDP calculated from data supplied by King and Levine (1993). We would like to thank them for making their data available. M_2/M_0 from simple average of 35 SSA countries excluding South Africa and 67 non-African developing countries, excluding Europe, *IFS Yearbook, 1994*, data for 1989, Table 39ab. Savings rate from Sachs and Warner (1997). Fiscal deficit from Easterly and Levine (1997).

High Aid Dependence

Whereas aid is peripheral to low income countries as a group, for Africa it is nearly five times larger as a share of GNP: 12.4% as opposed to 2.7% as of 1994. Potentially aid dependence has therefore exerted a powerful effect on African growth. The effect of aid on growth depends upon the policy environment (Burnside and Dollar, 1997). In good policy environments (proxied by a composite measure for macroeconomic policies) aid significantly increases growth whereas in poor environments it actually reduces it. On average the African policy environment has been poor on this measure. The critical policy score below which aid reduced growth was 1.5. Of the 21 African countries studied only Botswana consistently had a score above this level, 15 consistently had scores below it, with the rest having bouts of good policy. The 15 had a mean score of only 0.8, a level at which the regression would predict growth reduction.[14] Hence, surprisingly in view of the scale of aid flows, there has been little net effect on African growth.

An Interim Assessment

To what extent do the factors included in the growth regressions account for the African growth shortfall? The evidence discussed above suggests that the lack of openness to trade and the low level of social capital have had large, damaging effects

[13] See Hadjimichael and Ghura (1995); Hadjimichael *et al*. (1995); Oshikoya, (1994).

[14] We would like to Burnside and Dollar for providing us with their underlying scorings of the African countries in their sample.

on the growth rate. The effects of high policy volatility and poor public services on growth may also be highly damaging but are less well established. Geography has probably also played a part in reducing growth, through high transport costs, poor soils, disease, climatic risk, and export concentration in commodities, although only a few of these effects have been quantified.

Cumulatively, the above variables have contributed to a capital-hostile environment which has lowered the rate of return on investment. In Table 1 the interaction of the investment and the Africa dummy indicates that the rate of return in Africa has been one-third lower than in other regions. This in turn has reduced the rate of private investment. Since the 1980s the private capital stock per worker has declined by 20% and is now only one third of that in South Asia, the next most capital-scarce continent. Hence, the most capital scarce region has nevertheless had low returns on investment.[15]

Table 7: Sources of Growth: Africa and South Asia Compared

	Output per worker	Capital per worker	Education per worker	Total factor productivity
1960-73				
Africa	1.9	1.3	0.2	0.3
South Asia	1.8	1.4	0.3	0.1
1973-94				
Africa	-0.6	0.4	0.2	-1.3
South Asia	2.6	0.9	0.3	1.3

Source: Collins and Bosworth (1996).

One limitation of the growth regression literature is that to date it has focused upon explaining long-term average African slow growth. This misses the deterioration in performance since the 1960s. The contrast with South Asia set in only during the 1970s. During the 1960s growth and its sources were very similar; post-1973 Africa has experienced a collapse in both investment and productivity (Table 7). Evidently, this collapse cannot be attributed to initial conditions such as geography. Although the most obvious inference is that deceleration is explained by policy deterioration, other factors omitted from the regressions, notably the climate and terms of trade, also deteriorated. A related limitation is that episodes of severe decline are not adequately analysed by the practice of averaging variables over long periods. African performance has been strongly episodic: only Kenya has been characterised by persistent slow growth; other countries have had episodes of severe decline, the average being a six-year period during which per capita GDP falls by 25%. If these episodes were separately identified non-linearities and hysteresis might be found. A third limitation is that no allowance is made for neighbourhood effects such as policy contagion. An East Asian government with poor policies such as that of Vietnam in the 1980s, could and did copy from its neighbours. African governments have not benefited from the same

[15] There is now a literature which endogenises the investment rate. See, for example, Hadjimichael and Ghura (1995).

effect and until recently their continental information exchange organisations, ECA and ADB, reinforced policy immobility rather than fostering change. Easterly and Levine (1998) eliminate the African dummy once neighbourhood effects are included, although the result is disputed (Sachs and Warner, 1997).

3. Households and Firms: Responses to Risk and Dysfunctional Government

The aggregate evidence reviewed above depicts an environment characterised by intrinsically high risks, high transport costs and trade barriers, poor infrastructure, low levels of education, limited financial markets, and high regulation. In considering how agents have responded to this environment we focus upon two key groups: rural households, which have faced many of these problems for generations, and manufacturing firms, which in Africa are largely a creation of the past fifty years. Similar forms of risk-sharing are found by means of state-contingent contracts in village credit markets, in inter-firm goods markets, and in formal labour markets, but only when social institutions have enabled high observability in the context of long term relationships. We argue that rural households have been more successful than manufacturing firms in developing institutions which reduce the costs of operating in this environment.

3.1 Rural Households

The pre-colonial African rural economy was in a land-abundant, high-risk, near-subsistence, low-asset equilibrium. Population was limited by wars and poor nutrition. Social institutions reflected the needs of this stationary economy, with lineage groups regulating inter-generational transfers and providing risk pooling, but not usually creating marketable property rights or securing long-distance trade. Under colonial rule the population began to increase partly as a result of peace and basic public health measures, leading to land scarcity. Peasant agriculture became commercialised both by the introduction of export crops and by the imposition of taxes and the sale of labour, often on forced terms. New crops and breeds of livestock were introduced. Of these three processes, population growth gradually accelerated during the century, largely due to continuing improvements in public health, propelling the economy from land abundance to land scarcity in a remarkably short space of time. Commercialisation and opportunities for innovation slowed and were sometimes even reversed post-Independence, reflecting anti-agricultural policies which we discuss in Section 4.

Social institutions needed to adapt to these changes and gradually did so. An important issue is whether the pace of adaptation has been so slow that social capital is radically deficient and so a serious drag on growth, as suggested by the aggregate-level regressions.

High Risk and Volatility

Under semi-arid conditions with few investment opportunities and consequent low population density, agriculture will take the form of autarky (production for own consumption) without a market for permanent labour (Binswanger and McIntire, 1987). Farmers face strikingly greater risks in Africa than elsewhere. For example, in some areas of

Ethiopia, Zimbabwe and Tanzania near total crop failure has a probability of about 10%.[16] The high degree of price volatility noted in Section 2 is a further source of income risk. As a result, crop income is highly variable. For example, in Burkina Faso the coefficient of variation is 67% for the Sahelian zone and 52% in the Sudanian zone (Reardon *et al.*, 1992). However, the combination of moral hazard, covariance of the risks and geographic isolation precludes insurance. Credit markets cannot be based on collateral: land has little value since it is abundant and animals are vulnerable to sickness and theft. Hence credit must be based on high observability instead of collateral. Where this is not feasible agents can protect themselves against shocks both through *ex ante* responses, such as diversification, and *ex post*, through consumption smoothing, and the choice differs widely both within and between societies.

In diversifying to cope with shocks, the household sacrifices the gains of specialisation in favour of spreading risk over multiple income-generating activities. A striking stylised fact about African rural households is that they have highly diversified economic activities, many of them non-agricultural. One measure of this is that African farmers spend a much smaller fraction of their working hours farming than Asian farmers who face less risk because of the widespread use of irrigation (Cleave, 1974). The first large scale rural household survey in Africa, conducted in 1974-75 in Kenya, found that smallholders derived only half their income from farming their own holding, the rest coming from wage employment, non-farm enterprises and remittances (Kenya, 1977, p. 54). In West Africa, a series of studies in eight countries found an average share of non-farm income of 39% (Reardon *et al.*, 1994, p. 210). In addition, farming operations themselves are highly diversified. Many households choose to fragment their holdings into many plots and nearly all households combine food growing with livestock, cash crops or wage employment. That diversification is partly a response to climatic risk is shown by differences in the extent of crop diversification between ecological zones: in the humid forest areas where rainfall is reliable households often are highly specialised, growing only one or two crops. Similarly, households living in the Sahelian zone in West Africa are more diversified than households in areas with more reliable rainfall.[17]

However, diversification is of course costly. Fragmentation of the holding to reduce risk increases travel time. Similarly, when multiple cropping is adopted as a response to risk,[18] it has both static and dynamic costs. In static terms the household engages in activities even if they offer only low returns as long as they are either safe or have risks uncorrelated with other activities. Dynamically, the household reduces its scope for learning-by-doing.

Now consider the other risk-coping strategy, consumption smoothing. Potentially, consumption smoothing can be done either through credit markets or through asset markets. However, in Africa the former is fairly rare. For example, even in the extreme circumstances of the Zimbabwean drought of 1991/92 credit played virtually no role. The accumulation of realisable assets enables the agent both to cope with shocks and to smooth consumption over the life-cycle. However, in the traditional African economy there were few liquid assets other than livestock (and in tsetse infected areas even this option was

[16] See Webb and Reardon (1991) and Kinsey *et al*. (1998).
[17] See Bevan *et al*. (1989), Eicher and Baker (1982) and Reardon *et al.* (1988, 1994).
[18] There are, of course, other reasons for multiple cropping; e.g. cereals may be underplanted with legumes to provide nitrogen.

largely closed).[19] Also, the strategy of accumulating liquid assets can be constrained by the capacity to defend them: there can be a trade-off between security from economic shocks and from violence.[20] Nevertheless, consumption smoothing by means of assets is important. Farmers in Côte d'Ivoire and Nigeria accumulated assets in years preceding (anticipated) negative shocks. Conversely, during positive shocks smallholders have high savings rates: during the 1975-77 boom when coffee prices temporarily trebled, the marginal savings rate for Kenyan coffee-growing households was approximately 65%.[21]

Although consumption smoothing is common, the main assets used for it, livestock and food stores, are ill-suited to the purpose.[22] The unreliability of food markets implies that at least part of the asset smoothing must be done directly by holding substantial food stores but this is costly due to losses from spoilage and vermin.

In summary, farm households are exposed to large risks. Their responses include self-insurance through diversification, both within agricultural activities and between agricultural and non-agricultural activities. They also accumulate assets for consumption smoothing. Both responses are likely to reduce growth, the former by lowering mean income and thereby savings, the latter by the need to keep assets in liquid form.

A Lack of Rural Social Capital

There has been a major shift in economists' perception of traditional African society. The early literature saw its individuals as economically irrational and its institutions as economic impediments. For example, the absence of private property was seen as giving rise to an acute 'tragedy of the commons'. During the 1960s private behaviour started to be recognised as a rational response to constraints.[23] By the 1980s traditional social institutions came to be seen as efficient solutions to economic problems.

Africa's traditional societies evolved institutions which lowered the costs of moral hazard and adverse selection. These institutions were the village and the kin group. Membership of the kin group was based on birth and hence was non-elective, thus solving the problem of adverse selection. There was little privacy in traditional society. Living in close proximity reduced information costs and so reduced moral hazard. There is evidence of intra-village insurance as a result of this virtually complete information, repayment of credit being state-contingent.[24] Clearly, however, intra-village insurance has limitations since people living

[19] Deaton (1992, 1994) demonstrates consumption smoothing on data for the Côte d'Ivoire, Udry (1994) does so for Nigeria, and Dercon (1997) for Tanzania.

[20] Most pre-colonial African societies had not created an institution with a monopoly of violence over a secure territory. In such a social environment income is reduced: each agent has an incentive to devote resources to violence (such as stealing cattle) and to defend against the violence of others. Since asset accumulation increases the risk of violence, security can be sustained through poverty. Hence, 'peace is purchased at the cost of poverty' (Greif and Bates, 1995).

[21] See Kinsey *et al.* (1998) on Zimbabwe, Deaton (1992) on Côte d'Ivoire, Udry (1994) on Nigeria, and Bevan *et al*. (1989) on Kenya.

[22] During a drought animals are liable to die and cattle prices will fall. During the 1984 drought in Niger livestock prices halved (Fafchamps *et al*., forthcoming).

[23] The *locus classicus* is Jones (1960).

[24] See Posner (1980) and Platteau (1994) for an economic interpretation of African social institutions, and Udry (1993) for evidence of insurance in a Nigerian village.

close together are likely to be subject to highly covariant risk.[25] Lineage rules of inheritance enforced inter-generation transfer payments. The kin group was able to enforce adherence to each particular rule through the threat of exclusion from the entire package of benefits.

In addition to providing insurance and inter-generational transfers, traditional social organisation largely solved the problem of the management of common pool resources. Because the use of common pool resources occurred in the context of frequent interaction and easy observation it was relatively straightforward for societies to regulate their use.[26] This was, however, not recognised (one of the major misperceptions of economic policy towards traditional agriculture); policy makers saw the solution to the supposed 'tragedy of the commons' as individualisation and registration of land rights.

The endogeneity of Africa's social organisations to its material circumstances is illustrated by the difference between lowlands and highlands. The lowlands are commonly semi-arid with high climatic risk and low population density whereas the highlands have more reliable rainfall. In the lowlands, because of the greater need for insurance, people have invested in lineage groups. These are used for insurance, giving their participants access to geographically dispersed crops and livestock. The dispersion reduces the covariance of the returns on the lineage group's assets. By contrast, people living in the coffee/tea areas with reliable rainfall, such as the Kikuyu in Kenya, had less need for insurance, and instead developed private property. They shared within the household but not within the lineage group.[27]

Thus agents in the traditional economy of largely succeeded in devising the social mechanisms necessary to cope in an environment of high risk and few suitable liquid assets. These organisations were costly: agents had to forgo gains from specialisation, had to save for consumption smoothing, or had to abstain from accumulation in order not to attract violence. These costs can be seen as an implicit insurance premium, their high level reflecting the combination of risk and the factors which precluded the development of an explicit insurance system. In this sense stagnation can be seen as a response to risk.

Governments became concerned about the potential loss of output and the stagnation which they saw as the consequence of traditional social institutions. One approach was titling and settlement schemes, in which the government conferred marketable property rights, overriding traditional rights. This was adopted in Kenya, Malawi, Côte d'Ivoire, Botswana, Cameroon, Ghana, Lesotho, Liberia, Mali, Senegal, Sierra Leone, Somalia, Sudan, Swaziland, Uganda and Zimbabwe (Ensminger, 1995). It proved ineffective. A comparison of land transactions over a thirty year period in a land registration area of Kenya and a communalised area of Tanzania found that the rate of land transactions was the same in the two countries and unaltered over the period. In Kenya land titling and land marketability were largely unrelated: only a quarter of the parcels that could be sold by the current operator were titled, and only a quarter of the parcels with land titles could be sold.

[25] Similar systems have been described for communities of traders. Among the Hausa-Fulani in Northern Nigeria membership was elective but considerable investment was involved in becoming a member, e.g. the requirement to convert to Islam and to learn Hausa. Among the Magribi traders there were draconian exclusion rules for those caught cheating. See Platteau (1994) and Greif (1993).

[26] Bates (1983) and Baland and Platteau (1996) describe how the 'tragedy of the commons' was avoided in stateless societies.

[27] See Bates (1990) and Shipton (1985).

In Tanzania, Mali, Niger, Nigeria and Ghana land sales were common even when illegal. The land rights conferred by traditional social institutions thus proved more robust than governments had anticipated.[28]

Government belief in scale economies proved unfounded: the spontaneous sub-division of the large plots assigned on settlement schemes turned out to be economically efficient. Traditional land rights also proved to be less economically damaging and more capable of evolution than had been believed. Government concern about insecurity of traditional tenure also proved unfounded. Land rights rapidly evolved from allocation by chiefs to heritability between generations within the same household. This secured household property rights on land-specific investments, although, as we will show, it actually compounded the problem of inter-household resource allocation. Land rights also evolved towards marketability. One mechanism by which this happens is in response to investment in tree crops.[29] Thus, investment in tree crops and property rights are interdependent, each promoting the other.

However, land rights have not yet evolved to the point where they provide efficient support for investment. Most land in Africa is still not readily marketable. Thus, the adaptation of social institutions has been too slow. If the main mechanism for the evolution of rights is tree crop investment, then the high taxation of tree crops which has been common must have delayed marketability. Thus, the concern that traditional structures of land rights would discourage investment and hence reduce growth were correct. Growth was reduced because investments were unnecessarily illiquid. However, the solutions attempted by governments were ineffective, while inadvertently, through discouraging tree crop investment, public policy slowed what would otherwise have occurred spontaneously.

We now turn from the effect of the rights governing the usage of factors of production on investment, to their effects on inter-household resource allocation. With population growth and heritability of land the land-labour endowments of households will rapidly become dispersed. This will give rise to an inefficient dispersion of marginal products unless offset by market mechanisms: either specialisation in production according to household comparative advantage, or trade in factors. Specialisation in production is unlikely to be sufficient to cope with the very large differences in factor proportions which have emerged between households.[30] Trade in factors can be either by land-scarce households trading-in land, or labour-scarce households hiring-in labour.

Land rights have not yet evolved to the point at which land-scarce households can purchase land on a scale sufficient to offset the effects of differential inheritance. However, potentially land rental might suffice to achieve trade in land. Unfortunately, traditional tenure rights are probably less suited to evolution to rental rights than to evolution into rights of sale. This is because the basis for traditional rights is usage: sale keeps usage and ownership intact, whereas rental requires their separation.

[28] See Pinckney and Kimuyu (1994) and Migot-Adholla *et al.* (1993).
[29] This was originally proposed by Bruce (1988) and subsequently tested econometrically by Besley (1995).
[30] In Kenya the mean land-labour ratio is 11 times as high in the top quintile as in the bottom quintile (Bevan *et al*., 1989).

Thus, rural social capital, although it has adapted considerably in response to the massive changes in the agricultural economy, has become a constraint upon growth in two respects. First, as heritability creates increasing divergence in factor endowments, the static inefficiency costs mount, thus reducing the growth rate, both directly and (by depressing investment) indirectly. Secondly, land-specific investments are insufficiently liquid and so are discouraged.[31]

We now turn from property rights to a second mechanism whereby social capital can affect growth, namely social learning. Survey evidence on the adoption of innovations suggests that factor endowments are less important than access to information through social learning mechanisms.[32] In turn, of the informational mechanisms social learning is more important than either the extension service or the household's educational endowment. Although the main rural social network is the kin group, more modern networks also have economic benefits. In Tanzania a variety of non-traditional, and largely extra-kin, social groups such as churches have a large pay-off. An increase of one standard deviation in the Putnam index of social capital raises village expenditure by around a quarter, the diffusion of agricultural techniques is more rapid, there is substantially more use of credit and the quality of local public services is enhanced (Narayan and Pritchett, 1996).

Households in rural Africa have chosen to develop small, intense networks, partly because they faced low population density and high transport costs, and partly because to fulfil an insurance function the social network require near-complete information about behaviour. Social networks are not just spatially small, they also encounter barriers within the village. For example, the peer groups in which social learning occurs are sometimes segmented by gender.[33] Thus, the small and intense networks of rural Africa may have had a high opportunity cost.[34]

There is indeed reason to believe that there are unexploited opportunities for learning in rural Africa. Yields in African agriculture compare very unfavourably with those achieved elsewhere even allowing for poorer soils. For example, cocoa and palm oil yields are typically only half those recorded in Asia and yields are also relatively low for livestock and for food crops. Had innovations been well-disseminated they could have had a large impact. However, the small intense social networks were relatively inappropriate for such dissemination. This has been exacerbated by weak social services. In Zambia new maize varieties were developed in the 1980s which could double smallholder yields but adoption rates remained low because the research was not carried far enough: the new techniques

[31] Social networks can also restrain growth by allowing parasitic relatives to tax successful relatives. We are indebted to Bill Kinsey for the point that many of the resettlement households in his Zimbabwean panel data set gave this as their motive for relocating.

[32] For example, Bevan *et al*. (1989), Burger (1994), and Burger *et al*. (1996), show that the adoption of coffee, tea and improved livestock in Kenya is more strongly influenced by informational variables than by endowments.

[33] Burger *et al*. (1996) find that male-headed households which adopt innovations are copied only by other male-headed households, while female-headed households copy only other female-headed households.

[34] There is some evidence that kin group networks are weakening as a result of agricultural commercialisation. In Côte d'Ivoire, for example, 'under the pressures of export crop production, Dida lineages began to fragment as brothers split into separate families and sons kept their wages for their own nuclear families rather than turning them over to their fathers or the head of the lineage' (Ensminger, 1995, p. 10).

added to peak labour demand and the new varieties did not meet farmers' preferences as consumers. Overall, agricultural research has not resulted in anything equivalent to the Asian green revolution.[35]

Extension services have usually been weak. First, they have often given inappropriate advice. Extension services in East Africa have long been hostile towards the traditional practice of intercropping, yet research shows that there are many advantages: maize-bean mixtures offer better protection against poor rains than pure stands. Secondly, services have been badly organised with only weak incentives for extension agents to be productive. Governments even demolished extension services: in Tanzania after the 1967 Arusha declaration farmer training colleges were converted to institutes for political education and visits by extension officers to individual households were ended.[36]

Credit Constraints and Lack of Financial Depth

Rural credit markets are very underdeveloped. In contrast to Asia there are no specialised money-lenders, and in Eastern and Southern Africa inter-household credit is negligible. In West Africa there is more informal credit but this is confined to short term lending.

The lack of credit is partly due to the lack of collateral. Even land titling does not lead to land-secured loans, in sharp contrast to Asia.[37] Potential substitutes for collateral are either inter-linking credit with other transactions, as in Asia, or high observability. The former is constrained by the limited extent of land and labour transactions and so credit has depended upon high observability. Informal loans usually occur only where there are no informational asymmetries: typically the lender and the borrower live in the same village and know each other very well.

This lack of credit has consequences for both consumption smoothing and for activity choice and hence for growth. A consequence of the absence of credit is that hysteresis is important: households which have had bad luck for a number of years will have low assets and therefore little scope for consumption smoothing. For example, in Western Tanzania only the richer households were able to smooth consumption effectively. However, in more prosperous environments most households appear not to need credit for consumption smoothing. A natural experiment is provided by 'resettlement farmers' in Zimbabwe who received their holdings in the early 1980s. In a 12-year period this group built up a mean herd size of 10 head. As a result, even during the 1992 drought livestock sales were modest relative to the herd size.[38]

Hysteresis has consequences for growth. If households are exposed to a series of shocks a two-class society may emerge in which wealthy farmers have both higher crop incomes (since they can afford to grow riskier crops) and a better capacity to smooth consumption (since they have accumulated liquid assets). The extent to which the gains from

[35] See Oehmke and Crawford (1996), Celis *et al.* (1991) and Byerlee (1993).
[36] On intercropping see Fisher (1979) and on extension see Leonard (1977).
[37] For example, land was used in only 3% of the loans in Nigeria (Udry, 1993, p. 96). On African land titling see Pinckney and Kimuyu (1994) for Kenya and Bruce (1988) and Migot-Adholla *et al*. (1993) for eight country studies.
[38] Deaton (1990) models consumption smoothing under a borrowing constraint. For Tanzania see Dercon (1997) and for Zimbabwe see Kinsey *et al*. (1998).

specialisation in crop production are exploited is then determined by hysteresis. In Ethiopia and Tanzania the more specialised households are more likely to become non-poor. This suggests that diversification has not only a level but also a growth rate effect. Hysteresis may be more pronounced in low income than in high income areas.[39]

Poor households might also be constrained from entering higher return activities even though they are safe, if the activities are more capital-intensive and there are indivisibilities in investment which cannot be financed, such as may apply to livestock and tree crops. For example, the returns to livestock are typically high but the cost of a single cow may be high relative to household income. The combination of risk and lack of credit for investment may thus confine poor households to low return, capital-extensive activities so that despite being more risk-averse they are less diversified. Cross-section evidence typically shows the poorest households to be more specialised than middle-income households in the growing of food crops for own consumption. The implied dynamics have been investigated by asking households how they would spend a hypothetical windfall, distinguishing between investments which would simply change the scale of existing activities and those which would introduce new activities. In Ethiopia, Tanzania and Zimbabwe households would invest substantially in livestock suggesting that they are constrained in reaching their optimal capital stock.[40]

Conversely, specialisation reappears at high levels of income as entry barriers to the high return activities are surmounted. Households have less need of the risk-reduction which the safe, low return activities provide, partly because they have higher incomes and partly because they have entered activities which are themselves risk-reducing such as wage employment and livestock. This suggests a non-monotonic relationship between household wealth and diversification. Poor households are undiversified because they have not yet been able to overcome indivisibilities in investment. At a higher level of wealth households can enter into activities other than food crop growing and maintain a diversified portfolio of economic activities to deal with risk. At still higher levels of wealth households have access to activities which are both relatively safe and remunerative (such as off-farm wage employment in Kenya) or which involve the holding of liquid assets. In the one case income becomes less volatile (so that specialisation involves insurance), in the other the household relies on consumption smoothing rather than income smoothing.

The institutional solution to indivisibilities in investment in the absence of a credit market is the rotating savings and credit association (ROSCA). These exist in West Africa and Ethiopia but have yet to become universal. Just as the policy-induced low returns on agricultural investment have delayed the emergence of marketable property rights, so they might have delayed the emergence of ROSCAs.

An Interim Assessment

Three impediments to growth which were found at the aggregate level also appear to be important at the level of the rural household: high risk, lack of social capital and poor public services. However, the risks facing rural households are largely different from those identified at the aggregate level: disease and climate feature most prominently, and these are

[39] See Dercon (1996 and 1997) for a two-period model and simulation experiments.
[40] See Dercon and Krishnan (1996) and Kinsey *et al*. (1998).

largely omitted in the aggregate analysis. Hence, the growth-retarding effects of the high risks which farmers have faced are better seen as possible explanations for the 'Africa dummy' in the growth regressions than as confirmation of the negative effects of the risks there identified. Similarly, the public services which have failed rural households and the lack of social capital, both of which are likely to have retarded growth, are not those included in the growth regressions. Education is included in the regressions: the best that can be said is that the effects of education are as ambiguous at the level of the rural household as in the growth regressions. The lack of credit appears more important at the level of the rural household than suggested by its weak effect in the aggregate growth regressions. However, the extent of informal rural credit is not detectable in the measures which have been used to proxy the lack of financial depth at the aggregate level.

3.2 Manufacturing Firms

Agents in the modern economy have also faced a very risky environment. This is partly from natural causes: climate, mortality and morbidity, and commodity prices.[41] A further source of risk is the difficulty of enforcing contracts. In the now-developed economies the foundations of the modern economy were laid in the emergence of social institutions which reduced the costs of contract enforcement and the other transactions costs of negotiation and of weighing and measuring. However, African firms have not been very successful in this respect: on an index of contract enforceability normalised on the OECD average, Africa scores only 0.66, lower than other developing countries.[42]

Contract default can reflect either unwillingness (opportunistic behaviour) or the inability of firms to adhere to contract terms. The root cause of high default is that African firms are exposed to large shocks while being peculiarly ill-equipped to cope with them. Few risks are insurable because of severe problems of asymmetric information. For example, the financial accounts of firms are less trustworthy than in most other regions because of the smaller size of firms and the weaker state of the accountancy and audit professions. Further, African firms are on average very much smaller than elsewhere and are consequently much less diversified. Being uninsured and undiversified, they are more exposed to shocks. In addition to unavoidable financial distress, firms may be physically unable to honour contracts. Operating in economies with poor transport networks, firms can only reliably meet orders by holding large stocks of inputs and outputs.[43] When firms are financially distressed or stocks are insufficient, late payment or late delivery is passed from one firm to the next. African firms indeed hold very large stocks: they are far removed from 'just in time' production systems.[44]

Until recently research on African firms was hampered by a lack of comparable survey data. A major change has been the Regional Program on Enterprise Development in which panel data for a sample of approximately 200 manufacturing firms in each of eight African

[41] Drought causes problems for firms because it causes coordinated declines in expenditure and so demand shocks. For example, during and immediately after the Southern African drought of 1991/92 industrial output declined in Zimbabwe by 23%. Survey data for industrial workers suggest a high rate of illness-related absenteeism and AIDS-related deaths have been rising rapidly.

[42] Derived from Knack and Keefer (1995).

[43] Fafchamps *et al*. (1998) present evidence for Zimbabwe that large stocks are a response to contractual risk.

[44] On contract enforcement see Fafchamps (1996b).

countries were collected over the period 1992-96 under the co-ordination of the World Bank. This forms the basis for much of our evidence on firms. Two stylised facts from the RPED surveys are that by international standards firms are small and slow growing. The annual gross investment rate was only 6% of the value of the capital stock and amounted to only 11% of value-added, suggesting that net investment was negative. Technical efficiency as measured by the mean distance from frontier production functions was very low and labour productivity appears to be falling.[45]

We now group this survey evidence into five mechanisms by which growth might have been affected considering whether high risks have reduced investment; whether restrictions upon international trade have affected growth; the extent to which contract enforcement restricts activity; the extent to which poor infrastructure raises costs and the extent to which lack of external finance constrains investment.

Consequences of a High Risk Environment

Investors rate Africa as highly risky and we have seen that African economies are subject to a high degree of volatility. Firms are faced with a forecasting task for which they have no accumulated expertise. This translates into a high degree of price risk at the level of the firm and causes allocative inefficiency as firms optimise against different expected prices. For example, even in Zimbabwe, a country with relatively sophisticated financial information, a survey of exchange rate expectations found that while 21% of firms expected a devaluation of at least 20% within a year, 27% expected appreciation or stability.[46]

Such risks are more important because investment in Africa is more difficult to reverse than is the case elsewhere. One reason for this is that equipment once purchased is less readily saleable since markets in second hand capital are weak. This weakness is revealed both in the quantity of transactions and in their price. Very few firms in the RPED surveys use second-hand equipment. Where the market is used, equipment sells at a deep discount. The weakness of second hand markets for capital goods reflects the high degree of oligopoly which characterises most African manufacturing due to protection and licensing.[47]

A second reason for irreversibility is that the market in firms as going concerns is also very limited. This is due to a combination of lack of finance and severe problems of asymmetric information in the absence of reliable audits. As a result, a large majority of African firms do not survive their owners.

These irreversibilities make African investment very illiquid, whereas the price risks associated with recent and insecure liberalisations create a premium on liquidity. This has discouraged investment. There is evidence for Ghana that the effect of uncertainty on the rate of investment is negative and that this effect is considerably stronger for firms facing irreversible investment decisions (Pattillo, 1998).

[45] An indication of the dearth of large firms is that the largest of the four size groups with which the surveys work starts at only 100 employees. On investment and efficiency see Bigsten *et al.* (1996, 1997).

[46] Calculated by the authors from the Zimbabwe RPED survey.

[47] In Zimbabwe new capital goods sell at a discount of around 50% (Gunning and Pomp, 1995).

Firms also faced unreliability in their supplies from other domestic firms. In Zimbabwe firms responded by carrying large stocks, on average three months' worth of supplies. Firms also respond to risks by using state-contingent contracts. The period for the repayment of trade credit, while being agreed beforehand, is frequently renegotiated: in Kenya more than half of trade credits were extended and delaying payments was the most common form of dealing with unexpected liquidity shocks.[48]

Lack of Openness: Regulation and Taxation

The aggregate level evidence has identified a lack of openness as the single most important cause of slow growth. At the level of the firm there is evidence of the dramatic effects of foreign exchange controls and licensing.

First, tax rates have often been firm-specific. In Cameroon by 1993 firms enjoying one or more special tax regimes accounted for 99% of total sales. Secondly, controls have drastically reduced competition. In the country with the longest history of continuous restrictions, Zimbabwe, by the end of the control period only one third of the firms considered the price of their products as market determined. Competition from imports was rated as a major problem by only 5% of firms and domestic competition by only 2%. Licensing and foreign exchange controls were important constraints at the firm level.[49]

In Section 2 we reviewed aggregate-level evidence on the lack of openness. Firm-level evidence suggests that this has depressed investment. The expectation of both trade liberalisation and exchange rate depreciation were found to be significant determinants of Zimbabwean manufacturing investment.[50] In extreme cases, such as Tanzania, foreign exchange controls interacting with price controls changed the very nature of firm activity from manufacturing to hoarding. Firms which anticipated liberalisation had an incentive to import whatever inputs were permitted, while selling as few of them (incorporated into output) as possible. However, inevitably, the firm-level evidence understates the growth-reducing effects of the control regime. Firms are unlikely to perceive constraints on activities in which they are not engaged, so that those activities most damaged by controls will be unrepresented.

At the aggregate level there is evidence that in some countries during the 1990s there has been substantial liberalisation of these control regimes. The firm-level evidence bears this out. Taking the controls cited above, by 1995 in Cameroon the proportion of firms receiving special tax treatment had fallen to 30%. In Zimbabwe the proportion of firms finding competition a problem had risen to 37% and inputs and spares could be readily imported.

Lack of Social Capital: Contract Enforcement and Learning

[48] Biggs *et al*. (1996) and Biggs and Srivastava (1996).

[49] See Navaretti *et al.* (1996) on Cameroon and Free University, Amsterdam and University of Zimbabwe (1993) and Biggs *et al*. (1996) on Zimbabwe and Kenya.

[50] This is shown in Gunning and Oostendorp (1996). Roberts and Tybout (1997) provide possible microeconomic foundations for the result. They explain the decision to enter export markets in an intertemporal optimisation model in which exporting involves fixed start-up costs. An increase in expected future profitability raises the option value of investing in the ability to export in the current period.

Social capital contributes both to contract enforcement and to social learning. There is evidence that both functions are important for African manufacturing firms.

Recall that firms face high risks of contract default. Many of these breaches are unavoidable but often they reflect weak social enforcement mechanisms. One reason for a high rate of opportunism is that the African courts generally work less reliably than those elsewhere. Only about a quarter of African lawyers consider the judiciary fully independent of the executive. The legal process often involves long delays and most judicial officers appear to be only moderately knowledgeable about the law. African courts therefore often fail as an instrument of reliable contract enforcement. As a result, in most African countries the courts are little used for conflict resolution. In most African countries a lawyer is hired in only around 10% of disputes whereas in Zimbabwe, where the courts are somewhat more reliable, the proportion is around 30%.[51]

The high rate of unavoidable default itself facilitates opportunistic behaviour since excuses become more credible unless victims invest in further information to distinguish between avoidable and unavoidable defaults. However, were victims to assume that all defaulters were opportunistic they would rapidly lose business opportunities. Firms therefore continue to do business with a high proportion of defaulters; in Ghana over 90% of defaulters are forgiven. Three quarters of defaults were attributed to inability to pay and in these cases the supplier was effectively sharing risk with his customer. Frequently this is reflected in incomplete (in fact state-contingent) contracts, no payment date being specified. Similarly, in Zimbabwe very few of the reported supply problems occur with new suppliers: where problems occurred the business relation had an average duration of over fifteen years. That supply problems are largely unavoidable rather than opportunistic is supported by the fact that in 90% of the cases the business relation continued.[52]

Because of the small scale of the formal sector credit-rating agencies have not developed. Hence firms are forced into the more expensive process of gathering for themselves the information needed to distinguish between avoidable and opportunistic defaults. The method they use for this is the social network. [53]

In the absence of adequate state-provided enforcement mechanisms, the appropriate social institution is the kin group. Manufacturing firms, just as farm households, have adopted this

[51] The underlying data for the judicial reliability index were gathered by Business International. Mauro (1995) utilised them and we would like to thank him for making his data available to us. On the opinions and competence of African lawyers see Widner (1998). On the use of the courts see HEC (1993) for Cameroon, Fafchamps (1996b) for Ghana, University of Leuven and University of Burundi (1994) for Burundi, University of Gothenburg and University of Nairobi (1994) for Kenya, Fehr *et al.* (1994) for Zambia and Gunning (1994) for Zimbabwe.

[52] See Fafchamps (1996b) and Free University, Amsterdam and University of Zimbabwe (1993).

[53] Social networks are potentially useful for two distinct purposes, learning about the trustworthiness of other firms and learning about new techniques and market opportunities. Since networks appropriate for the former are likely to be smaller and more homogeneous than those appropriate for the latter, the size of the network is restricted by the need for close observation of business partners (Barr, 1996). The cost of this is likely to be that social networks are to small to be effective channels for social learning, e.g. about export markets. If a lack of foreign social networks is an important constraint then foreign-owned firms should out-perform domestic firms in export markets and this is indeed the case (Bigsten *et al*., 1997)

as the basis for their social networks. However, in the urban economy this places an ethnic minority kin group at a considerable advantage since all its members are confined to urban private sector activities.[54] By contrast, most of the members of an African kin group of the same size will live in rural areas, and most of those in urban areas will be employed in the public sector. Since few members of the African kin group will own manufacturing firms, the group is likely to be too small to form the basis for an entrepreneurial social network. In Kenya, Asian-owned firms are at an advantage over African-owned firms. To screen new applicants for trade credit African-owned firms rely overwhelmingly on direct observation of the candidate's premises whereas Asian-owned firms rely on 'asking around', suggesting strong information networks. As a consequence Asian-owned firms have much better access to trade credit: small Asian-owned firms had almost the same access to credit as large firms, whereas small African-owned firms were disadvantaged. Similarly, 80% of Asian-owned firms were able to share risks through state-contingent repayments in contrast to only 33% of African-owned firms.[55]

To conclude, firms must survive in a high risk environment. Social networks can facilitate this both through reducing the risks of opportunism and by providing partial insurance through state-contingent contracts. However, the kin group based network, which is the most suitable basis for enforcement is not an option for most African-owned firms. Further, compared with state-provided enforcement mechanisms it imposes costs. It restricts business to the small group of firms known to the network.

Poor Public Services

In Section 2 we described various aspects of service provision and it is evident that many of these will disproportionately impinge on manufacturing. This is borne out by comparable firm-level evidence for seven countries in which firms were asked to score problems among fifteen identified choices. Two of the fifteen related to infrastructure: a general category 'lack of infrastructure', and 'high utility prices'. Aggregating across the seven countries, these ranked as the fourth and fifth problems respectively, after 'lack of credit', 'lack of demand' and 'high taxes' (Biggs and Srivastava, 1996).

Turning to specific components of infrastructure, because electricity supply is unreliable, firms must rely on private generators. In Nigeria 78% of firms have stand-by generators, the high fixed costs of which bear particularly on small firms, accounting for a quarter of the value of their equipment (Lee and Anas, 1991). Inadequate telephone services were identified by 47% of Zimbabwean firms as their most serious problem. One export firm in the survey had to make a thirty mile journey in order to make a telephone call.

Recall that an important unresolved dispute in the aggregate growth regressions is the effects of the low level of, but rapid increase in, education. A comparison of the rate of return to human and physical capital in African manufacturing across five countries finds that the returns to human capital are systematically much lower than to physical capital (Bigsten *et al*., 1998). Hence, Africa's low endowment of human capital may not have been an important cause of its slow growth in the context of other impediments.

[54] In many countries the colonial authorities made it illegal for Asians to acquire agricultural land.
[55] See Biggs *et al.* (1996) and Biggs and Srivastava (1996).

Lack of Financial Depth: Investment and Finance

Formal financial markets are much more limited in Africa than in most other developing regions. However, it does not necessarily follow that this has been an important constraint upon investment.

There is fragmentary evidence that in firms without internal funds the lack of credit constrains investment. First, there is econometric evidence for Ghana and Zimbabwe that firms which report 'access to credit' as one of their major problems are less likely to invest. Secondly, firms make little use of credit to finance their investments. In Zimbabwe and Kenya firms were asked for the sources of finance for the last major acquisition of equipment. Both these countries have well-developed financial markets by African standards. Nevertheless, in Zimbabwe bank loans accounted for less than 2% of the total value of the investment and in Kenya only 15%. Thirdly, there are systematic differences in investment rates between firms which might plausibly be related to differential access to credit: investment is much higher in large firms and pooled panel data indicate that this is because large firms tend to invest more rather than that firms with high investment rates have grown large. Fourthly, investment is systematically related to changes in profitability: there is a significant positive effect of innovations in profitability on investment rates, suggesting that changes in the liquidity of the firm matter and hence that investment is liquidity-constrained.

However, investment is very likely to be more constrained by factors other than finance. Although profitability is significant for investment the effect is quite weak: a doubling of profits would raise the investment rate from 6% only to 8%.

An Interim Assessment

The constraints on firm growth are similar to those which we have identified for rural households: high risk, poor public services, and lack of social capital, and this supports the aggregate-level evidence. In one respect, the firm-level evidence matches better than the household evidence with that at the aggregate level, namely, the lack of credit, though very pronounced, does not appear to be a dominant constraint upon investment.

Firms face high risks and have a limited capacity to bear them. Risks are inflated by the lack of publicly provided contract enforcement, by poor infrastructure, and by the vagaries of the macroeconomic environment, including policy. Their investments are difficult to reverse, largely because of trade and licensing restrictions. Their strategies for responding to this environment have been partly to reduce the risks and partly to accommodate them. To reduce risks firms hold large inventories to guard against unreliable suppliers, devote a substantial share of investment to generators to guard against public power interruptions, and restrict business relationships to those firms which they know well. To accommodate risk firms reduce investment and enter into state-contingent contracts. Both strategies impose costs. The recent liberalisations are reducing some of these costs. However, they are also reducing the protection from which existing firms benefited.

See Gunning and Pomp (1995) and Bigsten *et al*. (1996) on access to credit; Free University and University of Zimbabwe (1995) and University of Gothenburg and University of Nairobi (1994) on bank loans and Bigsten *et al.* (1996) on investment and profitability.

4. Factor and Product Markets

We now view the constraints on growth from the perspective of markets. We consider financial, labour and product markets.

4.1 *Financial Markets*

Africa might be expected to have high demand for the services of financial markets. First, as a high risk environment there is a need for risk-bearing: portfolio diversification, consumption-smoothing and insurance. Further, much of the African capital stock is unusually long-lasting, such as tree crops and mines, or lacks markets for used equipment. Hence, we would expect to find securitisation in order to increase liquidity. Thirdly, because of the large relative price changes resulting from policy reform and shocks, current profitable investment opportunities will only be weakly correlated with past profits, leaving scope for intermediation. These demands have remained largely latent. Until recently this could be explained by policies of financial repression. During the 1990s there has been widespread financial liberalisation, but the response has as yet been limited. We discuss these phases in turn.

Financial Repression and its Costs

While there are large potential gains from financial transactions, in Africa they are costly. There are few assets and so little collateral. Yet there is also a shortage of firms with creditworthy reputations. The costs of financial information about firms are unusually high: there is often no financial press, audited accounts are unreliable (due to corruption in the professions), and there are neither risk-rating agencies, nor agencies which purchase invoices. Hence, a substantial need encounters a high cost of meeting it. Fafchamps (1996) argues that the high risks intrinsic to enterprise activity in shock-prone economies with low incomes imply a high level of contract renegotiation. In financial transactions this would manifest itself either as rescheduling or risk-sharing. We have already discussed the evidence for this behaviour both between households and between firms. However, this depends upon the high observation provided by kin group membership and so is not an option for formal financial institutions.

These natural high costs of the financial sector were compounded by policy-generated increases in costs. Implicit taxation through financial repression ranged from 2-2.5% of GDP for Côte d'Ivoire, Zaire and Kenya, through 4-7% for Ghana, Nigeria and Zambia, to 19% in Zimbabwe. Taxation through unremunerated reserve requirements ranges from 1.5% in Tanzania to 7.5% in Ethiopia. These sums are large in relationship to the size of the banking sector, in all cases exceeding the value added of the banks. Banking is even more heavily taxed than exports.[56]

Costs were also increased due to the poor performance of the legal system, which has reduced the efficacy of assets as collateral. A survey of banks in Uganda (Kasekende and Atingi-Ego, 1997) found that their most desired reform was a fast-track procedure for loan recovery cases.

[56] See Chamley and Honohan (1990), Giovannini and de Melo (1993) and Ikhide (1992).

Many banks were nationalised. Where private banks survived they were oligopolies. Lending practices concentrated on risk minimisation, banks using central bank allocations of foreign exchange to firms as the main signal of creditworthiness (Ncube *et al.*, 1998). The public banks provided credit to the government and loss-making parastatals. They became an off-budget channel for government expenditure. For example, by the late 1980s the monopoly government bank in Tanzania had lent over 60% of its portfolio to a single crop marketing parastatal to cover operating losses (Collier and Gunning, 1991a). Additionally, the lending practices of the managers of publicly owned banks were inadequately supervised, permitting corrupt lending. As a result of these two types of lending, publicly owned banks have had very high default rates, typically in the 40-95% range. Clearly, at these rates of default the repression of interest rates is a secondary phenomenon. Governments have been unable or unwilling to control the lending practices of bank managers: the Uganda Commercial Bank serves as an illustration. By the early 1990s the majority of the bank's loans had become non-performing, and many of the largest were to its own managers. In response, the government established a trust with greater legal powers of recovery to which, after long delays on the part of the UCB managers, the largest non-performing loans were transferred. The trust offered a 15% discount for prompt repayment and threatened asset foreclosure. The managers of the UCB repaid their loans to the trust by means of granting themselves new loans from UCB.

The conjunction of naturally high operating costs, the diversion of the public sector banks to other objectives, and the oligopolistic nature of the remaining private banks severely curtailed the development of the financial sector. Spreads were approximately double those in developed economies (Seck and Nil, 1993). The lack of formal financial markets has posed more of a problem for firms than for households since Africa has unusually diversified households and unusually undiversified firms.

The high costs of the formal financial sector shifted activity to the informal sector and to trade credit. The informal financial sector was not able to provide an effective substitute for the formal sector. Formal and informal financial institutions serve distinct and largely unconnected market niches. The formal sector has not been able to channel lending through informal intermediaries. The RPED surveys show that firms make little use of informal finance, in marked contrast to Asia. The lack of informal credit is particularly striking for start-up finance: new firms are almost entirely financed from the founder's own savings. Trade credit has been an important source of finance. However, flows to small firms have been too small to provide a substitute for direct access to the credit market.

Short Term Problems of Financial Reform

During the 1990s there was widespread financial liberalisation: interest rate deregulation, the entry of new banks, and the lifting of directed lending. However, these have yet to produce noticeable financial deepening. Partly, costs are high in the financial sector predominantly for reasons other than policy. Additionally, the legacy of financial repression has been weak banking organisations which are unable to exploit the opportunities opened up by liberalisation. In the short term financial liberalisation in such an environment creates policy problems. The legacy of weak financial

organisations is exacerbated because, as more generally with policy reform, the countries with the strongest financial reforms had had the most severe phase of repression. For example, Ghana and Uganda had both had prolonged phases of financial 'shallowing'. Thus, the strong reforming African countries were commonly starting with banks which had needed neither an information base for the assessment of lending opportunities, nor a legal process for the recovery of loans.

In the long run financial reform can be expected to improve the allocation of investible funds. However, in the short term firms with growth potential may even have faced increased financing difficulties. Although financial liberalisation enabled banks to charge a risk premium, other aspects of liberalisation removed the main signals of creditworthiness. Foreign exchange liberalisation ended reliance upon foreign exchange allocations and trade liberalisation made past profitability an unreliable guide to future profitability. Hence, in the first years of financial liberalisation, which is all that Africa has experienced, banks lacked the information and legal security for expanded private lending.

While the banks faced difficulties in lending to the private sector profitably, liberalisation presented them with more attractive alternatives. As governments lost the revenue implicit in financial repression they borrowed on Treasury Bill markets, often at very high real interest rates. The composition of bank portfolios shifted towards government stocks. Flow of funds analysis reveals that to date far from liberalisation channelling resources to the private sector, government borrowing has caused a credit squeeze. Further, liberalisation has not yet altered the lack of intermediation between the formal and informal financial sectors (Nissanke and Aryeetey, 1998).

In the long run the increased competition provided by the entry of new banks can be expected to lower banking costs. However, in the short run it has created two problems. The number of banks increased very rapidly, for example, in Nigeria from under ten to 119. The regulatory function of central banks was underdeveloped, because the traditional private commercial banks were on a sounder footing than the central bank, while the public commercial banks were not intended to have a sound lending portfolio. Supervision of new banks was inadequate, enabling them to lend to their directors and run Ponzi schemes.

In the long run inter-bank markets in foreign exchange can be expected to provide stabilising speculation and forward markets on which remaining risks can be hedged, but in the short run most foreign exchange transactions have remained cash-based in bureaux de change. The scale of transactions is too small to permit normal bank supervision and control procedures so that both banks and corporate treasury departments are reluctant to take positions. There are no forward markets. Thus, Africa has the institutions for a liberalised foreign exchange market but not yet the specialist organisations with which to run one in a way which enables international traders to shift currency risks at low cost.

While in the long run stock markets will increase the liquidity of the African capital stock and enable risk pooling in portfolios, at present the total capitalisation of Africa's sixteen markets is tiny and little money has been channelled to firms. This reflects

weaknesses in both the public legal services and the private professions such as auditors, needed to support a stock market.

While in the long run African governments will be able to borrow cost-effectively on world markets, at present their commercial borrowings are subject to a considerable risk premium. The premium is strongly and significantly influenced by export price shocks and civil war. Hence, the underlying causes of risk in Africa rebound onto financial markets rather than being mitigated by them (Odedokun, 1996).

In one dimension, however, Africa is already fully integrated into global financial markets: Africa has experienced more capital flight as a proportion of private wealth than any other region. Table 8 compares the portfolio choices of private wealth owners across regions by combining data on capital flight since 1970 and the domestic private capital stock (excluding housing and foreign-owned capital) to construct an estimate of regionally-owned wealth and its disposition as of 1990. It is not surprising that in a wealth-abundant, capital-hostile environment like the Middle East, wealth owners have placed a high proportion of their wealth outside the region. By contrast, both South and East Asia have a low proportion of their wealth outside the region. The choices of African wealth owners are startling. Despite a lower level of wealth per worker than any other region, African wealth owners have chosen to locate 39% of their portfolios outside Africa.

Table 8: Portfolio Composition and Factor Proportions by Region 1990

	Capital Flight/ Private Wealth	Private Capital Stock per Worker ($)
Sub-Saharan Africa	0.39	1,069
South Asia	0.03	2,425
East Asia	0.06	9,711
Latin America	0.10	17,424
Middle East	0.39	3,678

Source: Collier, Höffler and Pattillo (1998), based on data for 43 countries of which 22 are African.

An Interim Assessment

Clearly, despite the high needs for financial markets, financial markets have been severely under-developed. This is partly due to repressive policies towards the financial sector and partly to high costs which reflect asymmetric information. However, at present it is not possible to determine the relative importance of these two causes. While the lack of response to the recent financial liberalisations might appear to suggest that under-development of the financial sector is deep-rooted, the phase of poor policy might have left a legacy of financial organisations which are too weak to take up the opportunities of liberalisation.

4.2 Labour Markets

There is some support for rival visions of the formal labour market. In one it is the source of many problems: wage levels are too high; there is excessive dispersion, with firms facing wages which rise as the firm grows; and wages are insensitive to profit shocks, so that firms hold back on hiring. In the other vision labour markets are flexible and constitute Africa's comparative advantage. Wages respond to shocks, accommodating the inadequacies of financial markets through state-contingent contracts; although wage employment is limited, this reflects impediments to firm growth rather than problems inherent in the labour market.

The Rigid Labour Market View

The best-known models to come out of Africa are those of Harris and Todaro (1970) and Stiglitz (1974). Harris and Todaro postulated that wages were institutionally rigid at above the supply price of labour. As a result, the labour force migrated to cities to participate in the jobs lottery constituted by unemployment. Stiglitz refined this by explaining high urban wages not as an institutional given but as an equilibrium outcome of efficiency wage setting.

We now turn to the evidence for labour market rigidities. In a few countries labour legislation was until recently extremely rigid. For example, until 1991 all dismissals required the approval of government in Zimbabwe and of workers' councils in Ethiopia. However, in all seven of the countries covered by the recent RPED surveys labour regulations were ranked at or near the bottom of the fifteen obstacles considered. The main focus of attention for those who regard the labour market as rigid has therefore been on wages: whether the public sector pays above the supply price and whether minimum wage legislation raises entry wage levels in the private sector. In francophone Africa and Ethiopia public sector wages are well above the supply price, especially for unskilled labour. This used also to be the case in anglophone Africa, but inflation has commonly eroded real wages to levels well below those in the private sector. Indeed, the low level of public sector pay is now often seen as a policy problem. Similarly, during the 1960s minimum wage legislation generally raised entry wages in the private sector. Inflation and non-enforcement have gradually eroded this effect. Concern has therefore shifted from excessive entry-level wages to excessive wage dispersion. This has been interpreted as reflecting rigidities due either to efficiency wages or rent-sharing. Wages are positively correlated with firm size: for example, Velenchik (1997) finds a differential of over 4:1 between large and small firms in Zimbabwe. In support of the efficiency wage interpretation, the returns to experience with the current employer differ by firm size, workers in larger firms experiencing steeper wage growth and more rapid promotion. Hence, reducing turnover is more important for larger firms and so may explain a wage premium.

Theories of rent sharing see the wage premium as the result of above-average profits: in a non-competitive labour market workers may induce management to share monopoly rents with them. Although African workers rarely have bargaining power, the real bargain may be between firms and governments: the government generates rents for firms on the implicit understanding that these are partly used to pay a wage premium. Since larger firms are more exposed to government, workers in larger firms

would better be able to exact a premium. Velenchik tests this on cross-section data. There is Ghanaian and Zimbabwean evidence for rent sharing: controlling for other firm and worker characteristics, profits per worker are highly significant in both cross-section and panel earnings functions. This has been interpreted as showing that the structure of wages is not competitive. However, rent-sharing is not due to unionisation: on cross-section data unionisation is insignificant in the mean wages which firms pay.[57]

The Flexible Labour Market View

The Harris-Todaro view of wages as exogenous and unemployment as endogenous reversed the characterisation of developed country labour markets proposed by Blanchflower and Oswald (1995). In the latter, wages are endogenous to exogenously generated unemployment, which varies because of unobserved differences in the attractiveness of locations. According to the former the correlation between unemployment and wages will be positive; according to the latter it will be negative. Hoddinott (1996) used regional variations in unemployment and wage rates in Côte d'Ivoire to test the Harris-Todaro model against the 'wage curve' thesis of Blanchflower and Oswald. He showed that the Ivorian urban labour market conformed closely to the Blanchflower-Oswald results for developed countries: wages were in fact slightly more responsive than in developed economies.

The wage premia hypothesised in the Harris-Todaro model were common at the time it was formulated but proved to be temporary. They built up during the transition to independence when unions had temporary political power and when colonial authorities needed to give wage earners an interest in the status quo. Usually, these premia proved unsustainable after Independence and were eroded by inflation. However, wages were flexible even in low inflation environments. Hoddinott's results cannot be due to an inflation effect since Côte d'Ivoire was subject to the rules of the Franc Zone. Levy and Newman (1989) showed that real wages were nevertheless remarkably flexible in Côte d'Ivoire. They used panel data to estimate how the earnings function had shifted during the recession of the 1980s. They showed that mean earnings figures, which appeared to show rigidity, were highly misleading because newly hired and therefore low-wage workers were the first to lose their jobs. In fact, the earnings function had shifted down by around 25% in only four years.

Such urban wage adjustments were widespread. Jamal and Weeks (1993) suggest that for several African countries the urban wage premium over rural incomes had actually been reversed during the 1980s. The time paths of wages in Zimbabwe and South Africa are consistent with the premia being temporary during the transition to black rule: real wages in Zimbabwe have fallen sharply from the mid-1980s, and currently much the largest wage premium on the continent is that in South Africa.

The Harris-Todaro model may not even have been an accurate explanation of the unemployment which inspired it. Kenyan unemployment in the late 1960s may have been a response to rapid changes in the supply of educated labour as job seekers learned only with a lag the extent to which selection criteria were changing. Analysing

[57] See Velenchik (1997) and Teal (1996).

unemployment rates among school leavers by examination grade, Collier and Lal (1986) showed how over a period of six years the peak unemployment rate shifted up the grade structure as those with poor grades realised that it was necessary to lower their reservation wages.

African labour markets are responsive mechanisms for the pricing of skills. Cross-section studies show that the returns to education reflect cognitive skills rather than credentialism (Boissière *et al.*, 1985 and Knight and Sabot, 1990, for Kenya and Tanzania; Collier and Garg, 1998, for Ghana). The comparison of earnings functions and production functions shows that workers earn their marginal products (Jones, 1994). At the national level, changes in the supply of educated labour change its price (Knight and Sabot, 1990, and Appleton *et al.*, 1996).

Reconciling the Evidence

The evidence is conflicting: real wages have fallen steeply over time, and skills are correctly priced, yet there appear to be large premia paid according to firm size, unionisation and profitability. However, these three premia need not indicate imperfections.

Teal (1996) stresses that OLS estimates of earnings functions may be misleading because of the endogeneity of the profits variable. Allowing for this in a 2SLS estimate he finds that the firm size variable is no longer significant: larger firms are more profitable, but firm size does not have an independent effect on wages. The focus in the literature on the wage premium by firm size may therefore have been misplaced. Similarly, it is implausible that (other than in South Africa) unions can extract rents from firms. Teal tests whether unions influence the degree of rent-sharing and finds, contrary to some results for developed countries, that in Ghana it is unaffected by whether the firm is unionised. Finally, although on cross-section evidence more profitable firms pay higher wages, this might reflect risk-sharing rather than rent-sharing. Worker-firm contracts might be state-contingent, akin to the inter-household contracts found by Udry in Nigeria and the inter-firm contracts found by Fafchamps in Ghana. Such a sharing of risks between firms and workers may be rational. Although wage rigidity in developed countries has been explained as an efficient apportionment of risk-bearing between risk-neutral firms and risk-averse households, African firms are too small and have insufficient access to finance to be risk neutral. Risk-sharing can only be distinguished from rent-sharing using panel data. With risk-sharing, wages will be more sensitive to changes in profits than to the level of profits, whereas with rent-sharing the converse will hold. Teal found that wages were three times more sensitive to changes in profits than to the level of profits. Similarly, Velenchik finds that changes in profitability are a significant determinant of wage changes. Thus, the relationship between wages and profitability may be a further manifestation of the conduct of business in a shock-prone environment without adequate financial markets rather than a puzzling counter-example to the weight of evidence pointing to labour market flexibility.

However, African labour markets are highly distinctive in one important respect, namely their extent. Only a small proportion of the labour-force is allocated through the formal market and this proportion is declining: from 12 percent in 1980 to 9

percent in 1990 (Mazumdar, 1994). Globally, there is a strong relationship between the share of the labour-force in non-agricultural wage employment and GDP per worker (World Bank, 1995). While much of the correlation will not be caused by labour markets, presumably they facilitate growth through specialisation and the division of labour, and hence skill formation, as well as reaping the static gains of allocative efficiency. On our interpretation, the small size of the formal labour market, while a problem for the growth process, is not due to its malfunctioning. Rather, it reflects the constraints facing firms: high risks, poor infrastructure, and lack of social capital. Indeed, the evidence for risk-sharing in the labour market suggests that the problems which in other continents are solved by financial markets are in Africa partially resolved in the labour market.

4.3 Product Markets

Many African governments were suspicious of product markets as being controlled by ethnic minorities. They sought to Africanise them through state ownership and control, and to use them as instruments both to transfer income to favoured urban groups and as their main source of revenue. Product markets were undermined through restrictions on traders, high taxation, poor infrastructure, and controls on prices and quantities.

First, some governments banned private traders. This policy was particularly applied in agricultural markets. Public monopsonies were created for export crops. Sometimes there was segmented monopsony, a public marketing agency dealing with locally monopsonistic producer co-operatives. Some competition existed between such monopsonies as farmers could smuggle crops to areas where higher prices were paid. Sometimes the monopsony was only nominal, due to extensive illegal or informal competition. This is typical of food markets. Governments were particularly keen to ban inter-district agricultural trade. For example, even the relatively market-friendly Kenyan government gave a monopoly of inter-district trade in the staple food to the Maize and Produce Board. The less market-friendly Tanzanian government closed all private village shops, private trading in urban areas was restricted, all domestic non-agricultural trade was supposedly handled by the Board of Internal Trade, and all international trade was the monopoly of the Board of External Trade. The market-hostile Angolan and Ethiopian governments nationalised virtually all trade (Azam *et al.*, 1994).

Secondly, governments imposed high taxation on international trade and became highly reliant upon it for revenue. More important than explicit export taxes were implicit taxes through exchange rate overvaluation and wide margins for marketing parastatals. For example, in Tanzania the producer price of cotton would have been 27% higher on average in the absence of export taxation but 60% higher if the other two factors are taken into account (Dercon, 1993). By 1984 coffee farmers were receiving only 40% of the world price compared with over 80% in Kenya where the political elite had interests in coffee farming. Despite the high tax revenue governments restricted spending on transport infrastructure. As a result, for many crops transport costs exceeded production costs.

Thirdly, governments introduced controls on prices and quantities. One rationale was to reduce food prices to urban consumers. For example, in Zaire when price controls

were abandoned in 1982 real producer prices doubled for rice and trebled for maize and cassava (Tsishimbi, 1980). However, many governments applied price controls more widely to manufacturing firms, agricultural producers and consumers. In Tanzania the principle of cost-plus pricing was extended from manufacturing to smallholder agriculture. Crop prices were set in Cabinet on the basis of calculations designed to equalise the returns to family labour between crops. At the consumer level, although many African countries introduced price controls, they were seldom enforced. However, in a few countries enforcement was more rigorous: traders evading controls were imprisoned in Tanzania and tortured and executed in Ethiopia. At the peak the Tanzanian government was setting 2,000 prices. A final aspect of price control was pan-territorial pricing: transport costs were disregarded. In some countries minimum quantities of sales were imposed on producers. In manufacturing these were unenforceable, but in smallholder agriculture targets were enforced.[58] Governments were suspicious of markets and became frustrated with the evasion of controls: in Accra as punishment for breaches of price controls the government blew up the central market.

This undermining of markets was detrimental to growth. We now show that it increased the costs of trade, reduced market integration, reallocated resources inefficiently, caused a retreat into subsistence, increased risks, and criminalised economic activity.

The costs of trade increased: in the Tanzanian grain market trading costs doubled during the period of controls and fell by over 60% once they were removed. In turn, this reduced allocative efficiency by reducing market integration. The coefficient of variation of Tanzanian maize prices in regional centres doubled between 1964 and 1980 and sharply declined again once the market was liberalised. In Kenya the Maize and Produce Board was unable to handle the volume at transactions induced by the prices which it set, causing large differentials between districts in unofficial prices. In Benin and Ethiopia during the control period food markets were only weakly integrated, with increased integration after liberalisation.[59]

Farmers were responsive to mispricing. In Tanzania pan-territorial pricing of grains generated a huge surplus in regions which were too inaccessible for it to be of value. Conversely, there were huge reductions in export volumes. For example, Tanzanian cotton production would have been around 50% higher without taxation (Dercon, 1993).

We suggested above that part of the growth process in African agriculture was that households moved up a ladder of opportunities, reflecting an initial disequilibrium in which many export activities offered significantly higher returns. Governments often changed incentives sufficiently to arrest this process. For example, cost-plus crop pricing was intended to make all existing activities equally profitable. More drastically, the heavy taxation of agriculture expanded subsistence at the expense of the market: in some countries, such as Uganda, subsistence was for a decade the fastest growing sector of the economy.

[58] See Dercon (1995) for Ethiopia; Collier *et al*. (1986) and Bevan *et al.* (1989) for Tanzania.
[59] See Gordon (1990), Dercon (1995) and Lutz (1995).

In addition to the widespread resource reallocations arising from crop taxation, generalised price controls, though less common, had more dramatic growth-reducing effects. Price controls of consumer goods, where enforced, created shortages, and pan-territorial pricing shifted the most severe shortages to rural areas since unrecoverable transport costs could thereby by avoided. Rural shortages of consumer goods were a disincentive to the sale of crops and altered price responses. Farmers reduced their sales of crops in reaction to reduced supplies of consumer goods by a combination of producing less and using a larger fraction for own consumption. Within such a rationing regime, supply response to raising crop prices can be perverse so that the high taxation policies can appear not to be reducing supply.[60]

A further effect of the weakening of markets was an increase in risks. The monopolised food marketing channels made purchases unreliable. For example, inefficiency on the part of the Kenyan Maize Marketing Board led to localised shortages, inducing farmers to retain subsistence production. Erratic supplies of consumer goods induced increased money holdings in order to take advantage of occasional availability: the velocity of circulation of rural money holdings approximately halved in Mozambique and Tanzania in the four years coinciding with the onset of shortages. Reduced integration in the livestock market increased risks by undermining the use of livestock as an asset for consumption smoothing.[61] Finally, the domestic price of imports fluctuated because of frequent changes in trade policy. Where trade policy went through cycles of liberalisation and protection, the liberalisation phases induced hoarding of imports in anticipation of policy reversal.[62]

Government interventions in markets were to an extent by-passed, but this criminalised much trading activity. By the mid-1980s the illegal economy was estimated to be 30% of Tanzanian GDP. In Uganda, during the prolonged period of high implicit coffee taxation some 27% of the crop was smuggled out of the country. Although criminalisation mitigated government policies, it had growth-retarding effects. It increased costs: contract enforcement costs rose because the courts could not be used, and because secrecy reduced the efficacy of sanctions through social networks. As a result there was a gradual movement from credit to a cash economy and trading margins widened. Criminalisation kept profitable enterprises small in order to reduce visibility. Finally, it contributed to the high capital flight noted in Table 8. Product markets were both a mechanism for this flight and a cause. Over-invoicing of imports and under-invoicing of exports occurred on a massive scale. Criminalisation increased capital flight partly because illegally acquired profits were safer held abroad, and partly because, since letters of credit could not be used, imports had to be paid for in advance.[63]

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[60] See Azam and Faucher (1988) for Mozambique, Berthelemy (1988) for Madagascar, Bevan *et al.*, (1987, 1989, 1990), Collier and Gunning (1991) and Dercon (1993) for Tanzania, Azam *et al.* (1994) for Angola and Berthelemy and Morrisson (1987) and Bevan *et al.* (1987a, 1991) for the underlying theory.

[61] See Fafchamps and Gavian (1996) for Niger.

[62] See Reinikka (1996) for an application to Kenya.

[63] See Maliyamkono and Bagachwa (1990) on Tanzania, Henstridge (1995), on Uganda, Collier and Gunning (1995a) on trading margins and Yeats (1990) on mis-invoicing.

An Interim Assessment

In retrospect, the degree of hostility of many African governments to private product markets is surely astonishing. The main measure used in the aggregate-level growth literature, the premium in the parallel foreign exchange market, is clearly only a crude approximation for the numerous ways in which product markets were undermined. However, the main messages of that literature, that African markets were radically less open than those elsewhere and that this seriously reduced growth, are amply supported.

5. Implications of the Evidence

Does the Evidence Cohere?

We now assess whether the explanations of the growth regressions (Section 2) are supported by the evidence on agents and markets (Sections 3 and 4). The aggregate growth regressions with which we started found five significant causes of African stagnation, but this was not exhaustive since a significant Africa dummy usually remained.

First, are the explanatory variables used in the growth literature supported? Section 4 confirmed that product markets had been heavily distorted and that this should have serious growth effects. Financial markets were shown to be extremely limited, while labour markets were not a source of major problems: the inflations which turned interest rate controls into acute financial repression liberalised the wage controls. Thus, by the 1980s the main distortions were in the product and credit markets. The variables used in the growth regressions include proxies for the large distortions in these two markets while ignoring the labour market, and this is consistent with the evidence.

However, Section 3 identified three impediments to growth which were inadequately proxied in the growth regressions: high risk, inadequate social capital, and inadequate infrastructure. A fourth, lack of finance, appeared to have had more severe consequences for households than for firms. Between them, these may well account for the persistence of a significant Africa dummy in the regressions. The reviews of agents and markets both emphasised the high risk environment. Where contracts could be designed so as to ensure repeated transactions there was evidence of risk-sharing between households, between firms, and between firms and households. The proxies for risk used in the growth regressions make an attempt at capturing systemic risk, though omitting such obviously important components as climatic volatility, but completely miss the high level of idiosyncratic risk which is such a striking feature of the continent. For example, aggregate price volatility understates price volatility at the level of the individual agent because markets are fragmented. Similarly, the effects of deficient social capital may be understated. Some growth regressions proxy social capital by ethno-linguistic fractionalisation, and while this is exogenous, it is not closely related to many of the deficiencies identified in Sections 3 and 4. Growth regressions often include more specific proxies for social capital, such as contract enforcement, however, enforceability is endogenous: if firms incur high costs they can reduce enforceability problems to levels not much worse than those elsewhere. The proxies for

public service delivery are perhaps most deficient relative to what might be feasible. Africa's high transport costs, poor health care, and ineffective police are essentially not captured. Only the telephone system is properly proxied, and its effect is found to be massive, possibly because it proxies infrastructure more generally. The proxy for financial depth is probably satisfactory as a characterisation of the limited extent of finance for formal activities, but misses informal rural credit, which we have seen is also limited.

Despite the deficiencies discussed above, there is reasonable agreement between what the growth regressions find to be important and the variables suggested by the other literature. A lack of openness in product markets, a lack of social capital, high risk and poor public services are the four factors which both find to be important. The lack of formal finance is found to be a minor effect at both the aggregate level and the firm level, but more important at the household level. The disagreement within the aggregate-level evidence on education tends to be resolved by the micro-level evidence against it being important. In agriculture most of the African studies find it to have had little or no effect, while in manufacturing the return to education is much lower than to physical capital.

Thus, to a surprising extent, the aggregate and microeconomic analyses cohere. The microeconomic analyses suggests a possible interpretation of the four main variables which explain stagnation in reduced form: openness, social capital, risk and public services. In essence it is the following. Africa stagnated because its governments were captured by a narrow elite which undermined markets and used public services to deliver employment patronage. These policies reduced the returns on assets and increased the already high risks which private agents faced. To cope, private agents moved both financial and human capital abroad and diverted their social capital into risk-reduction and risk-bearing mechanisms.

Is Slow Growth Inevitable in Africa?

Above, we have made two distinctions in the causes of slow growth. The first was between those which are intrinsic, notably geography, and those which are policy-dependent. The second was between those causes well-proxied in the regression analysis, which are predominantly macro, and those identified at the levels of agents and markets, which are microeconomic. There are thus three conceptually distinct causes of slow growth: geography, macroeconomic policies, and microeconomic policies. However, in practice the effects of adverse geography and adverse policies are often difficult to disentangle: high risk, high transport costs, and high dependence upon commodity exports are all due to both. The relative importance of macroeconomic and microeconomic policies cannot be quantified because the latter are so poorly proxied in the regression literature. As a result of these problems of attribution it is not possible to determine from the growth regressions whether slow growth is inevitable in Africa. In particular, the Africa dummy could be due either to unobserved geography or unobserved microeconomic policies.

In our view, while Africa indeed suffers from some geographic disadvantages, these are not sufficient to condemn the continent to continued slow growth. One reason for this is that by virtue of its long phase of poor policies Africa now has a huge offsetting

benefit in the form of 'catch-up'. For example, consider the growth rates implied by the Sachs and Warner regression in Table 1. While both tropical location and landlockedness are significantly negative, there is also a significant conditional convergence effect. Comparing a non-tropical coastal developing country such as China, with a tropical landlocked country such as Uganda, the latter's geographic disadvantage is more than offset by its catch-up advantage. Hence, in the medium run, were the policy environments the same, catch-up would dominate geography: Uganda would have a prolonged phase during which it would grow more rapidly than China.

The effects of policy change can either be inferred through the cross-country growth regressions or observed directly as countries change policies. The deceleration from the 1960s is potentially attributable to policy deterioration were climate change and terms of trade deterioration properly included in the analysis. The reforms of the 'structural adjustment' era offers the same potential. However, although during the 1980s many governments embarked upon wide-ranging economic reform programs under the auspices of the World Bank and the IMF, in practice the programs were not implemented. As at April 1993 only 5 out of a total of 26 ESAF programmes had been completed within their planned period and 8 had apparently broken down altogether. In the period 1980-88 three-quarters of World Bank adjustment loans had instalment tranche releases delayed because of non-implementation of policy conditions (Killick, 1996, pp. 213-4). Only during the 1990s have a significant number of governments seriously embarked upon reform. The longest reforming country, Ghana, liberalised its exchange rate in 1987. The currently leading reform country is probably Uganda, but its key reforms date only from 1992: as late as March 1992 the rate of inflation was 230% and the country had the worst risk-rating in Africa. Ethiopia, now another leading reformer, only ended its civil war in 1991. Zimbabwe, a third reformer, began its programme in 1991. The Franc Zone only corrected overvaluation in 1994.

Potentially, the reforms constitute a 'natural experiment' to test whether slow growth is inevitable. However, because the reforms are recent any such experiment faces two problems. First, it is only possible to observe the initial response to reform: this may either understate or overstate the ultimate effects. Secondly, the composition of the reforms is biased towards those which can be implemented quickly. Thus, macroeconomic policy, which can be swiftly altered through the exchange rate, tariffs, taxes and the cancellation of infrastructure expenditures, has improved substantially in the reforming countries, whereas public service delivery, which can only be improved slowly, has lagged behind and may even have deteriorated because of fiscal adjustment.

Bearing in mind these two limitations we consider the evidence from the experiment. We sort the low-income African countries (those below $1,000 per capita) according to three criteria which appear important for growth: peace, the avoidance of a high degree of macroeconomic instability, and the avoidance of large allocative inefficiencies. We compare the growth rates of output per worker for the most recent period, namely 1995-96.

During the 1990s seven countries have been severely affected by civil war: Angola, Burundi, Liberia, Rwanda, Sierra Leone, Somalia and Sudan. Between them they account for 12% of the population of SSA. The data on GDP for such countries are

either highly unreliable or missing. With this proviso, the average growth rate was 0.8%.[64]

The next criterion concerns the macroeconomic environment. The appropriate fiscal stance for Africa is disputed. Bank-Fund programmes typically aim for an inflation rate of 5% but seldom achieve it. In support of a target at around this level Sarel (1996) finds that inflation in excess of 8% reduces growth. However, critics argue for a higher inflation ceiling, typically 20%. We therefore set the inflation standard at the fairly undemanding level of an average rate below 25%/. The following African countries which satisfy the condition of peace currently fail to meet the requirement of macroeconomic stability thus defined: Comoros, Equatorial Guinea, Madagascar, Malawi, Mozambique, Niger, Nigeria, Sao Tome and Principe, Tanzania, Togo, Zaire and Zambia. This group covers 222m people, which is 43% of the population of Sub-Saharan Africa. As with social disorder, one casualty of deep macroeconomic disorder is economic statistics. With this proviso, the average growth rate was 2.7%.

The remaining criterion concerns policies which affect resource allocation. It is immensely difficult to get good quantitative measures of the efficacy of resource allocation policies. The only resource allocation indicator which is as readily measurable as the major macroeconomic indicators is the premium on the parallel market for foreign exchange. However, this is only one of many ways in which policy can affect resource allocation. We assess five policy areas which concern resource allocation: trade and exchange rate systems; the financial sector; factor and product markets; parastatals; and the composition of public expenditure. We utilise a scoring system in which World Bank country economists rate each policy area according to reasonably precise criteria (Bhattasali and Ray, 1995). We classify countries as having minimum adequate resource allocation policies if each of the five policies is above a common low threshold. Eight countries which have met the first two criteria do not satisfy this one: Cameroon, Chad, Congo, Eritrea, Guinea, Kenya, Lesotho and Zimbabwe. These countries have a combined population of 69m, or 12% of the population of Sub-Saharan Africa. The growth rate for this group was 4.2% p.a.

The three criteria leave twelve low-income countries whose governments are currently providing at least modest levels of social order, macroeconomic order and resource allocation: Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Ethiopia, Gambia, Ghana, Guinea Bissau, Mali, Mauritania, Senegal and Uganda. Between them these countries account for 26% of the population of Sub-Saharan Africa. The average growth rate for this group was 4.7%, which is quite a huge annual growth rate of output per worker.

Thus, the 'natural experiment' appears to indicate that Africa's slow growth has been the result of poor macroeconomic policies. However, such a conclusion would be premature. The current good growth rates of African reformers are misleading as an estimate of the medium run pay-off to macroeconomic policy reform in two respects. First, the correction of bad macroeconomic policies enables output to bounce back without factor accumulation, which yields unsustainably rapid growth. Secondly, the reforms may fail to induce an investment response. This may be because firms remain constrained until microeconomic reforms are implemented, because of a debt overhang

[64] Growth rates are from *World Development Indicators*, 1998 (World Bank).

which discourages investment due to fears of future tax liabilities, or because the recent macroeconomic reforms as yet lack credibility. Since the 'bounce back' effect and the investment discouragement effect work in opposite directions, current growth may either understate or overstate medium run growth, and so is of limited use in determining whether slow growth is inevitable.

There is evidence that both a lack of investment response and 'bounce back' are currently important. While the growth rates of the African reformers are currently similar to pre-crisis East Asia, investment rates are around 9 percentage points lower. The low rate of investment is entirely due to low private investment: public investment rates are comparable to those elsewhere. In Section 3 we reviewed the firm-level evidence on constraints to growth and showed that deficient public services are likely substantially to be retarding investment. There is some evidence for a debt Laffer curve with most African countries on the wrong side of it (Elbadawi *et al.*, 1996). However, a problem with the analysis of the effects of debt is that it is likely to be correlated with poor and persistent policies.

There is also evidence that the limited credibility of macroeconomic reforms is important. Survey evidence shows that the main component of investor risk is the fear of policy reversal. This may reflect both the history of poor policy and the policy reversals of neighbours. Africa is rated as the most risky region in the world and its position deteriorated sharply from a rating of 31.8 in 1979 to 21.7 in 1995. Potential investors may fear policy reversal and hold off until risk assessments have improved.

In regression analysis, lagged risk ratings significantly reduce private investment during the 1990s: if the reforming African countries had the risk rating of Botswana and Mauritius private investment as a share of GDP would have been around five percentage points higher (Jaspersen *et al.*, 1998). If high risk is a major deterrent to investment we would expect to find low investment co-existing with high returns. As we showed in Section 2, in the past this has not been the case: returns have been low. However, currently foreign investors identify risk as the major obstacle to investment in Africa. The return on foreign direct investment in Africa during 1990-94 was around 60% higher than that in other developing regions (in the range 24-30% as against 16-18%). Yet these high returns have been insufficient to offset the high risks: private capital flows to Africa remain far below those to all other regions. In 1995 flows to Africa (excluding South Africa) were only $2bn: less than 2% of all flows to developing countries and less than half those to the next-lowest region, the Middle East (Bhattacharya *et al.*, 1996).

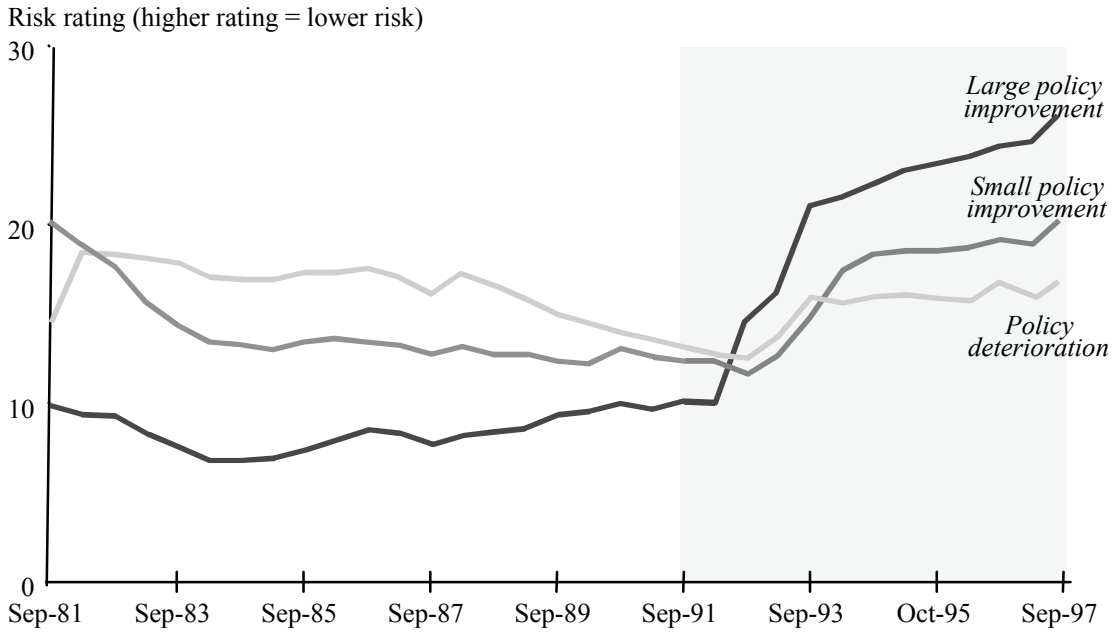
The ratings of the three major risk-rating services are largely explicable in terms of the economic characteristics of a country, such as its level of reserves, but Africa is rated significantly worse than warranted by these characteristics (Haque *et al.*, 1998). There is thus a significant Africa dummy in risk ratings. Jaspersen *et al.* (1998), find that the Africa dummy persists in all their regressions of foreign direct investment during 1990-94. They conclude: 'This gives some support to the conjecture that investors may be irrationally averse to committing FDI to African countries, since the Africa effect appears to dominate a range of fundamental economic, political and social risk factors in the regression analysis.' Further, the reform countries were those with the worst risk ratings, as shown in Figure 1 which relates the risk ratings to a World Bank

classification of 26 countries into strong reformers, weak reformers, and those in which policy has deteriorated (World Bank, 1994). The countries which became the strong reformers post-1987 had considerably the worst risk ratings right throughout the 1980s. Although policy reform has gradually improved their risk ratings, they started from a very low base.

To summarise, the 'natural experiment' evidence on the growth response to reform is directly of limited use because growth rates are contaminated by the 'bounce-back' effect. However, indirectly, it points to a problem of a lack of private investment response. Either this is because the returns on investment remain low, or because they are not high enough to compensate for perceived high risks and debt overhang. We have seen that there is clear evidence that perceived risks are indeed high. Potentially, the returns to investment may still be low despite macroeconomic policy reform because of the intrinsic disadvantages of geography, because macroeconomic policy is unimportant, or because of the poor microeconomic policy environment. However, we have seen that according to the regression evidence the disadvantages of geography are at least over the medium term more than offset by 'catch-up', and that macroeconomic policy is potent. This suggests that medium run growth is constrained by perceptions of high risk and debt overhang, and by poor microeconomic policies. In the long run geography may reassert itself, but only after a prolonged phase of rapid growth due to catch-up.

We therefore finally consider the prospects for improved microeconomic policies, for reduced risk, and for debt forgiveness. All of these prospects depend upon the political economy of reform. Underlying donor conditionality was the belief that aid could be used both to induce reform and to lock governments in. This has been discredited. There has been no clear relationship between aid and policy change, and the phase of conditionality has not seen an improvement in risk ratings, but indeed a deterioration (Burnside and Dollar, 1997). Donors have increasingly recognised this and the new Highly Indebted Poor Countries debt relief initiative instead targets aid to countries which have an established and sustained record of policy reform. There is scope for more effective lock-in mechanisms than donor conditionality, by constructing domestic and external restraints upon policy relapse. There are limits on the efficacy of domestic restraints due to the fragility of the rule of law in much of Africa. For example, the creation of legally independent national central banks might have little effect on credibility because of a history of autocratic behaviour by African presidents. External restraints other than conditionality include the WTO to bind their tariffs at low levels, and the European Union in an arrangement similar to NAFTA (Collier and Gunning, 1995). The Franc Zone shows both the benefits and the costs of external restraint. During the first post-Independence decade it significantly raised the growth rate of its members above the rest of Africa. However, by the late 1980s this effect had been reversed: governments had learnt how to evade the budget restraints while the economies suffered from being locked into the same, increasingly overvalued, exchange rate (Devarajan and de Melo, 1991).

Figure 1. Institutional Investor Risk Ratings for Africa by Policy Environment



Source: Collier and Pattillo, 1998.

Finally, we consider the changing power base of governments. As we have seen, until recently African governments have been undemocratic, instead being responsive to their narrow urban constituencies:

> Owners and workers in industrial firms, economic and political elites, privileged farmers and the managers of public bureaucracies - these constitute the development coalition in contemporary Africa. (Bates, 1981, p. 121)

It is because governments were responsive to this constituency that they survived, so that generalised economic decline posed only a modest threat. Those reforms which depressed urban consumption significantly increased strikes and demonstrations and governments responded by reversing policies (Morrisson *et al.*, 1994). In effect, the policy equilibrium identified by Bates proved locally stable: when disturbed by temporary aid the induced reforms were reversed. The wave of democratisation in Africa during the 1990s has, however, weakened the power of the old elites and so paved the way for politically sustainable reforms. To date, the reform of trade and exchange rate policies has proved much easier than the reform of infrastructure and institutions. This may be because the latter inherently take more time to implement. Alternatively, the political equilibrium may have changed sufficiently to permit macroeconomic reform, but not sufficiently to permit microeconomic reform. The problems and potential for economic policy making and improved service delivery under democratisation constitutes a new research agenda.

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