

Institutions and Development

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In late-century Africa, domestic reformers and the international community prescribed political reform as a means for securing policy reform. They sought to put an end to single party and military government and introduced multiparty politics. Using a principal agent framework, the author assesses the logical validity of these efforts. And employing a game theoretic approach, he traces the impact of political reform on political stability. He employs a panel of data from both African and global samples to measure the impact of reform on the economics and politics of Africa. The evidence suggests that reform has measurably curtailed the opportunistic use of political power, failed to influence the formulation of macro-economic policy, and increased the likelihood of political disorder.

1. Introduction

This paper addresses the political foundations for economic development in Africa and does so by exploring two basic themes: political accountability and political order. We say that political elites are accountable when, in order to retain office, they must

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employ power to serve the interests of those whom they rule. By political order we mean the extent to which people employ coercion to protect property rights rather than to trespass upon them. Where there is accountability, many hold, then those with power make policies that enhance the welfare of private citizens, as by rendering them more prosperous (e.g., World Bank, 1991). And where there is political order, then there is security for property rights, rendering it in the interests of private agents to invest, to labour and to generate higher levels of income (North and Thomas, 1973).

The paper provides data about the trajectory of political reform and political order in contemporary Africa and their significance for the behaviour of governments. It demonstrates the limited impact of political reform upon public policy, documents the relationship between reform and conflict and posits the existence of a political 'trap' that limits Africa's development.

2. Political Accountability

In the latter decades of the last century, those championing economic development in Africa championed as well political reform. They attributed the failure of development to government policies, including the tendency for rent seeking and the adoption of macro-economic policies that distorted market signals and thereby weakened incentives to invest and manage efficiently Africa's scarce resources (Ake, 1996; van de Walle, 2001).

In seeking to promote political accountability in Africa, reformers championed the introduction of competitive elections (Diamond and Plattner, 1995; Oyugi *et al.* 1998). The desire for economic betterment imparted added impetus to these efforts. When searching for the factors that account for Africa's low growth rates over the period 1960–1994, for example, Ndulu and O'Connell (1999) assign fully two-thirds of Africa's shortfall to the 'slow growth in the residual' (p. 45). In interpreting this finding, they stress the impact of authoritarian rule (p. 45) and thereby join the chorus of scholars and intellectuals (e.g., Ake, 1996, Achebe, 1987) who associate authoritarian government with economic decline in Africa.²

In the following section, we expisit the logic of political accountability that, by capturing the links between political institutions and

² The World Bank also came to posit political causes for Africa's poor economic performance. An illustration comes from World Bank, 1991.

policy choice, renders explicit the logic underlying reformist arguments. We then test the argument using data from both an African and a global sample. The data come from 46 African countries over a 26-year period, 1970–1995 (see Table 7).

2.1 *The Argument*

To capture the incentives created by rendering governments accountable, we explore a game in which the government, G , derives its utility from the rents it may extract, if maintained in office by a decisive coalition, M . The coalition can be small – for example a general or chief of staff – or large – a majority of legislature or an electorate. Absent the existence of a commitment technology, its members rationally doubt the willingness of the government to keep its promises. They therefore adopt a punishment strategy: should the performance of the economy in a given period fail to meet a pre-determined cut point, then they will ‘fire’ the government. Given the government’s desire to remain in office, this choice of strategy creates incentives for the government to refrain from the consumption of public revenues and instead to use them to generate benefits for those who mediate its chance to remain in office. As do Ferejohn (1986), Barro (1973) and Persson and Tabellini (2000), we thus treat the problem of accountability as an issue in contract theory and represent it as a principal agent problem.

In this model, there are three phases of play. In the first each citizen unilaterally selects a minimum satisfaction level, ω^i . In the second, the government formulates public policy. In the third, citizens choose whether or not to return the government to office.³ If M citizens approve, the government returns to office. If fewer than M citizens support the government, it loses power with probability $1-q$ ($q \in (0, 1)$). The government is then dismissed and a new one installed. Play then returns to the first phase in which the citizens choose criteria by which to evaluate the government’s performance in office.

2.2 *Analysis*

In exploring the capacity of citizens to tie the hands of governments, we search for the conditions under which citizens employ a

³ <<http://www.countrydata.com/wizard/>>.

retrospective voting rule with cut-off points $\{\omega^j\}$ while the government undertakes actions that are feasible, that meet the demands of some set of M principals, and that leave no incentive for any principal to alter her strategies. In such an equilibrium, the government is said to be accountable: it becomes an agent of the principals. It is constrained from consuming public revenues in the form of rents and instead provides some non-zero level of public goods in order to return to power.

In 'Political Institutions and Economic Policies,' Humphreys and Bates (2005) isolate the conditions under which such an equilibrium can exist. They thereby establish that political accountability *can* induce governments to employ their power in ways that are not purely self-interested.

The logic of their model also suggests that the degree to which governments elicit private benefits from the power to tax declines with:

- (i) The discount rates of the government. Should the government not place a high value on future terms of office, it will be more willing to run the risk of alienating the members of the decisive coalition, and therefore more willing to behave opportunistically.
- (ii) The size of the decisive coalition. The larger the number of veto points within the institutions of government, the more inclusive the decisive coalition. The more resources, then, the government must expend in order to return to office, and the more appealing a strategy based on the provision of public goods.
- (iii) The structure of the economic base. When the tax base is highly elastic, the level of taxes will be lower and their 'price' higher, in terms of the necessity of refraining from the private consumption of public revenues.

Formal analysis thus suggests that the arguments of the reformers are both consistent and compelling: in order to retain the benefits of office, governments must consume fewer private benefits than they might otherwise prefer and instead channel their revenues into the creation of public benefits. In addition, the implications of the model provide opportunities for testing the logic that links political accountability to the choices of governments.

2.3 *Empirical tests*

To assess the validity of our arguments, we assembled data on political institutions and economic structures in Africa and from a global sample of countries. As is standard, we fully capitalise the variable names; their definitions appear in Table 1.

To study the impact of institutions on policy choices, we employed two measures. Both reflect the assessments of informed observers. The first comes from the International Country Risk Guide (ICRG) produced by Political Risk Services (PRS)⁴ and is derived from scores given by a panel of international investors. Each year, the panel rates governments on a series of dimensions, each capturing elements of political, economic and financial risk. For each country, our measure, QUAL (for the quality of public policy), combines ratings of the government's propensity to engage in corruption and the government's likelihood of engaging in expropriation, giving equal weight to each. The resulting score provides a measure of the tendency to adopt distributive policies and to make opportunistic use of public power.

We also employ the World Bank's Country Policy and Institutional Assessment (CPIA), an annual evaluation of the conduct of governments that have loans outstanding with the Bank. The CPIA provides a measure of the World Bank's evaluations of governments' efforts to generate a sustainable macro-economic environment, free of major policy distortions. We use it to measure the extent to which the government provides publicly regarding policies. The Bank's rating covers the policy performance of the government in twenty specific areas, grouped into four major categories (see Table 2). Scoring the country's performance in each area from 1, for low, to 5, for high, the Bank calculates an aggregate score, or CPIA, which is the un-weighted average of the rating in each of the twenty areas.

The CPIA measures deviation from the set of policies that make up the so-called Washington Consensus (Williamson, 1990, 1994). It is important to realise that the CPIA, while informative, is flawed.⁵ In

⁴ <<http://www.countrydata.com/wizard/>>.

⁵ Regressing the aggregate score against measures of macro-economic balances – levels of government consumption, fiscal deficits, inflation and so on – shows the measure to yield highly significant relationships with objective measures of policy choices and enhances our confidence in it. There are however some technical concerns with the measure: it mixes assessments of policies with outcomes; it assigns equal weights to each policy; and the policies in Category IV are largely

addition, the extent to which the measures capture policies deemed of ‘social benefit’ is open to challenge: while the World Bank may believe that these policies generate public benefits, these views are not universally shared (Easterly, 2001; Stiglitz, 2002).⁶

In Table 3, we demonstrate the relationship between our measures of policy choice – QUAL and CPIA – and growth for our sample. Combining a Barro-like growth regression (which includes the policy ratings) with an empirical model of policy choice (which includes a measure of growth) into a single system of equations, we employ three stage least squares to generate measures of the relationship between policy and growth that are partially corrected for endogeneity. These results indicate that variation in our measures of policy choices are associated with large differences in growth rates: a one-standard-deviation shift in QUAL and CPIA is associated with a shift of approximately 1.2 and 1.8 percentage points in growth rates, respectively.

Table 3 thus highlights the significance of our exploration into the institutional determinants of policy choice.

Independent Variables

Table 1 reports the definitions of the independent variables and the sources from which they were drawn.

In describing these variables and our expectations of their relationship to measures of policy performance, we proceed in a sequence that parallels our exposition of the logic of political accountability, first dwelling on institutions, then on the determinants of the governments’ discount rate, then on the size of the decisive sets, and finally on the structure of the economy.

Institutions: According to the logic of accountability, the incentives that drive government responses bite because the government

irrelevant to the arguments of this paper. The measure is both bounded and categorical, resulting in a distribution of errors that could complicate statistical inference. Furthermore, there is evidence that the criterion for determining the score has varied over time. Note that while the CPIA index is based in part on assessments of institutions, (i) these assessments constitute but a minor portion of the total rating and (ii) were the Bank raters inclined to give higher ratings to countries that exhibited higher levels of political accountability, then this would bias us towards finding such a positive correlation in the data, contrary to what we in fact find (see below).

⁶ There is less doubt, of course, concerning the desirability of expropriation. The simple correlation between the two dependent variables is 0.51.

Table 1: *Definitions and Sources*

Variable and Variable Label	Definition	Source	Units	Range	Mean
QUALITY	See Text	PRS, ICRG data	Index	-2.5-1.5	0
CPIA	See Text	World Bank	Index	1-5	2.86
COMPETITION (Executive Scales)	See Text	Ferree and Singh, Institutional Change and Economic Performance in Africa, 1970-95; and Beck, Clarke, Groff, Keefer and Walsh, 'New Tools and New Tests in Comparative Political Economy: The Database of Political Institutions'.	Categorical	1-7	4.56
CHECKS	For presidential systems this is the sum of 1 (if there is a competitively elected legislature), 1 (for the president), and the number of relevant legislative chambers. However, if closed list = 1 <i>and</i> the president's party is the first government party, then the relevant legislative chambers are not counted. For parliamentary systems, this is the sum of 1 (if there is a competitively elected legislature), 1 (for the PM) and the number of parties in the coalition. If there is a closed list <i>and</i> the PM's party is the first government party, then this sum is reduced by one. If there is no competitively elected legislature, then CHECK1 gets a '1'.	Beck, Clarke, Groff, Keefer and Walsh, 'New Tools and New Tests in Comparative Political Economy: The Database of Political Institutions'; (CHECKS1)	Count	1-14	2.55

Table 1 (continued)

Variable and Variable Label	Definition	Source	Units	Range	Mean
PROBLEM	State Failure Task Force Problem Country Indicator	J. Goldstone <i>et al.</i> , 2003	Binary	0–1	0.18
AGRICPOP	Share of population engaged in agriculture	Constructed from FAO agricultural population data and State Failure Task Force Population Data	Share	0–1	0.47
OIL	The share of the value of domestic oil production in GDP	Multiple Source: See text	Share	0–1	0.05
GDP per capita	GDP per capita, constant 1995 prices international \$US. (thousands)	World Bank: World Development Indicators	Constant 1985 dollars	0.22–43.62	5.06
WDIGDPAG	Growth rate of per capita GDP	World Bank: World Development Indicators	Percentage	–50–85	3.69
Literacy	Based on WDI Illiteracy measure: Adult illiteracy rate is the share of adults aged 15 and above who cannot, with understanding, read and write a short, simple statement on their everyday life.	World Bank: World Development Indicators 2000	Percentage	0.2–94.3	34.5
Government Consumption	General Government Consumption as a percentage of GDP	World Bank: World Development Indicators 2000	Percentage	0.89–76.20	15.54
Gross Domestic Investment	Gross Domestic Investment as a share of GDP	World Bank: World Development Indicators 2000	Share	–0.08– 2.15	0.24
Log of Life Expectancy	Natural log of life expectancy	World Bank: World Development Indicators 2000		3.44–4.39	4.09

Table 2: *Country Policy and Institutional Assessments (CPIA)*

 Disaggregated Elements of CPIA Index

- I. Macroeconomic Management
 1. General macroeconomic performance
 2. Fiscal policy
 3. Management of external debt
 4. Macroeconomic management capacity
 5. Sustainability of structural reforms
- II. Public sector management
 1. Quality of budget and public investment process
 2. Efficiency and equity of resource mobilisation
 3. Efficiency and equity of public expenditures
 4. Accountability of the public service
- III. Policies for sustainable and equitable growth
 1. Trade policy
 2. Foreign exchange regime
 3. Financial stability and depth
 4. Banking sector efficiency and resource mobilisation
 5. Property rights and rule-based governance
 6. Competitive environment for the private sector
 7. Factor and product markets
 8. Environmental policies and regulations
- IV. Policies for reducing inequalities
 1. Poverty monitoring and analysis
 2. Pro-poor targeting of programs
 3. Safety nets

 Rating scale: 1 = low; 5 = high.

 Source: Country Policy and Institutional Assessments,
Report on 1998 Ratings Washington DC: The World Bank.

faces the prospect of ejection from office. To bring the logic to bear on debates over the role of electoral competition in economic reform, especially in Africa, we employ a measure of electoral COMPETITION. By the rules governing the creation of this measure, a polity receives a score of 1 if there is no executive in place; 2 if there is a non-elected executive; 3 if there is an elected executive but no electoral competition; 4 if there is an elected

Table 3: *Growth and Policy Choice*

Dependent Variables:	System 1		System 2	
	Growth	QUALITY	Growth	CPIA
QUALITY	1.248 [3.12]***			
CPIA			1.757 [2.52]**	
GDP growth (annual %)		0.085 [7.20]***		0.09 [8.21]***
Per capita GDP (lagged)	-1.682 [5.54]***	0.105 [10.67]***	-2.132 [6.48]***	0.186 [10.05]***
Gross Domestic Investment as a Share of GDP	12.045 [7.88]***		8.327 [7.34]***	
Life Expectancy (logged)	11.037 [4.41]***		13.597 [5.54]***	
Literacy Rate	-0.019 [2.09]**		-0.026 [2.86]***	
Literacy * GDP	0 [2.80]***		0 [3.39]***	
General government consumption (% of GDP)	-0.075 [3.44]***		-0.085 [3.41]***	
Sub-Saharan Africa	1.027 [2.04]**		1.455 [2.88]***	
COMPETITIVENESS		0.031 [3.58]***		-0.024 [2.34]**
CHECKS		0.023 [1.83]*		0.054 [3.49]***
AGRIPOP (Lag)		-0.225 [1.94]*		0.359 [2.69]***
PROBLEM (Lag)		-0.195 [5.50]***		-0.07 [1.64]
OIL		-0.442 [2.64]***		-1.068 [5.37]***
Year		0.07 [14.39]***		0.012 [2.81]***

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Table 3 (*continued*)

Dependent Variables:	System 1		System 2	
	Growth	QUALITY	Growth	CPIA
Constant	-41.588 [4.14]***	-140.402 [14.47]***	-56.211 [6.29]***	-21.459 [2.56]**
Observations	973	973	1109	1109

Absolute value of z statistics in parentheses; *significant at 10%; **significant at 5%; ***significant at 1%.

Jointly Estimated Using Three Stage Least Squares: World Sample.

These models differ from Barro's standard model in a number of ways. First, annual data is used rather than quinquennial data. Second, for reasons of data coverage, less rich education data is used: Literacy*GDP is related to Barro's interaction between GDP and human capital where literacy substitutes for Barro's aggregate human capital measure. Finally in the context of this paper our measures of QUALITY and CPIA substitute for Barro's measure of market distortions, given by a measure of the black market premium.

executive, and competition between candidates but not between parties (because opposition parties are banned); 5 if there is an elected executive and competition between candidates but not between parties (even though opposition parties are legal); and 6 if there is an elected executive, with competition between candidates backed by opposing parties taking place during the electoral campaign. A score of 7 is accorded when the executive's vote share is less than 75%.

Discount Rate: The strength of the incentives to which institutions of accountability give rise depends upon the government's rate of discount. Affecting the value the government places upon future benefits from office is its assessment of political risk. To capture the level of political risk arising from political instability, we employ a measure of the instability of a given regime developed by the State Failure Task Force (Goldstone *et al.*, 2003). This measure – which we call PROBLEM – indicates whether each country was a part of the State Failure Task Force's 'problem set' in the previous year by virtue of being embroiled in a civil conflict, undergoing extreme levels of violence or experiencing an adverse regime

change.⁷ As a secondary indicator we employ a measure of the predicted likelihood of being within the task force problem set conditional upon past information for any point in time.

Properties of the Decisive Sets: According to the logic of the model, the degree to which a government will employ political power to produce collective benefits depends upon the size of the decisive sets. The logic of the model suggests that the larger the number of veto points that can prevent the return of the incumbent to office in the institutions of government, the more likely will policy makers be to promote the creation of collective goods. The variable, CHECKS, is based upon the number of independent parts of the political process. It uses information regarding the number of different parties in a governing coalition and the extent to which there is a competitive legislature independent of the president or prime minister's party.

Economic Structure: Policy makers are constrained by the types of economies in which they function. In particular, if economic agents are able to protect themselves from predation by reducing production or by moving their assets, then extractive policies will yield fewer benefits to government.

We use two variables to capture the ease with which rents can be extracted. The first, AGRICPOP, measures the share of the population that is dependent upon agricultural production. The second, OIL, measures the value of oil production as a share of the gross domestic product. In each case we expect negative relations between these measures of economic structure and performance on the dependent variable.

Table 4 presents data from the Africa sample on key variables in the analysis. As might be expected, Botswana and South Africa receive the highest ratings from private investors; they also exhibit the highest average level of political competition. As also might be expected, the Democratic Republic of Congo receives the lowest rating from private investors as well as one of the lowest average levels of political competition. Some – such as Namibia – exhibit highly negative ratings on one dimension but highly positive scores on the other. Most exhibit investor ratings that

⁷ More information on this measure can be found on the homepage of the State Failure Task Force: <http://www.cidcm.umd.edu/inscr/stfail/sfcodebk.htm>.

Table 4: *Africa Countries Included in Estimates*

COUNTRY	Average QUALITY	Average COMPETITIVENESS	COUNTRY	Average QUALITY	Average COMPETITIVENESS
Botswana	0.4	6.0	Ethiopia	-0.5	2.0
South Africa	0.3	6.6	Zambia	-0.6	3.9
Gabon	0.3	3.4	Niger	-0.6	2.7
Cote d'Ivoire	0.2	3.8	Nigeria	-0.7	3.1
Gambia, The	0.1	6.6	Sierra Leone	-0.7	2.8
Tanzania	-0.1	3.0	Burkina Faso	-0.7	2.6
Cameroon	-0.1	3.5	Angola	-0.8	3.9
Malawi	-0.2	2.3	Republic of Congo	-0.8	2.4
Kenya	-0.2	3.1	Uganda	-0.9	3.6
Ghana	-0.3	3.3	Guinea-Bissau	-0.9	2.8
Mozambique	-0.3	3.1	Namibia	-0.9	6.8
Togo	-0.3	3.1	Madagascar	-1.1	5.1
Senegal	-0.4	6.1	Mali	-1.2	3.3
Zimbabwe	-0.4	6.4	Democratic Republic of Congo	-1.3	2.8
Guinea	-0.4	2.9			

place them significantly below the global average, and display an absence of political competition.

Restriction on the use of the Country Policy and Institutional Assessments prevents the reporting of these data for specific countries.

Control Variables

We include a small set of variables that contain information on the wealth of the country, growth rates and time. We also add an Africa dummy in the pooled regressions that employ the global dataset. This variable provides an important check on our argument. For if our reasoning provides an adequate theory of the policy preferences of Africa's governments, then the coefficient on the African dummy should fail to attain statistical significance, when the variables that capture the logic of accountability are entered into the analysis.⁸

Estimation

We first estimate our statistical models using a pooled sample of observations. We then re-estimate each model introducing country-specific effects and the lag of the dependent variable. Since a fixed-effects structure that includes a lagged dependent variable may introduce bias in finite samples (Wooldridge, 2002), we report a third version of each model that employs the Arellano and Bond Generalised Method of Moments estimator.⁹

2.4 Results

In Tables 5 and 6 below, we present two sets of findings. Table 5 reports results for QUAL for both an African and a world sample.

⁸ Our results are robust to the replacement of independent variables with their lags; however, save in the estimates reported in Table 3, we have yet to model endogenous relationships. We emphasise however that insofar as public goods provision, as recorded by the World Bank, may increase the competitiveness of institutions, this should lead to an *upward* bias in the estimated correlation and hence a bias *against* our findings.

⁹ Arellano (1991). The results reported do not take account of the categorical and censored nature of the dependent variable. While formally categorical, the dependent variables in fact contain as many as thirty values. And although formally bounded, there is little clustering of data on the boundaries. We therefore find that employing Tobit models made little impact on our estimates.

Table 5: *QUAL as Dependent Variable*

Model	I	II	III	IV	V	VI
Dependent Variable	QUAL	QUAL	QUAL	QUAL	QUAL	QUAL
Sample	Africa	Africa	Africa	World	World	World
Method	Pooled ⁺	FE	AB ⁺	Pooled ⁺	FE	AB ⁺
Theoretic Variables						
COMPETITION	0.01	0.032	0.027	0.049	0.019	0.023
	0.67	3.62***	2.14**	5.05***	2.71***	2.07**
CHECKS	0.079	-0.021	-0.029	0.045	-0.003	0.016
	3.08***	1.23	1.05	3.95***	0.28	1.25
PROBLEM (lag)	-0.225	-0.09	-0.013	-0.243	-0.079	-0.012
	4.16***	2.33**	0.30	5.75***	2.60***	0.16
AGRIPOP (lag)	-0.524	-1.136	-1.768	-0.521	-1.184	-1.294
	2.90***	1.60	1.27	3.87***	2.58**	1.47
OIL (lag)	-0.372	0.287	0.141	-0.785	0.346	1.016
	2.62***	1.34	0.54	6.27***	1.76*	2.71***
Control Variables						
GDP (lag)	0.134	0.037	0.025	0.076	-0.015	-0.025
	7.40***	0.87	0.23	12.75***	1.71*	1.27
GROWTH (lag)	0.002	0	-0.001	0.023	0.003	-0.002
	0.53	0.12	0.40	6.09***	2.33**	0.93
YEAR	0.027	0.01	0.014	0.075	0.028	0.023
	4.03***	1.96*	1.33	18.02***	7.53***	2.66***

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Table 5 (continued)

Model	I	II	III	IV	V	VI
Dependent Variable	QUAL	QUAL	QUAL	QUAL	QUAL	QUAL
Sample	Africa	Africa	Africa	World	World	World
Method	Pooled ⁺	FE	AB ⁺	Pooled ⁺	FE	AB ⁺
Lag of the Dependent Variable		0.789 19.02***	0.521 4.52***		0.772 40.62***	0.812 16.58***
Dummy Variable for Sub-Saharan Africa				0.024 0.43		
Constant	-53.39 4.07***	-19.2 1.83*		-150.238 18.10***	-54.971 7.36***	
N	338	314	285	1273	1180	1074
R ²	0.37	0.74		0.65	0.82	
Number of Cross-sectional units			29	28	104	103
Arellano-Bond test that average autocovariance in residuals of order 2 is 0: (z-stat)			1.06			-1.49

*Significant at 10%; **significant at 5%; ***significant at 1%.

Absolute value of t statistics listed below coefficients, ⁺Robust t statistics reported.

Table 6: CPIA as Dependent Variable

Model	VII	VIII	IX	X	XI	XII
Dependent Variable	CPIA	CPIA	CPIA	CPIA	CPIA	CPIA
Sample	Africa	Africa	Africa	World	World	World
Method	Pooled ⁺	FE	AB ⁺	Pooled ⁺	FE	AB ⁺
Theoretic Variables						
COMPETITION	0.011	0.001	-0.004	-0.015	0.012	0.004
	0.71	0.05	0.15	1.32	1.24	0.17
CHECKS	0.11	-0.001	-0.026	0.056	-0.005	-0.01
	3.55***	0.02	0.55	3.31***	0.32	0.41
PROBLEM (lag)	-0.091	0.034	-0.015	-0.093	-0.065	-0.147
	1.25	0.48	0.16	1.96*	1.55	1.90*
AGRIPOP (lag)	-0.33	-1.72	-3.344	-0.155	-1.033	-1.89
	1.72*	1.71*	1.41	1.13	1.63	1.56
OIL (lag)	-1.505	-0.068	-0.439	-1.346	-0.303	-0.127
	7.74***	0.13	0.72	9.31***	0.90	0.34
Control Variables						
Per capita GDP (lag)	0.127	0.022	-0.179	0.107	-0.038	-0.16
	4.90***	0.39	1.38	7.17***	1.50	3.17***
GROWTH of GDP (lag)	0.023	0.008	0.005	0.031	0.009	0.004
	6.02***	2.75***	1.32	8.23***	3.88***	1.45
YEAR	0.01	-0.005	-0.009	0.019	0	-0.001
	1.75*	0.71	0.81	4.84***	0.05	0.08

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Table 6 (continued)

Model	VII	VIII	IX	X	XI	XII
Dependent Variable	CPIA	CPIA	CPIA	CPIA	CPIA	CPIA
Sample	Africa	Africa	Africa	World	World	World
Method	Pooled ⁺	FE	AB ⁺	Pooled ⁺	FE	AB ⁺
Lag of the Dependent Variable		0.635 17.15***	0.641 10.42***		0.664 29.14***	0.687 16.11***
Dummy Variable for Sub-Saharan Africa				-0.032 0.63		
Constant	-16.896 1.51	12.093 0.83		-35.919 4.50***	2.038 0.21	
N	507	501	463	1227	1198	1099
R ²	0.27	0.46		0.24	0.49	
Number of Cross-sectional units		37	36		96	95
Arellano–Bond test that average autocovariance in residuals of order 2 is 0: (z-stat)			-0.97			0.10

*Significant at 10%; **significant at 5%; ***significant at 1%.

Absolute value of t statistics listed below coefficients, ⁺Robust t statistics reported.

Table 6 presents data for CPIA. In the case of QUAL, the analysis is based upon data from 103–104 nations, of which 28–29 are from Africa, depending on data availability; the samples cover the period 1985–95. In the case of CPIA, the global sample includes 95–96 nations and the African sample 36–37 and covers the period 1975–90.

We interpret positive coefficients for the variables relating to QUAL as suggesting that higher levels of the variable yield a lower tendency for the government to employ public powers to extract private benefits from the economy. In the case of CPIA, we interpret positive coefficients as suggesting that higher levels of the independent variable yield a stronger tendency on the part of governments to use public policy to generate a stable macro-economic environment.

Turning first to the control variables, we note a pronounced tendency for hysteresis in public policy: the magnitude and significance of the coefficients on the lagged dependent variables indicate that policies, once chosen, tend to persist. As expected, wealth and GDP growth are associated with more favourable policy ratings, although we are reluctant to impute causality to this relationship.

Institutions: According to debates over political reform in Africa and to the logic of our argument, political accountability generates incentives for policy makers by linking present conduct to future reward: the spur to self restraint originates from the risks inherent in re-selection.

When using QUAL as a measure of policy choice, we encounter the expected results (Equations 1–6). Both the African and global samples offer evidence of a relationship between electoral competition and policy performance. The results are strongly significant in all but one specification. The magnitudes of the coefficients we estimate are such that an increase in competitiveness from the lowest to the highest value is associated with an increase in the QUAL score of approximately one-fifth of a standard deviation; this difference implies an increase in growth rates of approximately one-quarter of a percentage point.

We find however that when we use the CPIA as a measure of policy choice, there is *no* evidence for a relation between institutions and public policy, once we take account of other factors. Indeed in some models there is (weak) evidence that governments that are at risk, when subject to the spur of electoral competition, choose

policies that *distort* the macro economy (Equations 9 and 10; see also the important study by Block, 2002).

Discount Rate: The data provide evidence of the impact of discounting. If a government is sufficiently unstable to fall into the State Failure Task Force's problem set (i.e., PROBLEM = 1), the policy environment deteriorates for private investors, as measured by QUAL (Table 5). The same relationship holds for the World Bank ratings of government policies in the global sample, although statistical significance is generally lost. Higher levels of regime instability tend to associate with opportunistic policy making. The magnitudes in regressions I, II, IV and V associate instability with a fall in QUAL of between one-tenth and one-fifth of a standard deviation.

Decisive Groups: The formal model underscores the importance of a third set of variables: those relating to the size of the decisive coalitions. The larger the size of its core constituency, the logic suggests, the stronger the incentives for the government to reward it through the production of public goods.

The pooled regressions suggest that governments that face multiple veto points – that are constrained by checks and balances – adopt policies that elicit higher ratings. This is true for both dependent variables and for both samples in the pooled regressions, but it disappeared when modelled using fixed effects possibly because institutional changes are slow moving.

The Nature of the Economy: When corrected for bias arising from the incidence of a lagged dependent variable, there is scattered evidence in the Africa sample that increases in the importance of primary products in the private economy are associated with self-interested policies.

When OIL is employed as a measure of resource mobility, the results for the pooled regressions support the hypothesised relationship between the costs of private goods extraction for the choices of governments. The equations that employ differenced data do not, however; and the coefficients of OIL in two equations yield evidence *against* our argument.

More consistent is the evidence of the impact of agriculturally dependent populations: governments in countries in which the population is largely agricultural tend to adopt distributive policies. While the coefficient on AGRIPOP fails to attain significance in all models (particularly those employing the Arrelano and Bond estimator), its sign is negative in all samples and for both dependent variables.

Given that Africa's economies are largely agricultural in nature, and that the most valuable industries are based on resource extraction, its governments incur fewer costs when engaging in extractive policies, and therefore fewer incentives to refrain from predatory policy making.¹⁰

Lastly, we note the African dummy in the global sample in Tables 5 and 6. In both cases, the coefficients are insignificant. Viewed within the perspective of our model of policy choice, African governments behave in ways that are indistinguishable from governments elsewhere.

2.5 Conclusion

Most relevant to present purposes are our findings concerning institutions: governments that are subject to electoral competition and that are thereby rendered politically accountable are more likely to produce collective goods rather than to extract private benefits. Given the evidence from Table 3, these differences matter: governments whose economic and political endowments predispose them to choose 'better' policies tend to secure higher rates of economic growth.

We emphasise however that in many cases we find that the magnitude and significance of these effects vary considerably by specification and as a function of the samples and equations employed. After controlling for the determinants of policy choice that are consistent with qualitative accounts and with our formal model, much of the variation in policy choice remains unexplained.

Note a striking anomaly, however. While the relation between competitive institutions and the data from private investor ratings consistently conforms to the logic of accountability, the relationship with the World Bank ratings do not. The first row of Table 6 is singularly devoid of significant coefficients: we fail to find any evidence that competitive electoral processes are positively associated with policy choices as advocated by the World Bank.

The most direct interpretation is that the results reflect the political unpopularity of stabilisation policies. Our empirical

¹⁰ Insofar as the structures of economies are themselves a function of the policy choices of governments and subsequent growth rates, this analysis suggests the possibility of multiple equilibria, with some economies residing in a low-output high-extraction equilibrium and others dwelling in a high-output low-extraction equilibrium.

estimates represent a test of the model of accountability only if citizens favour the kind of non-distortionary policies rated highly by the World Bank. Evidence from Afrobarometer¹¹ surveys indicate, however, that while African populations support some micro-economic reforms (such as the introduction of user fees if they lead to improved health and educational standards), they do not favour adjustments that accompany the tightening of macro-economic policies. Rather than regarding these adjustments as providing a public good, they view them as benefiting the few at the expense of the many.¹²

The logic of accountability presumes that governments make choices in anticipation of the response of their citizens. If African governments anticipate that their citizens prefer outcomes generated by policies that violate the Washington consensus, then despite the impact of those policies on growth, insofar as these governments are politically accountable, they will fail to adopt them.

3. Political Order

If accountability is held to be one of the political foundations for economic development, political order is held to be another. By political order, we mean when executives use their control over coercion to defend rather than to prey upon citizens and when citizens forgo the use of force. As shown in Figure 1, in the closing decades of the twentieth century, a notable feature of African politics was that, as the currents of political reform strengthened, the level of political order declined. The index of reform employed in this graph derives from the seven-point measure outlined above;¹³ that of political order is the presence or absence of

¹¹ Afrobarometer, 'Popular Attitudes to Markets, Selected African Countries, 1999–2000', Afrobarometer Homepage: <<http://www.afrobarometer.org/survey2.html>> consulted 10 October 2002.

¹² In particular, the studies found that, perhaps because they value the services provided by government or the income from government jobs, citizens do not support policies that cut the size of the public sector. The stylised reporting of the results from the Afrobarometer findings reflect the opinions of majorities in all twelve countries with the sole exception of Tanzania where respondents were more supportive of structural adjustment and, in particular, of the contraction of the public sector.

¹³ It consists of three levels: no party, one-party and competitive political systems. We have dropped the other levels of the scale because of our failure to encounter countries that possess the corresponding political institutions.

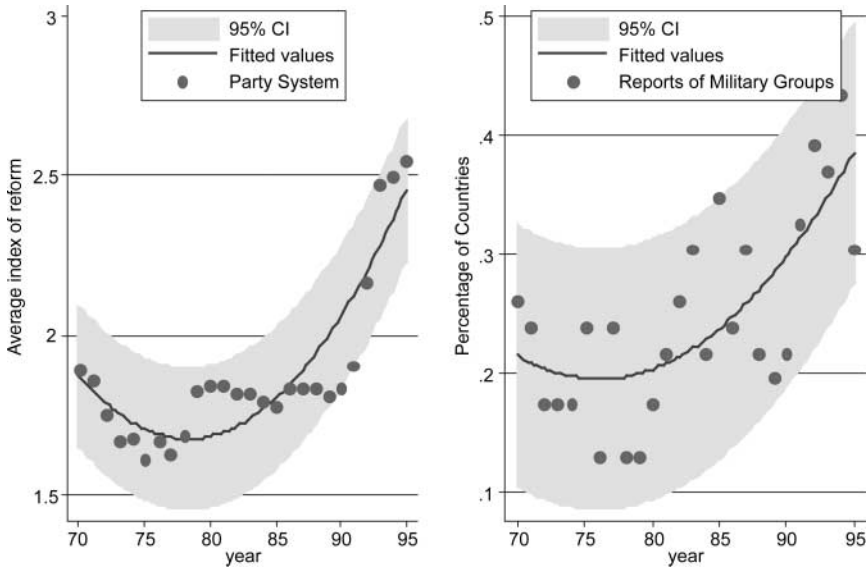


Figure 1: *Political Trends in Africa, 1970–1995*

private military organisations, as reported in the press,¹⁴ which we take to be an indicator of state failure and political insecurity.

In this section, we first provide a model of political order and then test it. Data are again drawn from 46 African states, 1970–1995 (see Table 7).

3.1 *Background*

Historically, states were created by specialists in violence. In Medieval and Early Modern Europe, kings were warriors. Warriors led Japan after the Meji restoration, China after the communist revolution and the United States after independence from Great Britain. In contemporary Africa, we again find heads of state being specialists in the use of violence. Running south along the eastern portion of Africa, for example, we find Ethiopia, Eritrea, Uganda, Rwanda, Zimbabwe, Mozambique, Namibia and Angola ruled by those who commanded the military forces that helped them seize power.

¹⁴ Table 8 provides the sources.

Table 7: *The Sample Set of Countries*

1. Angola	24. Madagascar
2. Benin	25. Malawi
3. Botswana	26. Mali
4. Burkina Faso	27. Mauritania
5. Burundi	28. Mauritius
6. Cameroon	29. Mozambique
7. Cape Verde	30. Namibia
8. Central Africa Republic	31. Niger
9. Chad	32. Nigeria
10. Comoros	33. Rwanda
11. Congo, Republic	34. Sao Tome & Principe
12. Cote d'Ivoire	35. Senegal
13. Djibouti	36. Seychelles
14. Equatorial Guinea	37. Sierra Leone
15. Ethiopia	38. Somalia
16. Gabon	39. Sudan
17. The Gambia	40. Swaziland
18. Ghana	41. Tanzania
19. Guinea	42. Togo
20. Guinea-Bissau	43. Uganda
21. Kenya	44. Democratic Republic of Congo
22. Lesotho	45. Zambia
23. Liberia	46. Zimbabwe

Informed by historical and contemporary realities and by the political theorists such as Weber (1985), who view the study of politics as the study of the use of force, we therefore introduce a figure, *G*, who is a specialist in violence. The problem we explore is: what institutional arrangements will generate incentives for *G* to employ his capacity to coerce to defend property rights, and thus render private agents secure, rather than to engage in predation?

States can break down. Historical examples include revolutions in France, Russia, China and Mexico. In contemporary times, Yugoslavia, Somalia, Liberia, Congo and the Soviet Union have collapsed. Informed by these examples, we do not assume that the state holds a monopoly of violence (*pace* Weber, 1958). Rather, when we introduce private agents, we endow them with the

capacity to engage in violence. In seeking the determinants of political order, we therefore also ask: what institutional arrangements will generate incentives for citizens to refrain from the use of force?

If governments can be predatory and citizens engage in violence, political order must then result from choice. To probe the foundations of political order, we must therefore explore the conditions under which the decisions to refrain from predation (on the part of the government) and to refrain from raiding (on the part of the citizens) represent an equilibrium.

While it has proven difficult to measure the total economic costs of political violence, a series of recent studies have highlighted the impact of violence on growth through its impact on investment (e.g., Collier, 1999; Collier and Pattillo, 1999; Imai and Weinstein, 2000). This research suggests that political conflict reduces growth rates by about 2% per year while reducing investment as a share of GDP by about 4% per year. Given the low average growth rates in the continent,¹⁵ pacification, the figures suggest, could greatly increase the rate of economic growth.

3.2 *Key Elements of the Model*

To explore the foundations of political order, we introduce two players, $i \in \{1, 2\}$, who can be individuals, families, clans or communities. Each possesses a given amount of resources, denoted by T_i , that she can allocate between work (w_i), military preparedness (m_i), and leisure (l_i). That is,

$$i \in \{1, 2\} \text{ chooses } w_i, m_i, l_i \geq 0 \text{ s.t. } w_i + m_i + l_i \leq T_i.$$

The resources devoted to work, w_i , are productive; they result in an output of $F(w_i)$ for player i .¹⁶

After allocating their resources, each player observes the decision of the other; each then (sequentially) decides whether or not to attempt to raid the other's goods. To capture this decision, define

¹⁵ Excluding South Africa, the average rate of economic growth was -1.64%, 1980-84; -1.72%, 1990-95; 0.13%, 1985-90; and only in 1970-74 did it exceed 1%. Calculated from Penn World Tables.

¹⁶ $F(\bullet)$ is assumed to be a twice continuously differentiable, concave function that maps from player i 's effort to her income.

r_i where $r_i = 1$ if player i raids and $r_i = 0$ if she does not. The amount one can gain from raiding depends not only on the quantity of the other's assets but also on the relative strength of the players: if player i attacks and player $-i$ defends, $M(m_i, m_{-i})$ is the share of player $-i$'s wealth that player i is able to expropriate if she allocates m_i units of effort to perfecting her military capabilities and the other player, $-i$, allocates m_{-i} units.¹⁷

Payoffs originate from the players' allocation of effort among working, leisure and military preparation and from the players' decisions regarding the use of their military power. Specifically, we assume that that payoffs are given for each i by $U(I_i, l_i)$, where

$$I_1 = F(w_1) + r_1(F(w_2)M(m_1, m_2) - k) - r_2[F(w_1) + r_1(F(w_2)M(m_1, m_2) - k)]M(m_2, m_1) \quad (1)$$

where k is the fixed cost of raiding, $F(\cdot)$ the value of production, and $r_i(\cdot)$ the decision to raid. (We omit the corresponding expression i_2).¹⁸

¹⁷ We ignore the possibility that one agent eradicates the other. We do so because we want to consider societies in which there are on-going interactions between groups – be they tribes, communities, lineages, or villages. Similarly, we don't consider a situation in which one gains military resources by raiding the other. When this is the case, one group is likely to come to dominate the other.

Alternatively, one can consider our analysis as related to a situation in which property rights are determined endogenously through interactions among the economic agents. The degree to which one can secure property rights depends upon relative coercive capabilities. See, for example, Skaperdas (1992); Grossman and Kim (1995); and Muthoo (2000).

Although the model's formulation is inspired by the historical experience of stateless societies, at the same time it ignores, for simplicity sake, potentially important aspects of conflict situations of the sort we seek to explore. It puts to the side, for example, evolutionary forces and specialisation in the use of violence (as in Moselle and Polak, 1999), asymmetries among the agents (as in, for example, Grossman and Kim, 1995; Muthoo, 2000), the impact of past conflicts on one's current military capabilities (discussed in Fearon, 1996; Fearon and Laitin, 1996; Laitin and Fearon, 1996), uncertainty and loss of potential exchange (discussed in Skaperdas, 1996) and moral hazard issues (explored in Addison et al., 2000). By the same token, this framework enables us to extend the analysis beyond that possible in other works. Specifically, it allows us to examine the endogenous determination of prosperity and violence. See the papers cited above as well as Usher (1999) and Skaperdas (1992).

The model in Muthoo (2000) is closest to ours. While it explores the impact of asymmetries (which we do not), it does not enable agents to invest in military capabilities (as we do) or explore such issues as deterring raids by consuming leisure or the welfare implications of endogenous state.

¹⁸ Such a fixed cost may be the stock of skills or of weapons. Note that the formulation captures the impact of both offence and of defence: the function M takes as arguments the choices of both the raider and the person being raided.

The two players, $i = 1, 2$, can thus increase their utility by increasing their consumption of leisure or their level of income by engaging in labour or by raiding.

G is a specialist in violence. In characterising the military balance between G and private citizens, we make three assumptions. Given that private agents are themselves capable of violence, (i) when G preys upon the economic output of a player i , G succeeds in capturing her wealth only in a probability, denoted by q_i ; (ii) G engages in predatory activity only if the expected revenues from its use of violence exceeds its costs of military activity, denoted by C_G , where $C_G > 0$; and (iii) G can dispossess only one agent per period.

$$I_G(\bullet) = \{[p_i q_i \Sigma(F(w_i) + r_i F(w_{-i})M(m_i, m_{-i}) - r_{-i} F(w_i)M(m_{-i}, m_i)) \times (1 - t_i \tau)] + [t_i \tau (F(w_i) + r_i F(w_{-i})M(m_i, m_{-i}) - r_{-i} F(w_i)M(m_{-i}, m_i))]\} - C_G(p_i + p_{-i}) \quad (2)$$

for $i = 1, 2$.

The first bracketed elements in the equation represent G's revenue from expropriating private agents' wealth, if G decides to engage in predation. If G dispossesses agent i , $p_i = 1$; G's expected (gross) revenue from that action then equals the probability of successful predation, q_i , multiplied by player i 's income from work and raiding, net the amount she has paid in taxes. The second bracketed term in G's payoff function is the amount of tax paid by each private agent who has chosen to do so (i.e. where $t = 1$ and τ is the tax rate). Finally, if G decides to prey upon the wealth of either agent, that is, if $p_i + p_{-i} > 0$, then G has to bear the cost of the predatory activity, $C_G(p_i + p_{-i})_i > 0$.

Employing this framework, in Bates *et al.* (2002) we isolate the arrangements under which there can exist an equilibrium in which private agents abide by a self-enforcing contract with a specialist who employs violence to protect productive activity. In particular, we explore the conditions that support a *Cooperative Governance (CG) equilibrium*, under which the specialist in violence is tamed and a state can be said to exist.

The core property of our model is that it does not assume the existence of political order. Rather, it allows it under certain conditions to obtain.

3.3 Cooperative Governance (CG) Equilibrium

We look for the conditions under which:

- (i) Each private agent chooses w_i^{CG} , m_i^{CG} , l_i^{CG} optimally (given the strategies of other players); refuses to raid; and pays taxes to G, if the other agent has not raided or if G has refrained from seizing the wealth of a private agent.¹⁹ Otherwise, the private agents 'revolt,' refuse to pay taxes and revert to self defence.
- (ii) G refrains from predating as long as neither private agent raids or fails to pay taxes. If either agent raids or fails to pay taxes, G then becomes predatory; it begins to behave as a warlord, seizing the wealth of the private agents.²⁰

In the multi-period framework that we employ, predation and violence are deterred by the threat of reversion to a state of disorder in which private agents provide their own security and in which the specialist in violence behaves as a warlord. We call the resultant equilibrium the State Failure (SF) equilibrium. When states fail, private individuals then devote resources to an activity – military effort – that can at best result in redistribution. Not only is there a low level of security in the State Failure equilibrium, then, but also people are poor.

Under what conditions can the Cooperative Governance equilibrium be sustained? For a strategy to be an equilibrium strategy, no player should be able to gain from deviating after any history, when deviation results in a reversion to the State Failure (SF) equilibrium. That is:

- (i) No private agent should be able to gain by raiding or refusing to pay taxes.
- (ii) Nor should an agent be able to gain by altering the allocation of her resources between work, leisure and military preparation.

¹⁹ Where the superscript refers to the value under the Cooperative Governance Equilibrium.

²⁰ Considering a similar equilibrium in which G punishes an agent who raided or failed to pay tax without reverting to the State Failure equilibrium does not change the analysis.

- (iii) G's threat to predate must be credible; and
- (iv) G must find it optimal *not* to predate if the economic agents adhere to their strategies.

To explore the conditions that forestall deviation and promote adherence to the equilibrium path, we focus upon the incentives that impinge upon G. It is also useful to focus first upon the incentives that prevail along the equilibrium path and those that arise from off the path of play (Figure 2).

G's incentives to adhere to the equilibrium path derive from the revenues he can secure from taxation. To induce G to refrain from predation, the tax level, τ , needs to be high enough that G finds it optimal, given the private agents' strategies, to refrain from confiscating the agents' wealth if they pay taxes. It must be sufficiently low that private agents prefer to purchase the services of G rather than to incur the costs of providing their own security. The tax level must also be sufficiently low that G's threat to predate if taxes are not fully paid remains credible. Should taxes not be fully paid, G must choose between punishing and thereby triggering a reversion to the State Failure equilibrium, or continuing to play the strategies that define the Cooperative Governance equilibrium. If a receipt of a portion of the revenues accrued under the Cooperative Governance Equilibrium exceeds the payoffs under the State Failure equilibrium, G's threat to punish will not be credible. For that reason as well taxes must not be too high.

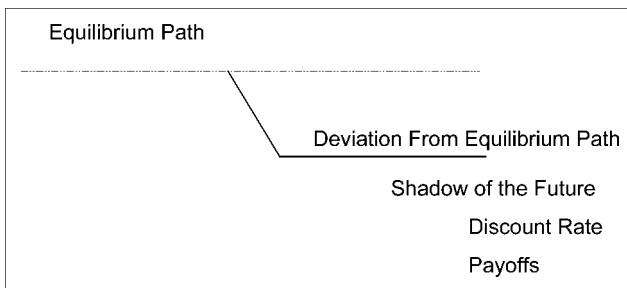


Figure 2: *The Path of Play*

The level of revenues accruing to G that sustains the Cooperative Governance Equilibrium is therefore bounded both from above and below.

Adherence to the equilibrium path also depends upon G's payoffs under the State Failure (SF) equilibrium. Should the government have access to sources of income other than the payments it receives from its citizens, it may not fear the loss of tax payments that would result were it to trigger state failure. Such might be the case were it to have access to income from natural resources or international aid, for example. Also important is G's discount rate. Should the government place a low value on the losses that would accrue from state failure, then it would little fear the consequences that would follow an opportunistic deviation from the equilibrium path. Or should the government consider its future on the equilibrium path to be uncertain or the imperative of present action so powerful that it can pay scant regard to future consequences, then the threat of the low payoffs that accrue when in state failure would be insufficient to compel it to adhere to the CG choice of strategies.

Expositing the conditions that separate political order from state breakdown, we have focused on G. But the argument assumes that the private citizens are canny observers of the elite. They know their leader's preferences and capabilities. They share his vision of the rewards he will reap and the penalties he will incur at each turn. They can therefore anticipate how the specialist in violence will comport himself and, in particular, whether he will use his command over coercion to protect them or in ways that render them insecure. When incentives are such – because conditions are such – that the citizens calculate that the government will defect and behave opportunistically, then the private agents will themselves defect from the Cooperative Governance (CG) equilibrium. They will divert resources from leisure and the production of wealth into the acquisition of the power to protect their belongings – and, should the opportunity arise, to increase their incomes by raiding the belongings of others. By these actions, they too will contribute to the breakdown of political order.

The values of three key variables – revenues, payoffs under state failure, and the discount rate – thus characterise the Cooperative Governance equilibrium (see Figure 3).

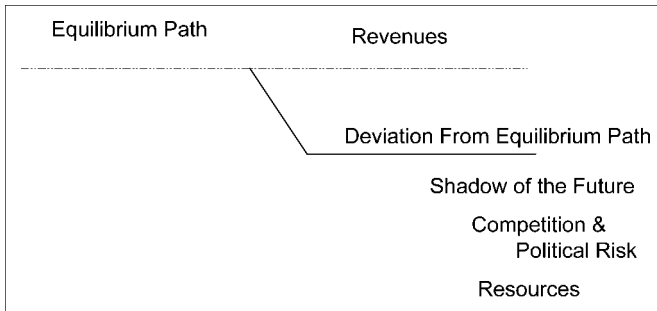


Figure 3: *Variables Shaping Incentives*

3.4 *Empirics*

The analysis therefore suggests hypotheses for testing. From a sample of 46 African countries (see Table 7), we explore the likelihood of a society taking up arms. Our measure takes on the value 1 for a given country year when the press reports the presence of private militaries.

Our model suggests:

- (i) That the likelihood of militarisation should first decline and then increase as public revenues rise. One way of testing our understanding of the basis for political order, then, is to see if public revenue enters the right hand side of the statistical model in quadratic form, with the linear term bearing a negative and the quadratic bearing a positive coefficient.
- (ii) That the likelihood of militarisation should rise the greater the government's access to other sources of income. If governments expect to remain wealthy when political order breaks down, they experience weaker incentives to refrain from predation and to adhere to the strategies of the CG equilibrium. Such may be the case in economies in which governments can predate upon oil, minerals or other natural resources (Collier and Hoeffler, 1998, 1999). In an economy blessed by nature, then, the behaviour of governments may be but weakly constrained by the shadow of the future.²¹

²¹ See also Reno (1995,1998) and Berdal and Malone (2000).

- (iii) That the militarisation of civil society is more likely when there is a drop in the government's rate of discount. When governments become more myopic, then they become less averse to future losses. Fear of the payoffs under the State Failure equilibrium may then fail to induce G to adhere to the CG choice of strategies. The implication is that a transition from an authoritarian regime to a competitive political system will lead governments to behave in ways that render re-militarisation more likely.

The logic of the argument thus yields propositions that are testable and we now turn to testing them.

3.5 Methods of Estimation

We derive one set of coefficients from a pooled sample of data collected from 46 African countries (see Table 7) over the period 1970–95. Another we generate from the same sample while entering country specific fixed effects, thereby controlling for the impact of omitted, time invariant variables.

To explore the correlates of militarisation and state collapse, we take as a dependent variable the presence or absence of reports of the presence of armed domestic groups, i.e. of military units that formed within the civilian population. It is this reversion to self-defence, our model suggests, that signals the abrogation of the contract between civil society and the state. Because the variable is bounded from above by 1 and from below by 0, the errors from regression are not identically distributed. We therefore assume that they conform to the logistic rather than the normal distribution.

Nor are the errors independent. Political disorder in one country readily spills over into another; and the presence of military groups in one year can increase the likelihood of their presence in the next. To control for spatial interdependence between state level observations, we fashion a variable that takes into account the total number of domestic military groups, civil wars and international conflicts in neighbouring countries. To control for the interdependence between the annual observations, we employ a method proposed by Beck *et al.* (1998) entering the number of 'peace years' as a variable in the equation and introducing several (three) splines to

capture the impact of past efforts at militarisation. We also produced robust estimates of the standard errors of the coefficients, thus further correcting for interdependence within and between cross-sections.

Perhaps the greatest difficulties arise from missing data.²² Resorting to case-wise deletion – that is, to dropping observations that lack data for key variables – decreases the efficiency and increases the potential for bias in the estimates; reducing the number of cases relative to the depth of the panel further increases the potential for bias in our estimates. We therefore employ the methods developed by Rubin (Rubin, 1996; Schafer, 1997) to impute point estimates of the missing values and to calculate their distributions.

Because we find heterogeneity between panels, we estimated our models while both pooling our data and introducing fixed effects. We simply found it difficult to believe that the expected level of insecurity in, say, Botswana was the same as that in, say, Sudan, even while controlling for the impact of relevant variables. And because we believed that temporal effects shape the level of insecurity, we explicitly introduced a measure of the time since the last report of civic militarisation.

By taking these – and other – measures, we sought to extract the same kind of information from our panel of 46 African countries (see Table 7) over 26 years (1970–95) that could be elicited through the application of Cox proportional hazard models. As stated by Beck *et al.* (1998, p. 1264), binary, time series cross national data ‘are *identical* to grouped duration data’ and we attempted to exploit that fact.

3.6 *Estimation Results*

Table 8 contains definitions of the variables, reports their distribution and the sources from which they were taken.

Tables 9–12 present estimates of the core model. Tables 9 and 10 present data from the pooled sample; and Tables 11 and 12 estimates that control for country-specific effects. In all instances, the country-specific coefficients, taken as a group, are significant. In Tables 10 and 12 we seek to control for potential endogeneity bias in the coefficient for government revenues; political security could, after all, be

²² This will come as no surprise to anyone who studies Africa. See Honaker (2000).

Table 8: *Variables: Definitions, Distribution and Sources*

Variable	Units	Mean Standard Variation	Source
INCOME	Log of GDP per capita (PPP)	6.835 0.021	<i>Penn World Tables</i> (Summers and Heston, 1988)
LITERACY	Percent of adult population literate	40.463 0.614	World Bank: World Development Indicators
URBAN POPULATION	Percentage of population living in cities	25.348 0.41	World Bank: World Development Indicators
MODERNISATION	Factor score derived from principal components factor analysis of INCOME, LITERACY, and URBANISATION	-1.60E-02 0.024	World Bank: World Development Indicators
GROWTH	Annual rate of growth of INCOME	-0.15 0.351	Calculated from data in <i>Penn World Tables</i> (Summers and Heston, 1988)
REVENUES	Central government revenues as percent of GDP	18.106 0.381	World Bank: World Development Indicators
ELECTIONS	1 if year before national election; 0 otherwise, as percentage of central government budget	0.191 0.013	World Bank: World Development Indicators
PETROLEUM	Value of petroleum exports per capita in constant US dollars	81.38 14.574	Data collected by research team

(continued on next page)

Table 8 (continued)

Variable	Units	Mean Standard Variation	Source
DROUGHT	Hectares of arable land per capita	0.388 0.031	Data collected by research team
DURATION	Length of time political system in place		
No-Party		2.639 0.15	Data collected by research team
One-Party		3.747 0.176	Data collected by research team
Competitive		1.395 0.127	Data collected by research team
No-Party	Dummy variable is 1 if chief executive assumes power without facing election	0.349 0.015	Data collected by research team
One-Party	Dummy variable is 1 if chief executive elected to office but faced no opposition party	0.444 0.015	Data collected by research team
NEIGHBOUR	Total level of conflict(coups + military groups + civil wars) in neighbouring states	2.728 0.033	
CROSS	Percentage of population belonging to ethnic groups that spill over national boundaries	0.733 0.036	Englebert, <i>State Legitimacy and Development</i>

Table 9: *Covariates of Militarisation*

(Pooled Sample)				
	Coefficient	Standard Error	t-Statistic	P > t
Revenues	-0.123	0.030	-4.049	0.000
Revenues2	0.002	0.001	2.905	0.004
No-Party	-0.869	0.373	-2.329	0.020
One-Party	-1.171	0.503	-2.329	0.020
<i>Duration</i>				
No-Party	0.117	0.034	3.413	0.001
One-Party	0.075	0.031	2.378	0.017
Competitive	-0.002	0.042	-0.041	0.968
Petroleum	0.005	0.005	1.057	0.291
Petroleum2	-7.6E-06	6.47E-06	-1.169	0.242
Time since last report	-0.178	0.037	-4.779	0.000
Constant	1.104	0.475	2.324	0.020
Number of observations	1048			

Collapsed states and non-independent states dropped from sample.

both a cause as well as a consequence of low government revenues.²³

Tables 13–16 repeat these estimates while including the classic set of modernisation variables (INCOME, LITERACY and URBANISATION), measures of shocks (short term GROWTH, DROUGHT and national ELECTIONS) and the level of conflict among NEIGHBOURS, as well as the percentage of the nation’s population belonging to ethnic groups that CROSS national boundaries. In the second equation in each table, the variable MODERNISATION replaces the measures of income, literacy and

²³ The instruments include the lagged value of the variable, taxes on trade as a percentage of revenues, primary products as a percentage of total exports, and the current rate of growth of the OECD countries. Entered into a fixed effects model of regression, this set of instruments is strongly related to the current level of government revenues (overall $R^2 = 0.89$) but not to the presence of domestic military groups (overall $R^2 = 0.007$).

Table 10: *Covariates of Militarisation, With Estimated Revenues*

(Pooled Sample, IU Regression)				
	Coefficient	Standard Error	t-Statistic	P > t
Estimated Revenues	-0.168	0.114	-1.472	0.165
Estimated Revenues2	0.002	0.003	0.501	0.621
No-Party	-0.667	0.408	-1.636	0.102
One-Party	-0.997	0.528	-1.887	0.059
<i>Duration</i>				
No-Party	0.122	0.032	3.842	0.000
One-Party	0.086	0.032	2.679	0.008
Competitive	0.026	0.046	0.563	0.573
Petroleum	0.005	0.005	1.087	0.277
Petroleum2	-7.30E-06	6.57E-06	-1.111	0.267
Time since last report	-0.177	1.047	1.638	0.125
Constant	1.716	1.047	1.638	0.125
Number of observations	1048			

Collapsed states and non-independent states dropped from sample.

urbanisation. Based on a factor score generated from an unrotated principal components analysis of those three variables, it provides a summary measure of the level of social and economic development and a check against estimating misleading coefficients as a result of colinearity. In all of the fixed effects estimates, the country dummies again remain jointly significant, even when these controls are entered into the equation.

Recall that the reasoning advanced suggests that the magnitude of government revenues should bear a negative relationship with the likelihood of civic re-armament, but that when 'too high,' the relationship should reverse: excessive taxation should undermine the political contract between private citizens and the state. In *all instances* the signs of the coefficients are as expected. While the standard errors of the coefficients estimated from the pooled sample impart confidence in the argument, those for the coefficients estimated in models that include fixed effects do not. Levels, not

Table 11: *Covariates of Militarisation*

(Fixed Effects)				
	Coefficient	Standard Error	t-Statistic	P > t
Revenues	-0.044	0.043	-1.015	0.315
Revenues2	0.001	0.001	1.055	0.297
No-Party	-1.196	0.607	-1.972	0.049
One-Party	-0.178	0.051	-3.528	0.000
<i>Duration</i>				
No-Party	0.014	0.040	0.344	0.731
One-Party	0.178	0.050	3.528	0.000
Competitive	0.085	0.125	0.677	0.498
Petroleum	0.015	0.007	2.018	0.044
Petroleum2	-1.6E-05	7.01E-06	-2.327	0.020
Time since last report	-0.0161	0.035	-0.461	0.645
Number of observations	833			

Collapsed states and non-independent states dropped from sample.

differences, bear significant relationships with the likelihood of the formation of private militias. Note that the coefficients for the estimated level of government revenues is greater than that of the ‘raw’ variable, suggesting that government revenues do indeed respond negatively to increased levels of political threat. When the conventional control variables are entered into the model, the instrumented value of the revenue measure becomes statistically significant in estimates derived from the pooled sample (see Table 14).

By the logic of our argument, governments that are certain of positive economic prospects even in the midst of political disorder will be tempted to behave in ways that increase insecurity, thus increasing the likelihood of popular re-armament. The sign and significance of the coefficient on PETROLEUM lends mixed support to our reasoning, with the coefficient being significant in the fixed effects models but not in estimates drawn from the pooled sample. When controls are introduced, however, the coefficient on

Table 12: *Covariates of Militarisation, With Estimated Revenues*

(Fixed Effects, IU Regression)				
	Coefficient	Standard Error	t-Statistic	P > t
Estimated Revenues	-1.537	0.131	-1.164	0.264
Estimated Revenues2	0.002	0.003	0.698	0.490
No-Party	-1.162	0.613	-1.895	0.058
One-Party	-2.286	0.734	-3.113	0.002
<i>Duration</i>				
No-Party	0.034	0.042	0.807	0.420
One-Party	0.18	0.051	3.549	0.000
Competitive	0.093	0.125	0.745	0.456
Petroleum	0.015	0.007	2.186	0.029
Petroleum2	-1.60E-05	6.55E-06	-2.477	0.013
Time since last report	-0.011	0.036	-0.303	0.762
Number of observations	833			

Collapsed states and non-independent states dropped from sample.

PETROLEUM exhibits the expected sign and attains statistical significance even when estimated from pooled samples.

Lastly, recall the importance of the discount rate: insofar as executives have reason to fear future political chaos, they will behave in ways that enhance collective security. Should they find themselves at political risk, however, and their prospects in office less certain, they will then place less weight on future losses and more readily succumb to present temptations.

Over the course of the sample period – 1970–1995 – the greatest challenge, perhaps, to incumbent elites came from democratic reforms. With the turn to democracy, elites that once faced no organised competition now had to face competitors for office. The level of political insecurity rose and, by our reasoning, so too the likelihood that the government would engage in predation. As seen in Tables 9–16, this implication is strongly supported by the data. In virtually every specification, the coefficients on the NO-PARTY and ONE-PARTY variables are negative and significant. As the dummy for

Table 13: *Covariates of Militarisation*

(Pooled Sample)								
Equation 1					Equation 2			
	Coefficient	Standard Error	t-Statistic	P > t	Coefficient	Standard Error	t-Statistic	P > t
Income	-0.464	0.551	-0.841	0.401				
Literacy	-0.008	0.009	-0.839	0.401				
Urban Population	0.001	0.017	0.036	0.972				
Modernisation					-0.386	0.342	-1.127	0.26
Growth	-0.033	0.017	0.036	0.972	-0.035	0.011	-3.363	0.001
Drought	-0.878	0.439	-2.002	0.046	-0.902	0.435	-2.075	0.039
Elections	-0.586	0.236	-2.487	0.013	-0.592	0.234	-2.532	0.011
Revenues	-0.135	0.038	-3.594	0.000	-0.135	0.0367	-3.673	0.000
Revenues2	0.002	0.001	2.92	0.004	0.002	0.001	2.981	0.003
Petroleum	0.01	0.006	1.68	0.093	0.01	0.006	1.718	0.086
Petroleum2	-1.20E-05	7.19E-06	-1.639	0.101	-1.20E-05	7.21E-06	-1.678	0.093
No-Party	-0.913	0.422	-2.16	0.031	-0.923	0.423	-2.184	0.029
One-Party	-1.398	0.495	-2.825	0.005	-1.391	0.506	-2.751	0.006
<i>Duration</i>								
No-Party	0.094	0.045	2.11	0.035	0.095	0.044	2.169	0.03
One-Party	0.0315	0.04	0.789	0.43	0.032	0.04	0.79	0.429
Competitive	0.032	0.06	-0.533	0.612	-0.037	0.055	-0.669	0.503
Neighbourhood	0.348	0.164	2.12	0.034	0.310	0.163	1.903	0.057
Cross-Border	0.369	0.288	-1.282	0.2	0.29	0.266	-1.09	0.276
Constant	4.106	3.550	1.157	0.248	0.687	0.554	1.240	0.216
Number of observations	1048				1048			

Note: Collapsed states and non-independent states dropped from sample.

Table 14. *Covariates of Militarisation Using Estimated Values*

(Pooled Sample)								
	Equation 1				Equation 2			
	Coefficient	Standard Error	t-Statistic	P > t	Coefficient	Standard Error	t-Statistic	P > t
Income	-0.497	0.488	-1.019	0.308				
Literacy	-0.007	0.009	-0.774	0.439				
Urban Population	0.002	0.017	0.087	0.931				
Modernisation					-0.395	0.348	-1.135	0.257
Estimated Growth	-0.043	0.068	-0.641	0.522	-0.05	0.07	-0.748	0.455
Drought	-0.954	0.464	-2.057	0.042	-0.937	0.455	-2.14	0.034
Elections	-0.521	0.229	-2.271	0.024	-0.524	0.227	-2.308	0.021
Estimated Revenues	-0.285	0.089	-3.202	0.002	-0.283	0.088	-3.217	0.002
Revenues2	5.00E-03	2.00E-03	2.416	0.017	0.005	0.002	2.379	0.018
Petroleum	0.01	0.006	1.723	0.085	0.01	0.006	1.769	0.077
Petroleum2	-1.20E-05	7.54E-06	1.575	0.115	-1.20E-05	7.51E-06	1.616	0.106
No-Party	-0.7442	0.43	-1.732	0.083	-0.748	0.436	-1.716	0.086
One-Party	-1.362	0.534	-2.542	0.011	-1.359	0.545	-2.489	0.013
<i>Duration</i>								
No-Party	0.087	0.041	2.146	0.032	0.087	0.04	2.156	0.031
One-Party	0.047	0.044	1.084	0.279	0.048	0.044	1.098	0.272

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Table 14 (continued)

(Pooled Sample)								
Equation 1					Equation 2			
	Coefficient	Standard Error	t-Statistic	P > t	Coefficient	Standard Error	t-Statistic	P > t
Competitive Neighbourhood	-0.027	0.055	-0.487	0.626	-0.029	0.056	-0.523	0.601
Cross-Border	0.32	0.168	1.908	0.056	0.284	0.163	1.74	0.082
Number of observations	-0.332	0.291	-1.239	0.255	-0.25	0.262	-0.95	0.34
	1048				1048			

Collapsed states and non-independent states dropped from sample.

Table 15: *Covariates of Militarisation*

(Fixed Effects)								
	Equation 1				Equation 2			
	Coefficient	Standard Error	t-Statistic	P > t	Coefficient	Standard Error	t-Statistic	P > t
Income	2.044	0.839	2.438	0.024				
Literacy	0.085	0.0381	2.233	0.026				
Urban Population	-0.052	0.057	-0.916	0.36				
Modernisation					2.473	0.905	2.733	0.007
Growth	-0.03	0.013	-2.261	0.025	-0.026	0.011	-2.296	0.023
Drought	-0.185	0.787	-0.235	0.819	-0.161	0.772	-0.208	0.839
Elections	-0.69	0.342	-2.017	0.045	-0.677	0.333	-2.033	0.043
Revenues	-0.072	0.048	-1.515	0.14	-0.051	0.047	-1.088	0.283
Revenues2	0.001	0.001	0.598	0.554	0.000	0.001	0.312	0.757
Petroleum	0.015	0.008	1.894	0.058	0.013	0.008	1.561	0.119
Petroleum2	-1.80E-05	8.42E-06	-2.166	0.03	-1.60E-05	9.02E-06	-1.803	0.071
No-Party	-6.04	0.603	-1.001	0.317	-0.449	0.536	-0.838	0.402
One-Party	-2.016	0.752	-2.683	0.007	-1.789	0.779	-2.297	0.022

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Table 15 (continued)

(Fixed Effects)								
Equation 1					Equation 2			
	Coefficient	Standard Error	t-Statistic	P > t	Coefficient	Standard Error	t-Statistic	P > t
<i>Duration</i>								
No-Party	0.018	0.061	0.292	0.771	-0.009	0.043	-0.215	0.83
One-Party	0.161	0.053	3.054	0.002	0.156	0.048	3.228	0.001
Competitive	-0.007	0.12	-0.059	0.953	-0.002	0.12	-0.019	0.985
Neighbourhood	0.09	0.242	0.0372	0.71	0.135	0.202	0.665	0.506
Cross-Border	-0.031	0.0466	-0.675	0.5	-0.039	0.041	-0.949	0.343
Time since last observation	0.003	0.036	0.087	0.931	-0.002	0.038	-0.056	0.956
Number of observations	833				833			

Collapsed states and non-independent states dropped from sample.

Table 16: *Covariates of Militarisation Using Estimated Values*

(Fixed Effects)							
Equation 1				Equation 2			
Coefficient	Standard Error	t-Statistic	P > t	Coefficient	Standard Error	t-Statistic	P > t
Income	1.699	0.87	1.952	0.06			
Literacy	0.093	0.039	2.406	0.016			
Urban Population	-0.062	0.056	-1.095	0.273			
Modernisation					2.374	0.933	2.545
Estimated Growth	-0.097	0.092	-1.049	0.295	0.094	93	-1.012
Drought	-0.874	0.994	-0.879	0.385	-0.847	1.001	-0.841
Elections	-0.831	0.334	2.488	0.013	-0.788	0.325	-2.423
Estimated Revenues	-0.206	0.128	-1.613	0.124	-0.184	0.125	-1.474
Revenues2	0.002	0.128	0.688	0.497	0.02	0.003	0.684
Petroleum	0.014	0.008	1.816	0.07	0.012	0.008	1.552
Petroleum2	-1.50E-05	7.57E-06	-1.991	0.047	-1.40E-05	7.89E-06	-1.716
No-Party	-0.425	0.622	-0.688	0.497	-0.263	0.551	-0.477
One-Party	-1.821	0.718	-2.535	0.011	-1.591	0.741	-2.147
<i>Duration</i>							
No-Party	0.02	0.063	0.323	0.747	-0.002	0.048	-0.045
One-Party	0.152	0.055	2.753	0.006	0.152	0.05	3.02

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Table 16 (continued)

(Fixed Effects)								
Equation 1					Equation 2			
	Coefficient	Standard Error	t-Statistic	P > t	Coefficient	Standard Error	t-Statistic	P > t
Competitive Neighbourhood	0.022	0.123	0.18	0.857	0.026	0.12	0.216	0.829
Interaction of Cross-Border and Neighbourhood	-0.039	0.043	-0.892	0.372	-0.048	0.036	-1.328	0.184
Time since last observation	0.006	0.038	0.156	0.876	-0.002	0.04	-0.039	0.969
Number of Observations	833				833			

Collapsed states and non-independent states dropped from sample.

COMPETITIVE political systems is lodged in the intercept term, the coefficients estimated from the pooled data indicate that single or no-party systems provide a higher level of political security than do competitive party systems. For their part, the coefficients in the fixed effects models indicate that moving from a no-party to a single-party system to a competitive party system increases the likelihood that civic society will take up arms.

Two additional features of the data on political systems merit comment. The first is the coefficient on ELECTIONS, one of the variables introduced to control for the impact of shocks. The variable takes on the value 1 the year before a national election. In this instance, we ruled out the use of lagged values for the independent variable because we would then be excluding data from precisely the cases of greatest interest: authoritarian regimes that were adopting democratic practices. The coefficient of the variable is negative: during the run up to elections, the presence of armed groups is *less* frequently reported.

Note that when this variable is introduced into the models, the coefficients on the no-party and single-party variables remain statistically significant and negative in sign; if anything, they tend to increase in magnitude. Clearly the inclusion of this measure fails to reduce the impact of political competition on the likelihood of militarisation. Clearly too, the link between political reform and political insecurity cannot run through political campaigns. Because this finding excludes a plausible alternative explanation for the relationship between competition and conflict, it enhances the credibility of our account, which runs through the impact of competition on the conduct of the incumbent regime.

Turning to other control variables, we see that the level of insecurity in a given country year appears to be influenced by the level of conflict in its neighbours. This finding does not reappear in the fixed effects estimates, however. Interestingly, we find no evidence to suggest that the cross-border spill over of ethnic groups provides the transmission mechanism for the contagion we observe.

Suggestive too are the coefficients on the modernisation variables: MODERNISATION itself and its components: INCOME, LITERACY and URBANISATION. As seen in the data from the pooled samples, countries that are more modern do not significantly differ from others with respect to the likelihood of popular

re-armament. But as seen from the fixed effects estimates, as INCOME and LITERACY rise – as countries become more modern in these respects – then so too does the likelihood of political disorder.

4. Conclusion

In recent years, those seeking economic development in Africa have increasingly focused on politics. Advocating political accountability, they have championed political reform; and they have highlighted the economic as well as the humanitarian costs of violence.

In this article, we have explored the political logic underlying accountability and disorder. We have tied political accountability to policy choice, and key variables – the level of public revenues, natural resource rents, and political competition – to the militarisation of African societies. And by subjecting the models to empirical tests, we have assessed the validity of our arguments.

Political reform *can* lead to the choice of more efficient policies, we have learned; but while lowering the level of rent seeking, the conventional mechanisms of accountability – competitive elections – fail to induce macro-economic restraint. Not only that: by increasing the time rate of discount of political incumbents, the shift to competitive politics appears to heighten the level of political disorder. With that shift, it would appear, elites lose an incentive to refrain from predation; and as citizens rationally anticipate the elite's behaviour, they prepare to defend themselves. The price of political reform thus appears in Africa to be an increased potential for violence. A political trap thus appears to await those who seek to secure economic development by promoting competitive politics.

Some of the results of this investigation reaffirm old truths. From the analysis of political accountability, for example, we find that governments in resource rich economies act as if they face weaker incentives to generate public goods. And from the analysis of political order, we find that governments behave in ways that heighten insecurity when resource endowments offer economic immunity from the costs of state failure. The structure of Africa's economies sharpens the incentives for governments to make choices that enhance the collective welfare. Our analysis thus contributes

additional evidence of, and insight into, the nature of the resource curse.

Other insights mark new terrain, albeit in ways that are troubling. They highlight the nature of the trade-offs that confront those seeking development in Africa – trade-offs that appear to underscore how costly it is not only to have ‘poor governance’ but also to establish ‘good governance’ in Africa.

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