Working paper

International Growth Centre

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August 2012

When citing this paper, please use the title and the following reference number:
S-2013-NOC-1

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FUNDED BY UKaid from the British people

Article

International Area Studies Review
15(4) 323–338

DOI: 10.1177/2233865912462373
ias.sagepub.com

The state of democracy in Sub-Saharan Africa

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Abstract
Africa experienced a wave of democratization over the past 20 years and this increase in democracy, we find, positively and significantly affects income per capita. Our dynamic panel data results suggest that countries only slowly converge to their long-run income values as predicted by current democracy levels, however. African countries may therefore be currently too democratic relative to their income levels. In keeping with this possibility, a significant number of countries are experiencing political 'back sliding': elections are won by the use of illicit tactics, term limits on political leaders have been overturned and there have been unconstitutional seizures of power.

Keywords
income, democracy, Sub-Saharan Africa, Dynamic panel data
JEL Classification: C23, O11, O17, O55

Introduction

In this paper we examine the state of democracy in Sub-Saharan Africa and its impact on Africa's economic performance. Following 1989 the region experienced a wave of democratization: most countries held elections and legalized multi-party systems and many introduced term limits for

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their leaders. Subsequently, Africa's economies grew at a rate not witnessed since the time of independence. We offer evidence of a causal relationship between democratization and economic performance. We also offer evidence that the democratic impulse may have weakened and economic growth now arises from economic forces external to Africa rather than from political forces within.

Section 2 provides a brief overview of the literature on the relationship between income and democracy and the place of Africa within it. In Section 3 we discuss our methods and data and, in Section 4, our statistical results. We find that, for Sub-Saharan Africa, democracy 'Granger' causes income. We then quantify the long- as well as the short-run relationship between democracy and income. Our error-correction mechanism predicts a slow adjustment to the long-run equilibrium, which, we suggest, implies that recent levels of democracy may be too high for prevailing levels of income. In support of this conjecture, we present recent evidence on political 'back sliding. Section 5 concludes.

Background

The analysis of democracy in Africa can usefully be placed within the larger literature on income and democracy. Seymour Martin Lipset reported a strong and positive correlation between income per capita and democracy in a global cross section of nations (Lipset, 1959). He suggested that economic development causes a series of profound social changes that result in democracy. Doing so, he not only laid the foundations of modernization theory in comparative politics but also defined a major portion of the contemporary agenda in political economy, with its focus on the relationship between political institutions and economic development.[1]

The new institutionalists (e.g. North and Thomas, 1973; North, 1981; North, 1990) take a different view: unlike Lipset, they suggest that good institutions cause development (see also Barro, 1996). The impact of the new institutionalism extends beyond academic circles. By way of illustration, consider the work by Burnside and Dollar (2000), who suggested that aid is only growth-enhancing in environments blessed with good institutions. In response to institutionalist arguments, donors began to offer aid selectively, that is, to countries with good governance.[2] As a result, in Africa, a number of countries received less aid.

Dissenting from both schools, recent contributors suggest that there is *no* relationship between income and democracy. Przeworski et al. (2000) failed to find a significant relationship between the level of income per capita and the likelihood of transition to democracy. While Boix and Stokes (2003) and Epstein et al. (2006) have challenged Przeworski et al.'s finding, it has subsequently been replicated by Acemoglu et al. (2008). While they concede that there is a positive correlation between democracy and income, they claim that there is no evidence for a causal link. Their panel regressions show that higher incomes do not lead to higher levels of democracy. They interpret their findings as evidence 'that political and economic political development paths are interwoven' (Acemoglu et al. 2008: 836) and that at 'certain critical junctures' (Acemoglu et al. 2008: 813) societies embark on divergent political–economic development paths. A result of these divergent processes is that some countries end up democratic and rich while others remain autocratic and poor. While this appears plausible, their interpretation may rest on weak foundations: Gundlach and Paldam (2009) argue that Acemoglu et al. (2008) find no relationship between democracy and income owing to the statistical methods they apply.

The study of Africa has both much to learn from and much to contribute to these debates. From them, it can learn how best to measure the relationship between political change and economic performance: an issue that we confron in the section that follows. In addition, it can help to adjudicate the debate over Lipset's conjecture, even exploring the state of democracy in Sub-Saharan Africa.

Methods and data

Past work has either examined a cross-section of countries (Lipset, 1959) or panels containing a large number of countries ('large *n*') but a small number of years ('small *t*'; e.g. Barro, 1996, 1999; Acemoglu et al. 2008). We focus on the relationship between income and democracy,[3] measures of which exist for most countries and extend back to 1960. By comparison with the methods employed by previous researchers, our estimator makes more efficient use of time series data. Our ability to make greater use of the temporal dimension of the data enables us (1) to investigate the direction of causality and (2) to examine the long and short-run relation between income and democracy in a panel error correction model.

Data

We use the Penn World Tables' (PWT 6.3) chain-weighted real GDP per capita series and the Polity IV democracy index, which covers a range spanning the interval between perfect autocracies (score of −10) and perfect democracies (score of 10). Our sample includes 105 countries, 42 of which are in Sub-Saharan Africa.[4] Figure 1 shows that on average incomes and polity scores have risen over time. While incomes have grown relatively smoothly, in the late 1980s, the polity index jumped discontinuously from −0.4 in 1989 to 1.9 in 1992. As seen in Figure 2, there are important regional differences in the movement toward democracy. Latin America democratized prior to the fall of Communism. Africa and the Middle East both democratized after 1990. The polity scores then diverged, with those in Sub-Saharan improving more rapidly.

Methods: Granger causality tests and pooled mean group estimation

We begin by entering into the first of the debates outlined above and ask: does income cause democracy or does the causal relationship run the other way around? We use 'Granger causality' tests to tackle this question.[5] The idea of 'Granger causality' is that if income causes democracy then (1) income should help to predict democracy and (2) democracy should not help to predict income. To test the null hypothesis that 'income does not cause democracy' we regress democracy, *d*, against lagged values of democracy and lagged values of income, *y* ('the unrestricted regression'):

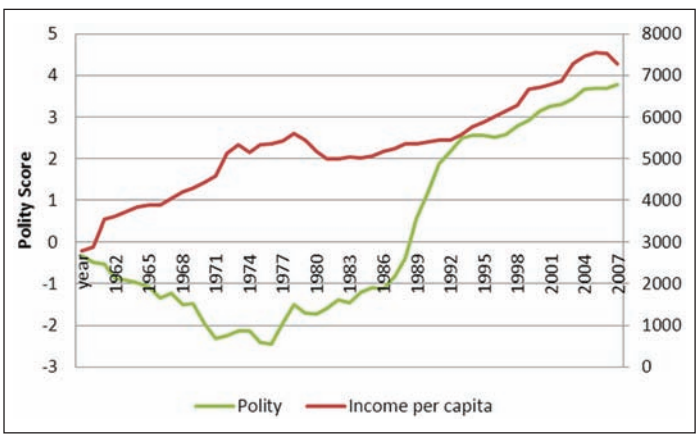

Figure 1. Global democracy and income.

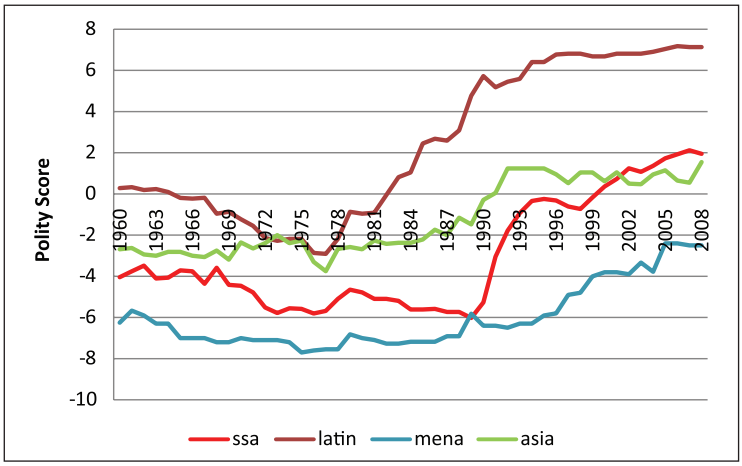

Figure 2. Average regional democracy scores.

$$d_t = \delta_0 + \alpha_1 d_{t-1} + \gamma_1 y_{t-1} + \alpha_2 d_{t-2} + \gamma_2 y_{t-2} + \alpha_3 d_{t-3} + \gamma_3 y_{t-3} + e_t$$

We then regress democracy only against lagged values of democracy ('the restricted regression'):

$$\Delta y_{it} = \phi_i (y_{i,t-1} - \mu_i - \beta d_{it} - \eta \bar{d}_t - \alpha \bar{y}_t)$$

A simple *F*-test can then be used to determine whether the lagged values of income contribute significantly to the explanatory power of the 'unrestricted model'. If they do, we reject the null hypothesis and conclude that income 'Granger' causes democracy.

We also test the null hypothesis that 'democracy causes income':

$$y_t = \eta_0 + \beta_1 d_{t-1} + \rho_1 y_{t-1} + \beta_2 d_{t-2} + \rho_2 y_{t-2} + \beta_3 d_{t-3} + \rho_3 y_{t-3} + e_t$$

versus

$$y_t = \eta_0 + \rho_1 y_{t-1} + \rho_2 y_{t-2} + \rho_3 y_{t-3} + e_t .$$

As Table 1 shows, for the global and non-Sub-Saharan Africa samples, Granger tests indicate that for the global sample causality between income and democracy runs in both directions. However, for the Sub-Saharan Africa portion of the sample they indicate that democracy 'Granger' causes income. Our findings thus indicate that, while income and democracy are positively related in the global sample, the relationship is not causal, but that in Sub-Saharan Africa, democratization has produced higher incomes.

Having established the possibility of causality, we estimate the short- and long-term relationship between income and democracy, focusing primarily on Africa. We could follow Acemoglu et al. (2008) and use either pooled ordinary least squares (OLS) or fixed effects estimation. However, we decided to use an augmented version of the pooled mean group (PMG) estimator of Pesaran et al. (1999) for a number of reasons. The end of the Cold War resulted in an exogenous worldwide wave of democratization and we want to analyse the dynamic response of incomes and democracy levels

Table 1. Does democracy cause income? Granger causality tests

Null hypothesis	Observations	Lags	*F*-statistic	Probability
	Overall sample			
Democracy does not Granger cause income	4532	3	5.472	0.001
Income does not Granger cause democracy	4532	3	6.870	0.000
	Sub-Saharan Africa sample			
Democracy does not Granger cause income	1741	3	2.574	0.052
Income does not Granger cause democracy	1741	3	1.521	0.207
	Non-Sub-Saharan Africa sample			
Democracy does not Granger cause income	2791	3	2.612	0.050
Income does not Granger cause democracy	2791	3	5.283	0.001

Note: In testing whether democracy Granger causes income, income is regressed on lags of income and democracy, and the reported *F*-statistic is a Wald-type test of the joint significance of all estimated coefficients on such lags. We also report the probability of rejecting the null hypothesis.

across countries.[6] This analytic focus requires the use of a dynamic panel estimation technique that allows us to make full use of the available time series data. Furthermore, OLS as well as fixed effects estimation assume that the parameters are homogenous across the panel, that is, all of the countries respond to changes in the same way. In contrast, the PMG estimator allows us to account not only for country and year effects but also for parameter heterogeneity across panel members. We now discuss our choice of estimator in more detail.

In their critique of Acemoglu et al. (2008), Gundlach and Paldam (2009) suggest that the inclusion of time and country fixed effects purged useful information in panel data estimation, thereby predisposing them to fail in their search for a relationship between income and democracy. Their argument highlights an important methodological dilemma: including country-specific fixed effects eliminates useful informative variation from the data, but excluding them introduces omitted variable bias. Employing an augmented version of the PMG estimator of Pesaran et al. (1999), we confront – and surmount – this dilemma. While taking into account country and year effects, we relax the assumption of cross-sectional parameter homogeneity. Even while controlling for omitted variables, we thereby extract information from sources of variation that, with their methods, Acemoglu et al. (2008) had perforce to ignore.

The PMG estimator allows intercepts, slope coefficients and error variances to vary across countries. More specifically, it allows the short-run coefficients to vary across countries, while restricting long-run relationships to be homogeneous. In the context of this research, the estimator 'assumes' that in the short run – or while adjusting to a common long-run equilibrium – each country's political institutions respond differently to income shocks.

Because it allows for heterogeneous intercepts, the PMG estimator can incorporate country-specific fixed effects. However, because it estimates the model for each country separately, it cannot allow the inclusion of year fixed effects. To correct for potential cross-section dependence in

the estimated errors, we – as do Binder and Offermanns (2007) – therefore augment the model with the cross-sectional averages of the dependent variable and regressors.[7]

To summarize formally, let d_{it} represent democracy and y_{it} represent income per capita for country i at time t, and

$$\bar{y}_t = N^{-1}\sum_{i=1}^{N} y_{it}$$

$$\bar{d}_t = N^{-1}\sum_{i=1}^{N} d_{it}$$

respectively represent their cross-sectional averages. The error correction model with p lags on both the dependent and explanatory variables then is:

$$\begin{aligned}\Delta y_{it} &= \phi_i (y_{i,t-1} - \mu_i - \beta d_{it} - \eta \bar{d}_t - \alpha \bar{y}_t) \\ &+ \sum_{j=1}^{p-1} \lambda_{ij} \Delta d_{i,t-j} + \sum_{j=0}^{p-1} \delta_{ij} \Delta y_{i,t-j} + \sum_{j=0}^{p-1} \nu_{ij} \Delta \bar{d}_{i,t-j} + \sum_{j=0}^{p-1} \omega_{ij} \Delta \bar{y}_{i,t-j} + \varepsilon_{it}\end{aligned} \tag{1}$$

Crucially, the error term ε_{it} is identically and independently distributed across i and t even in the presence of common time effects. Country intercepts – unobserved country heterogeneity – are captured by the term μ_i.

The second part of equation (1) includes the lagged changes of income and democracy; the coefficients represent the short-run adjustment terms and are assumed to vary across countries. We do not report the short-run coefficients below. The first part of equation (1) captures the common long-run relationship between income and democracy. The slope coefficients – β, η and α – measure the long-run response of income to democracy, world income and world democracy; φ is the error correction coefficient and indicates the speed of adjustment. If the system is dynamically stable and converges to a long-run equilibrium, then this coefficient will be negative and <1 in absolute value. We report these long-run coefficients below.

Starting with an initial estimate of the long-run parameters, the PMG estimator calculates estimates of error-correction and other short-run coefficients (including country-specific intercepts and error variances) as the averages of the estimated parameters for each cross-section. It then employs these average estimates to update its estimates of the long-run parameters, repeating the process until convergence is achieved.

Results

The results of our analysis confirm the existence of a positive relationship between the level of democracy and income in Sub-Saharan Africa (Table 2).[8] They suggest that a one-unit increase in democracy leads to a 1.5% increase in per capita income. Given that the average of the Polity index rose by roughly 8 points during 1977–2008, this implies an increase in per capita income of over 12 percentage points, a large number, but roughly in line with what actually occurred. While the sign and significance of the coefficients on the measures of global trends remind us that the performance of Africa's economies is shaped by international forces, the sign and significance of the coefficient on income lends support to what the Granger causality test implies that in Africa domestic political institutions affect the performance of economies.[9]

Table 2. Income and democracy: Sub-Saharan Africa sample (N = 42); 1955–2007

Dependent variable: log of GDP per capita				
Long-run coefficients	PMG		MG	Hausman test
Democracy	0.015***		0.081	1.46
	(0.002)		(0.055)	[0.23]
World democracy	0.018***		−0.018	2.13
	(0.003)		(0.025)	[0.14]
World output	1.176***		1.191***	0.00
	(0.103)		(0.363)	[0.97]
		Joint Hausman test		2.64
				[0.45]
Error correction coefficient	−0.122***		−0.259***	
	(0.030)		(0.034)	

Note: All equations include a constant country-specific term. Numbers reported in parentheses are standard errors. Numbers reported in square brackets are p-values. Asterisks indicate significance respectively at the ***1, **5 and *10% levels. We use the Schwartz Bayesian optimal lag selection criterion subject to a maximum lag of 3. World democracy and world output are respectively the cross-sectional averages of democracy and output, which we take as proxies of the common unobserved global shocks.

Why Africa?

With the data at hand, we are not in a position to explain why political reform led to economic growth in the African but not in other portions of the global sample. We are in a position to offer hypotheses, however. Our favourite is based on the high degree of urban bias that was exhibited by Africa's authoritarian regimes and the realization that democratization led to the enfranchisement of a largely rural electorate.

As summarized in Ndulu et al. (2008), the economic policies of many African regimes were characterized (*inter alia*) by:

- tariff policies that protected domestic manufacturing (but not agriculture);
- industrial regulations that conferred market power on the purchasers of agricultural products rather than on the producers of manufactured goods;
- over-valuation of their domestic currencies exchange rate.

Given that manufacturing received offsetting protection from foreign products, the last of these measures further tilted relative prices in favour of the urban sector. Taken together, the policies were therefore biased against agriculture – the largest single industry in most of Africa's economies in Africa. One result was slow growth. The estimates reported in Ndulu et al. (2008) suggest that governments that adopted this mixture of policies lowered their country's rate of growth by nearly two percentage points per annum during 1960–2000.

That political change led to policy change is suggested by data reported in Figure 3.[10] Each panel contains a box that depicts the portion of the observations of a policy measure that falls within the interquartile range, that is, those whose values place them between the lower 25% and the upper 25% of the range of the values of the variable. The horizontal lines within the boxes mark the variable's median value. The upper and lower horizontal lines laying outside the boxes mark the upper and lower values of the data.

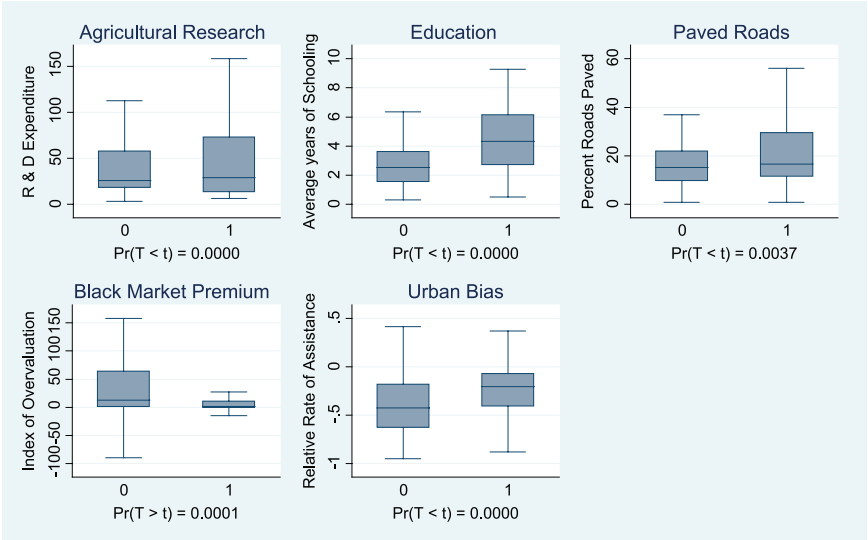

Figure 3. Policy differences.
Note: 0 means authoritarian; 1 means electorally competitive. Region, SSA; source, Bates and Block (2010).

The data suggest that African governments headed by an executive chosen in a competitive election not only exercised greater fiscal and monetary restraint than did their authoritarian counterparts (as indicated by the virtual absence of black markets for their currencies) and intervened in markets in ways less likely to shift relative prices against farmers (as indicated by their Relative Rates of Assistance);[11] and that they spent more on agricultural research, secured higher levels of educational attainment and paved a larger percentage of their roads.[12] Calculating the means, we apply one sided *t*-tests to the differences and find each to be significant and in the expected direction. Governments in competitive political systems acted in ways that lower the costs, increase the earnings and strengthen the incentives for farmers. Given the importance of agriculture in Africa's economies, it is not surprising that economic growth followed the choice of such policies.

To close the argument, we need but note that, outside of Africa, the primary locus of political reform took place in Eastern Europe and the former Soviet Union, where the structure of the economies differs greatly from those in Africa. Particularly when the transition between socialist and market-based economies was impeded by the actions of large firms and their allies in the bureaucracy (Hellman, 1998), it remained politically attractive to continue to advocate policies that favoured consumers over producers in the post-socialist economies.

Beneath this argument lie assumptions about 'the African voter', and, in particular, that rural voters are willing and able to respond to policy positions rather than, say, communal appeals. A rapidly growing number of studies suggest that, while individual voters might prefer candidates who come from their ethnic group, many fail to find the opportunity to vote in accord with that preference.[13] Researchers also find that evaluations of the economy play a major role in voting decisions. Given these findings, politicians whose fates rest in the hands of a rural electorate might well be loath to advocate policies that favour urban consumers over rural producers.[14]

Reasons for caution

The results also suggest several reasons for concern. When the sample is disaggregated by time period (Table 3), the coefficient relating democracy to income appears to decline, suggesting that the relationship between the level of democracy and income has eroded.[15] Troubling too is the magnitude of the error correction coefficient (Table 2), −0.122, which implies that the response is slow, taking nearly a decade to accomplish.[16]

Taken together – and possibly over-interpreting – these findings may be suggesting that political reform left Africa 'too democratic', given the level of income. They may imply that the continent has begun to regress to its expected value of democracy, not by growing economically but rather by becoming less democratic. While confirming the political origins of economic growth in Africa, our results thus also suggest their fragile nature.

Data from other sources deepen this concern. Consider Figures 2, 4 and 5: surging upwards in the late twentieth century, the Polity index for Africa's governments continued its ascent in the twenty-first, albeit at a lesser rate. However, as the first decade of the new century ended, political progress ended as well, stalling out at an average country score of 2 in a scale that runs up to 10. Qualitative accounts, moreover, confirm that Africa's governments, intent upon slipping the bonds of electoral accountability, increasingly abuse political rights and civil liberties. As stated by Freedom House in its report for 2010:

> 2009 marked the fourth consecutive year in which global freedom suffered a decline – the longest consecutive period of setbacks for freedom in the nearly 40-year history of the report. These declines were most pronounced in Sub-Saharan Africa.

Governments in Africa have learned how to 'win' elections through intimidation at the polls (as in Nigeria in 2007 or Gabon in 2009), the manipulation of vote counts (as in Kenya, 2007), or the

Table 3. Augmented PMG estimation; Sub-Saharan Africa sample;1955–2007 with 1989 cut-off

Dependent variable: log of GDP per capita			
PMG long-run coefficients	1955-1989 (*N* = 32) 1	1978–1989 (*N* = 19) 2	1989–2007 (*N* = 41) 3
Democracy	0.008**	0.003***	−0.001
	(0.004)	(0.001)	(0.001)
World democracy	0.053**	0.012**	−0.002
	(0.022)	(0.005)	(0.002)
World output	1.309***	0.644***	0.700***
	(0.208)	(0.157)	(0.051)
Error correction coefficient	−0.200***	−0.524***	−0.212***
	(0.034)	(0.110)	(0.043)

Notes: All equations include a constant country-specific term. Numbers reported in parentheses are standard errors. Asterisks indicate significance respectively at the ***1, **5 and *10% levels. For brevity we only report PMG results. The small time series dimension allowed us to impose a common lag of 1 on income and democracy instead of suing optimal lag selection criteria. World democracy and world output are respectively the cross-sectional averages of democracy and output, which we take as proxies of the common unobserved global shocks. The cross-sectional dimension varies for each column since over each time period the countries who happen to have constant polity scores drop out.

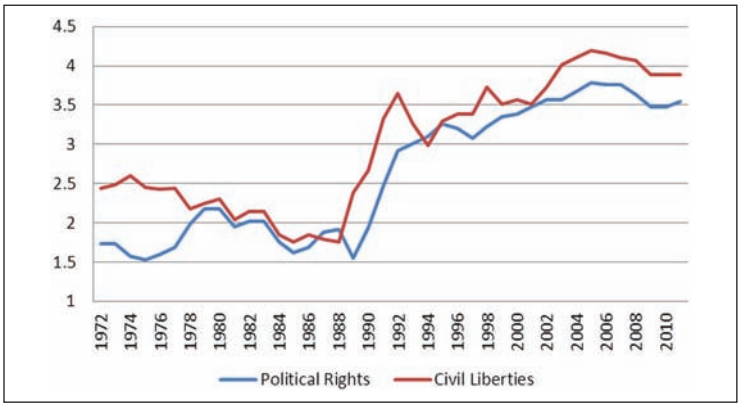

Figure 4. Freedom House indicators of democracy.
Note: Values are rescaled such that higher values mean better political rights and civil liberties.

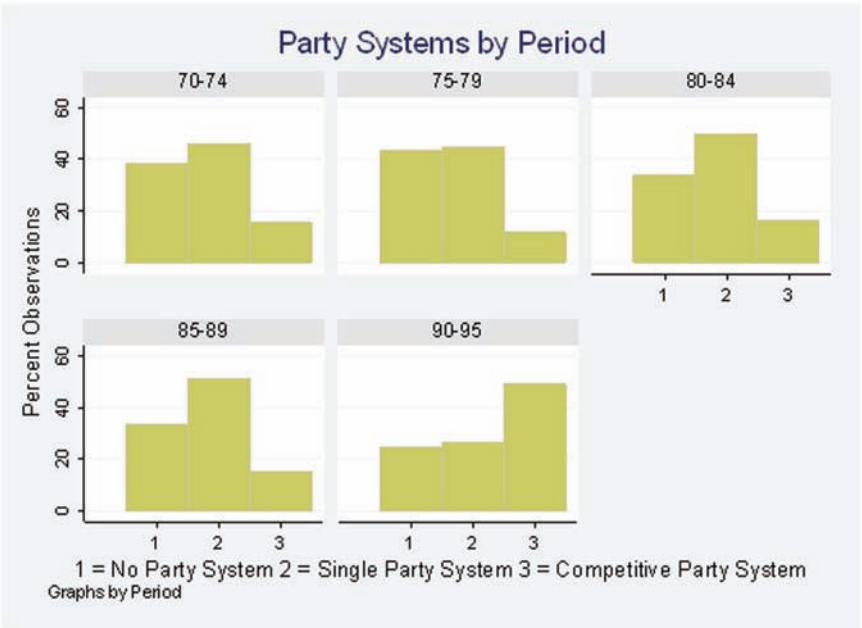

Figure 5. Party systems.
Region: SSA; source: Bates (2009).

repression of the opposition (as in Zimbabwe, 2005, 2008; Burundi, 2006; and Eritrea, 2009). Heads of state have found ways of prolonging their rule: in Angola, Jose Eduardo Dos Santos has remained in power since 1979; Obiang Nguema in Equatorial Guinea since 1979; Paul Biya in Cameroon since 1982; and Blaise Compaore in Burkina Faso since 1987. Even those once heralded as the 'new men' of Africa are no longer so new: Meles Zewani, Yoweri Museveni and Isaias Afwerki have held the Presidency of their respective states for an average of 19 years.

The desire of incumbents to prolong their hold on power has resulted in efforts to alter institutional restraints. During the period of democratization, in 33 states, reformers inserted into the constitution clauses imposing term limits (see Figure 6). By 2012, in almost a third of these instances, the clause has either been repealed or amended, thus enabling incumbent heads of state to extend their time in power. Signs of a return to authoritarianism thus mark the political landscape of Africa.

Furthermore, the region has witnessed several unconstitutional changes in leadership, for example the seizure of power by Andry Rajoelina in Madagascar in March 2009 and the recent coups d'état in Mali (March 2012) and Guinea-Bissau (April 2012). Powell and Thyne (2011) list 16 successful and four failed coup attempts for the 42 African countries in our sample during the period 1990–2010.

Conclusion

Using a panel error correction estimation method we have found, *contra* Lipset (1959), that in Africa democracy elicits economic growth, rather than the other way around, lending support to a 'new institutionist' interpretation of Lipset's hypothesis. The last-century wave of democratization

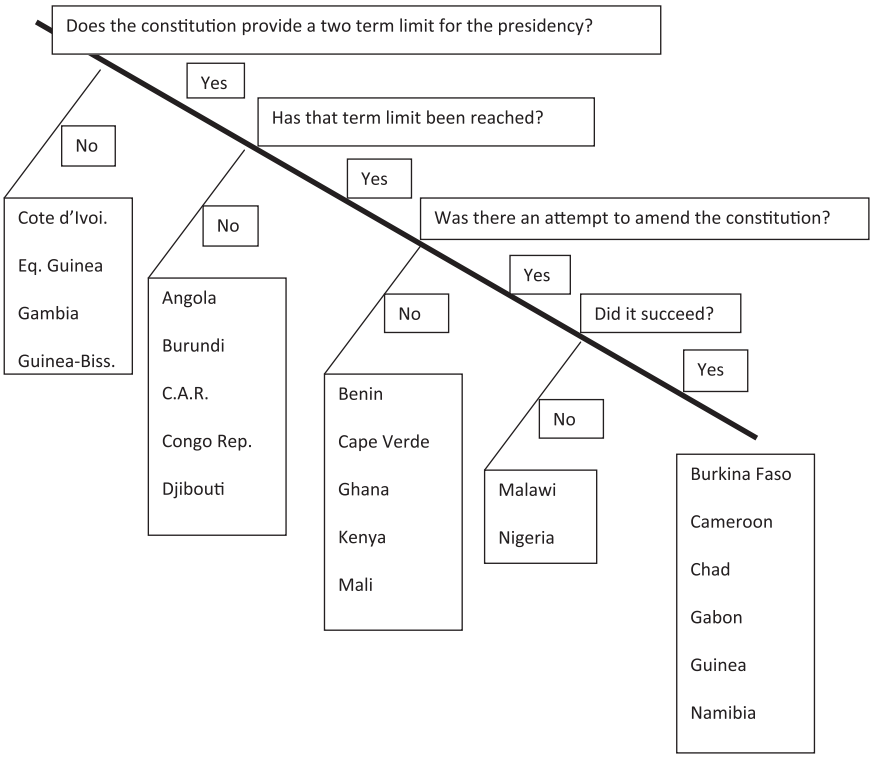

Figure 6. Term limits in Sub-Saharan Africa.

appears to have resulted in increased incomes across the region. The enfranchisement of Africa's rural majorities appears to have focused the minds and altered the policy preferences of its governments, resulting in more favourable conditions for agriculture, the largest single industry in most African economies, and higher rates of growth in Africa's agrarian economies.

Focusing on Africa itself, we have learned that the re-introduction of competitive electoral systems appears to have enhanced the level of income. However, the data appear also to suggest that the political origins of Africa's growth remain fragile. Indeed, in a large number of countries these reforms appear embattled: elections are won by the use of illicit tactics, term limits have been challenged and, in some instances, abolished; and unconstitutional leadership turnovers remain distressingly commonplace. Given the long-term relationship between income and democracy, recent democracy levels may in Africa have been too high to be sustainable; and international rather than internal forces – such as the level of global income – may determine its economic future.

Funding

Anke Hoeffler acknowledges funding from the International Growth Centre.

Acknowledgements

We would like to thank Scott Gates, three anonymous referees, Tim Besley, Rick van der Ploeg, Steven Poelhekke, as well as participants at seminars in the department of Economics, Oxford, Political Science at University College London and the CSAE 2011 conference, Oxford, for comments on earlier drafts. The usual disclaimer applies.

Notes

1. See the contributions to Helpman (2008).
2. The analysis by Burnside and Dollar (2000) has been discussed and re-examined in a large number of papers. Key articles include Dalgaard and Hansen (2001), Dalgaard et al. (2004) and Rajan and Subramanian (2008). Beynon (2002, 2003) and Roodman (2007) provide excellent and accessible overviews of the issues.
3. Lipset (1959) included a series of other factors in his conception of 'modernity', such as urbanization, education and literacy.
4. The sample size is limited by the method we employ. We use pooled mean group (PMG) estimation, which computes coefficients for each country separately. Thus we can only include countries with sufficiently long time series and cannot include countries with no time variation in the dependent variable.
5. For a textbook description of this method see for example Wooldridge (2009).
6. A model describing the short run response of variables to an exogenous change to their equilibrium values is provided by Dornbusch (1976). In this 'overshooting model' variables respond by over-adjusting before returning to their (new) long-run equilibrium.
7. For more detail on the estimation methods please refer to Fayad et al. (2011). To minimize any bias resulting from possible endogeneity and to ensure that the regression residuals are serially uncorrelated, we augment our model with lags of the regressors and dependent variable.
8. Note that we also report the related mean group estimator (Pesaran and Smith, 1995), which allows for complete (short-run and long-run) parameter heterogeneity across panel cross-sections. Using the difference between the two sets of estimates, we employ a Hausman-type test to assess the assumption of long-run homogeneity. Using this test, we cannot reject the assumption of long-run homogeneity.
9. Turn to Radelet (2010) for a clear and well-argued discussion of 17 political and economic 'success stories' in Africa.
10. For a multivariate exploration, see Bates and Block (2010). A competitive political system is defined as one in which the head of state was voted into office in an election in which an organized opposition party can and did run a rival candidate who received at least 25% of the vote.

11. The variable provides a comparison of the impact of government policies on the relative prices of agricultural and non-agricultural commodities. Lower values imply greater urban bias (Anderson, 2010).
12. Most school-aged children live in the rural areas and higher transport costs result in lower farm-gate prices.
13. It is not possible for parties to generate the quantity and mixture of candidates to satisfy such preferences.
14. See Mattes and Piombo (1999), Posner and Simon (2002), Gibson and Long (2012) and Hoffman and Long (2012).
15. Indeed, the data in Table 3 suggest that Africa's current economic growth appears now to be propelled by growth abroad – as in China and India, for example – rather than by political reform at home.
16. These results are robust to the inclusion of foreign aid as a percentage of GDP as an additional covariate. Inspection of the estimates of the individual country error correction coefficient suggests that Angola, Burkina Faso, Gabon, Gambia, Ghana, Guinea Bissau, Liberia, Malawi, Mali, Mauritania, Mozambique, Nigeria, Rwanda and Tanzania exhibit higher than average values, suggesting that income adjusts more quickly to its long-run value, given their current level of democracy. Rwanda, Mauritania, Ghana and Gambia have error correction coefficients three or more times higher than the average. The reasons for this dispersion continue to intrigue – and to elude – us.

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Appendix

Table A1. List of countries and time periods with available polity and GDP per capita data

Afghanistan	1970–2000	Kenya	1963–2007
Albania	1970–2007	Korea, Rep.	1955–2007
Algeria	1962–2007	Kuwait	1970–2007
Angola	1975–2007	Laos	1970–2007
Argentina	1955–2007	Lebanon	1970–2007
Bahrain	1971–2006	Lesotho	1966–2007
Bangladesh	1972–2007	Liberia	1955–2007
Benin	1960–2007	Madagascar	1960–2007
Bolivia	1955–2007	Malawi	1964–2007
Botswana	1966–2007	Malaysia	1957–2007
Brazil	1955–2007	Mali	1960–2007
Bulgaria	1955–2007	Mauritania	1960–2007
Burkina Faso	1960–2007	Mauritius	1968–2007
Burundi	1962–2007	Mexico	1955–2007
Cambodia	1970–2007	Mongolia	1955–2007
Cameroon	1960–2007	Morocco	1956–2007
Central African Republic	1960–2007	Mozambique	1975–2007
Chad	1960–2007	Nepal	1955–2007
Chile	1955–2007	Nicaragua	1955–2007
China	1955–2007	Niger	1960–2007
Colombia	1955–2007	Nigeria	1960–2007
Comoros	1975–2007	Oman	1955–2007
Congo, Democratic Republic of	1960–2007	Pakistan	1955–2007
Congo, Republic of	1960–2007	Panama	1955–2007
Cote d'Ivoire	1960–2007	Paraguay	1955–2007
Cyprus	1960–2007	Peru	1955–2007
Djibouti	1977–2007	Philippines	1955–2007
Dominican Republic	1955–2007	Poland	1970–2007
Ecuador	1955–2007	Portugal	1955–2007
Egypt, Arab Republic of	1955–2007	Romania	1955–2007
El Salvador	1955–2007	Rwanda	1961–2007
Equatorial Guinea	1968–2007	Senegal	1960–2007
Ethiopia	1955–2007	Sierra Leone	1961–2007
Fiji	1970–2007	Solomon Islands	1978–2007
France	1955–2007	Somalia	1970–2007
Gabon	1960–2007	South Africa	1955–2007
Gambia	1965–2007	Spain	1955–2007
Ghana	1960–2007	Sri Lanka	1955–2007
Greece	1955–2007	Sudan	1956–2007
Guatemala	1955–2007	Swaziland	1970–2007
Guinea	1958–2007	Syrian Arab Republic	1961–2007
Guinea-Bissau	1974–2007	Tanzania	1961–2007
Guyana	1966–2007	Thailand	1955–2007
Haiti	1955–2007	Togo	1960–2007
Honduras	1955–2007	Trinidad and Tobago	1962–2007

(Continued)

Table A1. (Continued)

Hungary	1957–2007	Tunisia	1961–2007
India	1955–2007	Turkey	1955–2007
Indonesia	1955–2007	Uganda	1962–2007
Iraq	1970–2002	Uruguay	1955–2007
Iran, Islamic Republic	1955–2007	Venezuela, RB	1955–2007
Israel	1955–2007	Zambia	1964–2007
Jamaica	1959–2007	Zimbabwe	1970–2007
Jordan	1955–2007		

Table A2. Data description and sources

Variable	Description	Source
Income per capita	Data measured as log real GDP per capita (chain weighted method) from Penn World, Table 6.3	http://pwt.econ.upenn.edu/
Democracy	Polity IV index ranging from −10 for perfect autocracies to +10 for perfect democracies	http://www.systemicpeace.org/polity/polity4.htm

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