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Income and Democracy: Lipset's Law Inverted

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Lipset's Law Inverted

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Abstract

In this article, we revisit Lipset's law (Lipset 1959), which posits a positive and significant relationship between income and democracy. Using dynamic panel data estimation techniques that account for short-run cross-country heterogeneity in the relationship between income and democracy and that correct for potential cross-section error dependence, we overturn the literature's recent set of findings of the absence of any significant relationship between income and democracy and in a surprising manner: We find a significant and negative relationship between income and democracy: higher/lower incomes per capita hinder/trigger democratization. We attribute this result to the nature of the tax base. Decomposing overall income per capita into its resource and non-resource components, we find that the coefficient on the latter is positive and significant while that on the former is significant but negative. In the Sub-Saharan Africa (SSA) portion of the sample where the relationship runs from political institutions – i.e. democracy – to economic performance – i.e. income, democracy is found to positively and significantly affect income per capita, which slowly converge to its long-run value as predicted by current democracy levels: SSA countries may thus be currently too democratic to what their income levels suggest.

Keywords: Income, democracy, Sub-Saharan Africa, Dynamic panel data, parameter heterogeneity, Cross-section dependence.
JEL Classification: C23, O11, O17, O55

Introduction

Writing in 1959, Seymour Martin Lipset reported a strong and positive correlation between income per capita and democracy in a global cross section of nations (Lipset 1959). Doing so, he not only lay 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]

Lipset's finding invites a dynamic and causal interpretation. And it was therefore startling when estimating Markov transition models, 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, Bates et al. 2006) have challenged Przeworski et al.'s finding, it has subsequently been replicated by (Acemoglu, Johnson et al. 2008) (henceforth AJRY). In this article, we focus on this last article and challenge the result.

In doing so, we report the presence, rather than the absence, of a significant statistical relationship between income and democracy. But the relationship we find is negative. To be noted is that AJRY also reported, but failed to comment upon, negative coefficients in their estimates.[2] Because we employ different methods, we can have greater confidence in these findings than do they, and therefore report them.

We take as our point of departure the important critique of (Grundlach and Paldan 2009) (GP hereafter), who argue that by including annual and country fixed effects AJRY purged from their panels useful information, thereby predisposing them to fail in their search for a relationship

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[1] See the contributions to Helpman, E., Ed. (2008). <u>Institutions and Economic Performance</u>. Princeton NJ, Princeton University Press.
[2] Table 2, cols. 3,4 8, and 9; Table 3, cols 2,3,4,8; and Table 4, cols 1,2, 4,5,8, and 9.

between income and democracy. In mounting this critique, GP highlight an important methodological dilemma: Including country specific fixed effects purges informative variation from the data; but excluding them introduces omitted variable bias. We confront – and surmount – this dilemma. Employing an augmented version of the Pooled Mean Group (PMG) estimator of Pesaran, Shin, and Smith (1999) we account for both country and year effects while relaxing the assumption of cross-sectional parameter homogeneity. Even while controlling for (time-invariant) omitted variables, we thereby extract information from sources of variation that were previously ignored, thereby eluding the dilemma that stymied previous research.

We exploit additional sources of heterogeneity as well. Inspired by the literature on the "rentier state" (Mahdavy 1970; Beblawi and Giacomi 1987; Chaudry 1994) and the "political resource curse" (Barro 1996; Ross 1999), we decompose overall per capita income and find that the source as well as the level of income matters: the larger the portion originating from natural resource rents, the lower the level of democracy. We also explore sources of regional heterogeneity, focusing in particular on a potentially influential bloc of countries: the 42 countries in Africa.[3].

Theoretical Background

While the Lipset hypothesis continues to dominate the field[4] our findings, while initially surprising, resonate with two literatures that engender different expectations about the relationship between economic development and institutions. One addresses conflict; the other, authoritarianism.

As recently noted by Burke and Leigh (2010), previous researchers report a negative relationship between growth and democratization (e.g. Przeworski et al. (2000); Bates et al. (2003); Doorenspleet (2004); and Brückner and Ciccone (2008)). The causal path, they argue, runs

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[3] In this paper we use Africa and SSA interchangeably.
[4] For a recent example, see Helpman

through political protest which, while leading one party to oust another in a democracy, may well lead to regime change in an authoritarian setting.   In the context of authoritarianism, by promoting political conflict, economic decline promotes democratization. We return to this literature below.

The second literature suggests that in other contexts, economic growth might retard the movement toward democracy. Most relevant is that on the resource curse. As noted by Ross (2001), the literature identifies three channels through which income from natural resources (oil and minerals) impedes democratization. In "rentier states", governments with large oil revenues manage to relieve social pressures that might otherwise lead to demands for greater accountability. They do so through less (or no) taxation of the public, spending on patronage, and preventing the formation of independent social groups that are more inclined to demand political rights. Secondly, resource-rich governments are able to spend more on internal security such as building armed forced in order to maintain order and block its citizens' democratic aspirations. Finally, as stated by Ross: "if resource-led growth does not lead to higher education levels and greater occupational specialization, it should also fail to bring about democracy" (Ross, 2001, p.336/337). Taken together, in the words of Boix (2003), "democracy emerges in countries with high returns to mobile capital (financial sectors, highly skilled population) but not in areas enjoying high incomes due to fixed capital (like oil)."

 The political resource curse literature explains how more income can lead to less democracy. Other non-resource related channels might also be at work. In this section, we ask instead: what are the theoretical foundations for periods of low incomes per capita triggering democratization?

In their survey of the literature on the political economy of growth, Alesina and Perrotti (1994) argue that "transitions from dictatorship to democracy, being associated with sociopolitical instability, should typically be periods of low growth." Presenting data on the average annual per

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capita rate of growth of GDP, separately for the years with and without government changes, they show that income growth is lower in years with government change, still lower in years with major change, and lowest in years with coups. Burke and Leigh (2010) present a game theoretic model in which output contractions can encourage democratization by reducing the citizens' opportunity cost of demonstrating for a better government. This increases the political power of citizens relative to ruling elites, and thus the pressures for democratic change. Strong growth, however, strengthens the legitimacy of autocratic governments and reduces the citizens' incentives to protest. Moreover, by constraining government expenditure possibilities, growth slowdowns reduce the bargaining power of autocratic regimes (Haggard and Kaufman, 1997) and their ability to coerce important stakeholders (Geddes, 1999), thus increasing the likelihood of democratic change (Burke and Leigh, 2010).

Finally, critics of Lipset's theory (such as Guillermo O'Donnell's "Modernization and Bureaucratic Authoritarianism") argue that development leads to the capture of public policy by international capital, which while securing favorable economic conditions, can be coercive through repression: it can place limits upon the policy choices of third world governments (Bates and Lien, 1985).

While AJRY and others challenged Lipset's theory by finding no statistically significant relationship between development and democracy, the growing empirical evidence we reviewed provided evidence on the negative (short-run) relationship between growth reduces the likelihood of democratic change. And while our paper's focus is on the *long-run* relationship between income per capita and democracy, our work is compatible with these other studies.

Data and Methods

Before revisiting "Lipset's law," we first introduce our data and our methods.

Data

We use the Penn World Tables' (PWT 6.3) chain weighted real GDP per capita series and the Polity IV democracy index which distributes over a range spanning the interval between perfect autocracies (score of -10) and perfect democracies (score of 10). 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; their polity scores then diverged, with those in Sub-Saharan improving more rapidly. We return to the African cases in later portions of this paper.

Our sample includes 105 countries, 42 of which are in Sub-Saharan Africa. Its size and composition is limited by the method we employ. Because the heterogeneous PMG estimator (discussed below) computes coefficients for each country separately, we can include only countries with long time series[5] and must exclude countries with no time variation in the dependent variable.[6]

When we disaggregate our sample by sources of income, we use the United Nations Statistics Division National Accounts Database. The data are available for 104 out of the 105 countries in our sample, but run only from 1970-2007. The data classify GDP into several categories, one of which includes Mining and Quarrying. We use this category as a measure of resource wealth. Data description in terms of definition and sources are provided in Table D of the Appendix.

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[5] The countries we lose in this respect are: Armenia, Azerbaijan, Belarus, Croatia, Czech Republic, Eritrea, Estonia, Georgia, Kyrgyzstan, Kazakhstan, Latvia, Lithuania, Macedonia, Moldova, Namibia, Russia, Slovak Republic, Slovenia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan, and Yemen.

6 The countries dropped include the consistent democracies (perfect constant score of 10) (namely Australia, Austria, Belgium, Canada, Costa Rica, Denmark, Finland, Ireland, Italy, Japan, New Zealand, Norway, Netherlands, Sweden, Switzerland, United Kingdom, United States) and the consistent non-democracies (with constant score of -10 or less; namely: Bhutan, Cuba (-7), Libya (-7), Qatar, Saudi Arabia, Singapore (-2), Vietnam (-7), and UAE (-8)).

Methods

The PMG estimator allows intercepts, slope coefficients and error variances to vary across panel members. 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. But because it estimates the model for each country separately, it can not 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.

As noted in Table 5, the data suggest the presence of reverse causality for the overall and non-SSA samples. To minimize the resultant bias and to ensure that the regression residuals are serially uncorrelated, we therefore augment our model with lags of the regressors and dependent variable. In choosing the optimal lag structure, we apply the Akaike Information Criterion (AIC) or the Schwartz Bayesian Criterion (SBC)).[7] In doing so, we are constrained to a maximum of three lags by our time series dimension and number of our regressors.[8] To be noted is that the bias that may remain works against our conclusion; the error is conservative. For, as noted by AJRY, if democracy positively feeds into income, failure to correct for its impact results in an upwards bias on the estimated effect of income on democracy.

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[7] Pesaran (1997) and Pesaran and Shin (1999) show that, for inference on the long-run parameters, sufficient augmentation of the order of the ARDL model can simultaneously correct for the problem of residual serial correlation and endogenous regressors.

[8] To illustrate: Using SBC, we determine the lag order for each country, subject to a maximum lag of three; we then impose a homogeneous lag structure, using the most common of the country-specific lag orders. Note that another advantage of using the PMG ARDL approach is that there is no need for pre-testing our variables for the presence of unit roots. Pesaran et al. (1999) show the consistency of the PMG estimator in the case of I(0) and I(1) regressors.

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 ECM with p lags on both the dependent and explanatory variables then is:

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

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 democracy to income, 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 less than one in absolute value. We report these long-run coefficients below.

Starting with an initial estimate of the long-run parameters, the PMG estimator calculated 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.

Note that we also report the related mean group (MG) estimator (Pesaran and Smith, 1995) which allows for complete (short-run and long-run) parameter heterogeneity across panel cross-sections. If the slope coefficients are heterogeneous, the MG estimator is consistent. Since our cross-sectional dimension is large, the MG estimator is less likely to be biased by outliers. The mean group estimator does not take into account that some economic conditions tend to be common across countries in the long run, however. The PMG estimator does, and so captures efficiency gains from assuming common long-run relationships while at the same time allowing for heterogeneous short-run dynamics. Using the difference between the two sets of estimates, we employ a Hausman-type test to assess the assumption of long-run homogeneity.

Estimation

We begin by employing an extended version of our dataset to reproduce the results of AJRY and GP. This dataset includes, in addition to our overall sample, all the countries that were dropped due to the restrictions imposed by PMG (as discussed above). This results in a sample of 153 countries for the annual data panel, and 129 countries for the five- and ten-year data panels, over the 1960-2000 period. As did AJRY, we find (Table 1, columns 1-3) that the coefficient on the income variable is positive and significant, when estimated from pooled data using ordinary least squares, but does not significantly differ from zero when including time and country fixed effects[9]. We also find that when we estimate their model employing our smaller PMG sample (Table 1, columns 4-6), their findings remain unchanged. Insofar as our results differ from those

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[9] We only report results from the annual sample. We also reproduced but chose not to report their results with 5-year and 10-year data, as we believe that in these much shorter samples the lagged dependent variable bias (Nickell, 1981) when including fixed effects is large.

of earlier researchers, then, it is not because we are making use of different data. We next provide econometric evidence in support of that.

Table 3 presents the major (PMG) results derived from our model. Our results are reported in the first column of Table 3, while MG estimates appear in the second. The Hausman test in column 3 result testifies to the validity of the long-run homogeneity restrictions imposed by the PMG estimator.[10] The coefficients generated by the pooled mean estimator suggest *that income is negatively and significantly related to democracy*. Given that the model is linear log, they suggest that a 10% *increase* in per capita income leads in the long run to a roughly 0.12 unit *decrease* on the polity scale. While AJRY report negative coefficients for the relationship between income and democracy, they refrain from commenting upon them, perhaps because they find them implausible. We, however, can confidently conclude that not only is there no positive relationship between income and democracy in global samples; the relationship is negative.

In contrast to the coefficients on per capita income, those on global changes in output and democratization over the sample period *positively* affected the level of democracy: both are significant; and large. When the global democracy score increases by one unit, the democracy score improves by an average of 0.8 units; and on average, a 10% increase in world income improves the democracy score by 0.3 units.

The error correction coefficient is significant; it suggests about 26 percent of error correction in the single-period response of democracy to a departure from its long-run equilibrium value as predicted by the level of per capita income. These results are robust to the optimal lag selection criterion (AIC vs. SBC), to the number of lags, to the cross-sectional demeaning of the data, and to whether Sub-Saharan Africa is included or not in the overall sample.

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[10] More specifically, the difference between both MG and PMG estimators is used to compute a Hausman-type statistic. Under the null hypothesis of long-run parameter homogeneity, both estimators are consistent, but the PMG is more efficient. When the true long-run parameters are instead heterogeneous, the MG estimator remains consistent while the PMG loses consistency.

Recall that GP found that when country fixed effects alone were included in the model, the coefficient on lagged income per capita was significant and positive. As did AJRY[11], they[12] too reported a negative coefficient for income in models which include both country and annual dummies. Our results take this finding one step further: When we use the more efficient PMG estimator, this negative coefficient becomes significant.[13]

In closing, note Table 6: For the global and non-Sub-Saharan Africa samples, it reports, Granger causality tests indicate that causality between income and democracy runs in both directions. The presence of reciprocal causation would introduce endogeneity bias in our estimates of the coefficient on income. But since our estimates yield negative signs, the coefficients should be even more negative once this bias is taken into account.[14]

When pondering the difference between our findings and those of AJRY, it is useful to turn to Table 2, which reports the results we secure when we employ the pooled error correction OLS model to regress democracy on its lags and on the level of income per capita (also with lags)[15] while using the PMG sample. As can be seen, we then get negative and significant long-run coefficients on income per capita in our PMG sample, and the magnitudes are similar to our long-run PMG coefficients (discussed below). However, estimating the pooled error correction model while using the AJRY (bigger) sample[16] yields long-run coefficients on income per capita that are insignificant, regardless of the number of lags[17].

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[11] Table 2, cols. 3,4 and 8; Table 3, cols 2,3,4,8; and Table 4, cols 1,2,8,4.

[12] Column 1 in Tables 3 and 4.

[13] When we run the PMG without accounting for time effects, the coefficient on income per capita is instead positive and significant.

[14] Put differently, the negative sign on our income per capita coefficient suggests that the reverse causality bias has been corrected through our estimation technique.

[15] and which includes country and year fixed effects.

[16] Which , unlike our own, includes countries with no time-variation in democracy variable;

[17] There is also evidence in this sample that democracy and income per capita are I(1) and cointegrated.

The difference between our results and those of AJRY thus arise from 1) our estimation methods which exploit both the dynamic and heterogeneous properties of the data and 2) the different sample we use which excludes both consistent autocracies and consistent democracies, as using PMG required. For the consistent democracies, their strong economic performance did not result in any change in their polity scores. For those countries: because they tend to be wealthy, we fail to take note of the relationship between strong economic performance and high polity ratings. The same applies for the consistent autocracies which we exclude: countries that have been largely authoritarian since their independence. Therefore, by focusing our sample on country-years that did experience changes in both their incomes and polity scores, i.e. countries that witnessed movements either away or towards more democracy, we are able to pick up a significant relationship between income and democracy, one that turned out to be negative. This relationship was also picked up by a simple pooled (non-heterogeneous) OLS error correction model. Both the sample choice and the methodology thus led us to our results[18].

Digging Deeper

In this section, we explore the possible impact of additional sources of variation: variation in the composition of the national income and regional relationships between income and democracy.

The Composition of the Economy: We begin by taking counsel from the literature on the "rentier state" (Mahdavy 1970; Beblawi and Giacomi 1987; Chaudry 1994) and the "resource curse" (Barro 1996; Ross 1999). Those contributing to this literature argue that access to abundant natural resources constrains the level of democratization. Following Ross (2001), we augment our baseline regression with the World Bank measure of natural resource rents as a

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[18] In relation to Figure 2, where global income and democracy appear to be negatively correlated up to 1985, we check whether our results on the negative relationship between income and democracy are driven by the pre-1985 period. Estimating both the PMG and the pooled OLS ECM for the sub-period 1985-2007, our results are maintained, with the only difference that global output in the PMG model is now significantly *negatively* related to democracy.

percent of GDP. [19] Doing so reduces our overall sample to 98 countries over the period 1970-2007. As seen in Table 4, we too find a negative and significant coefficient for the relationship between resource rents and democracy.

Table 5 decomposes national income into two components: that deriving from natural resources and that deriving from other sources. Our sample now consists of the 102 countries over the period 1970-2007. To highlight the results of interest, we refrain from reporting the coefficients on the cross-sectional averages. Column 1 of Table 5 reproduces the specification employed in Table 3, but estimated from the current sample. The coefficients of interest remain roughly the same as that in Table 3. Columns 2, 3, and 4 report the PMG coefficient on resource and non-resource GDP per capita, first separately and then combined. The results confirm that it is *only* the resource proportion of income per capita that is negatively and significantly related to democracy.

The African Sub-sample: Investigating the relationship between income and democracy, we uncover an additional source of heterogeneity: one that stems from differences between regions.

As stressed by Huntington (Huntington 1991), democratization comes in waves. The most recent arose in the late 1980s, when the collapse of socialist regimes in Eastern Europe was closely followed b the collapse of communism in the Soviet Union and the introduction of competitive electoral systems in much of Sub-Saharan Africa,

Focusing on the last, we find that rather than running from economic growth to political change, as Lipset's hypothesis implies, the direction of causality appears to run in the opposite direction: i.e. from democratization to development. In addition, in the African sample, the origins of democracy appear to be international rather than internal. Both findings were adumbrated in the qualitative literature,

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[19] In our case, any oil dummy would be absorbed in the country fixed effects.

As documented in academic studies (Bank 1991; Ndulu, O'Connell et al. 2008) and official reports (Bank 1991) those addressing Africa's poor economic performance in the post-independence period traced its root to Africa's political systems. Overwhelmingly authoritarian (see Figure 5), they were narrowly based resting on a coalition composed of public employees, urban manufacturers, and industrial firms. As best summarized in (Ndulu, O'Connell et al. 2008), the economic policies of many African regimes were therefore characterized (*inter alia*) by:

- Tariff policies that protected domestic manufacturing (but not agriculture).

- Industrial regulations that conferred market power on the producers of manufactured goods but upon the purchasers of agricultural products.

- 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 slower growth, as incentives eroded for persons to invest capital or labor power in farming. Given that agricultural exports generated a significant portion of Africa's earnings in foreign markets, another was external debt.

Although international donors pressured Africa's governments for policy reform, the latter were reluctant to comply. As authoritarian regimes, they were based on a narrow set of organized interests, each of which benefitted from the urban bias of government policies. And while Africa's farmers stood to benefit from policy reform, they lay widely scattered, resided in culturally distinctive communities, and therefore found it difficult to organize. As the logic of collective action (Olson 1971), (Bates 1981; Becker 1983))would imply, the urban coalition prevailed politically, and this mix of policies persisted in place.

Recognizing the political forces at play, those who sought to alter these policies ad thereby secure the renewal of economic growth in Africa sought political reform. They sought to alter political incentives such that politicians would no longer regard these policies as politically winning. In particular, they recognized that should Africa's political systems be changed, and rural dwellers once again be able to vote, then, given their numbers, their interests, and their presence in numerous electoral districts, they could render these policies politically unsustainable. In pursuit of policy reform, Africa's creditors abroad therefore joined domestic reformers at home in demanding a return to open political competition and majority rule.

As discussed by (Dunning 2004) and (Bates 2009), until the late 1980s, the Cold War initially kept external pressures in check. Following the breakup of the Soviet Union, however, foreign ministries in the West were less inclined to stay the hand of finance ministries, and the latter enjoyed far greater latitude in their negotiations with debtor governments. Financial institutions were now free to act in concert with domestic reformers. In the absence of political reform, they could – and did – suspend further lending. In pursuit of foreign capital, Africa's governments capitulated, conceding the right to form opposition parties that could compete for votes. The change in institutions enfranchised Africa's the rural population.

Figure 6 furnishes evidence of the policy changes that resulted.[20] Each panel contains a box that depicts the portion of the observations of a variable that fall within the interquartile range, i.e. 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.

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[20] For a multivariate exploration of these contrasts, see Bates R.H. and S. Block (2010). Revisiting African Agriculture: Institutional Change and Productivity Growth. Cambridge MA, Weatherhead Center. 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.

The data suggest that African governments headed by an executive chosen in a competitive election not only exercise greater fiscal and monetary restraint than do their authoritarian counterparts (as indicated by the virtual absence of black markets for their currencies) and intervene in markets in ways less likely to shift relative prices against farmers (as indicated by their Relative Rates of Assistance); but also, they spend more on agricultural research, secure higher levels of educational attainment, and pave a larger percentage of their roads. 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 act in ways that lower the costs, increase the earnings, and strengthen the incentives for farmers.

Returning our attention to the broader argument, the process of political change in Africa highlights the international, rather than the domestic, origins of political reform and that the relationship can run from the political to the economic, rather than – as Lipset's law implies – from the economic to the political. Tables 6 and 7 offers statistical evidence in support of these arguments. Table 6 suggests that we cannot reject the hypothesis that democracy (Granger) causes income in the Sub-Saharan sample; and Table 7 indicates that the coefficient tying democracy to income is positive and significant. Our data thus suggest that increases in the level of democracy not only induced policy reform but also secured the growth of per capita income in Africa.

While political reform may thus be related to economic change in Africa, the data suggest that the effect may be small and the impact short lived. While the coefficients indicate that a one unit increase in democracy leads to a 1.5 % increase in income per capita, they highlight that income

adjusts slowly to its long-run value, as predicted by the current level of democracy. A coefficient

of -0.122 implies that the response takes nearly a decade to accomplish[21].

Viewed another way, these data suggest an additional, more sinister, interpretation: that the

countries of Sub-Saharan Africa may currently be "too democratic" given their levels of income.

The implication then is that they when they adjust to their long range steady state, they may do so

by becoming less democratic. And indeed, the evidence suggests that while a period of economic

growth may have indeed followed the period of political reform, it has been accompanied by

political "back sliding."   Consider Figures 2 – 4: Surging upwards in the late 20th century, the

Polity index for Africa's governments continued its ascent in the 21st, albeit at a lesser rate. But

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 running up to 10. Qualitative accounts 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, …. [22]

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

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

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[21] These results are robust to including foreign aid in percent of GDP as an additional covariate, in order to control for omitted variable bias relating to the donors' (aid-tied) policy reforms affecting both income and democracy.

[22] Freedom in the World 2010 Survey, http://www.freedomhouse.org/template.cfm?page=505.

remained in power for 31 years; so too Obiang Nguema in Equatorial Guinea. In Cameroon, Paul Biya has ruled for 28 years; Blaise Compaore has rule Burkina Faso for 23. 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 18 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 7). By 2010, in roughly one-quarter 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.

As noted in Table 7, African polities have followed a distinctive trajectory: Increases in income in the Africa region do not affect political institutions, as Lipset's law would have it; rather, democracy shapes the level of per capita income. But the data in Table 8 suggest that the political impetus for growth may have nearly run its course. In the most recent years,[23] the data suggest, the relationship between the level of democracy and income has eroded; it is world output rather than domestic democracy that now drives the level of income. Africa's current economic growth is now propelled by the growth of economies abroad – those of China and India, for example—rather than by political reform at home.

Conclusion

This article has returned to the scrutiny of "Lipset's Law." In doing so, it has built on the recent contributions of AJRY and GP's criticism of it. While, as Lipset's research suggests, levels of income may bear a positive relationship to levels of democracy in global cross sections, in

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[23] It is the need to incorporate lags and secure sufficient degrees of income that drive the cut point for the "recent sample" back to 1989.

dynamic settings, the relationship is negative. In arriving at this conclusion, we have drawn information from three sources of variation overlooked by previous scholars. One is cross country variation in the short term responses to income shocks; another is variation in the structure and composition to income; a third is regional variation, and in particular, differences that prevail in the large set of cases from Africa.

Figures
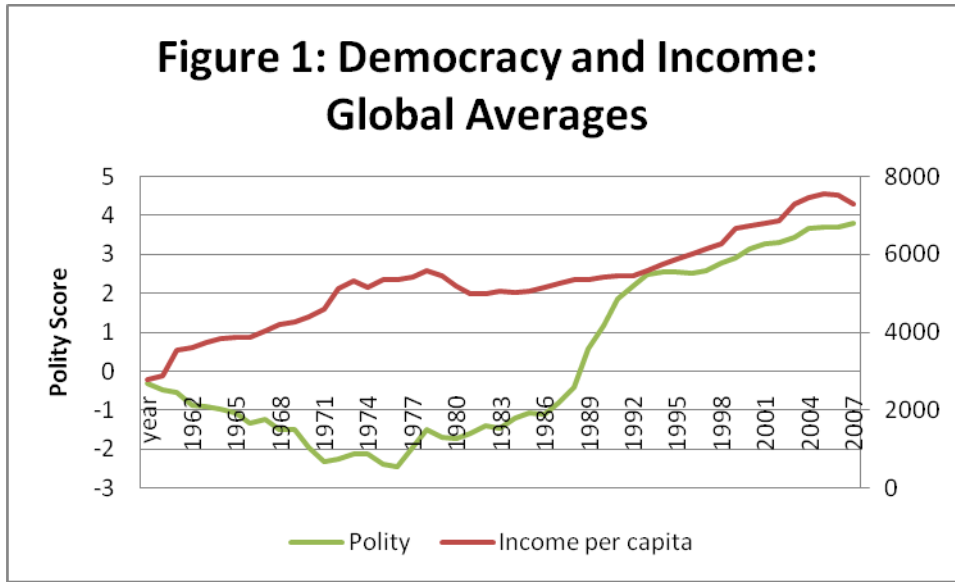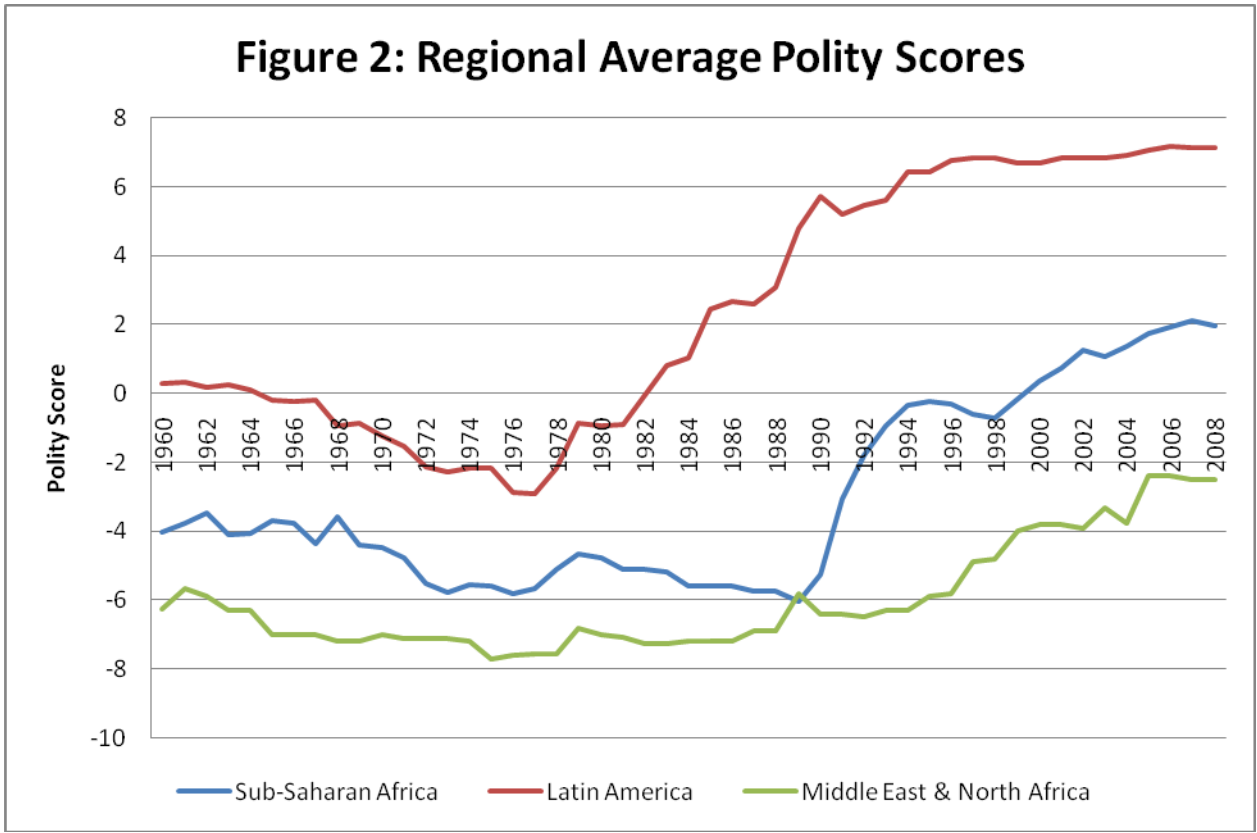
Figure 1: Democracy and Income: Global Averages

Note: the sample of countries used in this Figure is constant across time.

Figure 2: Regional Average Polity Scores

Note: the sample of countries used in this Figure is constant across time.

Figure 3

Freedom House Political Rights by Year

Figure 4

Freedom House Civil Rights by Year

Figure 5

Party Systems by Period

1 = No Party System 2 = Single Party System 3 = Competitive Party System
Graphs by Period
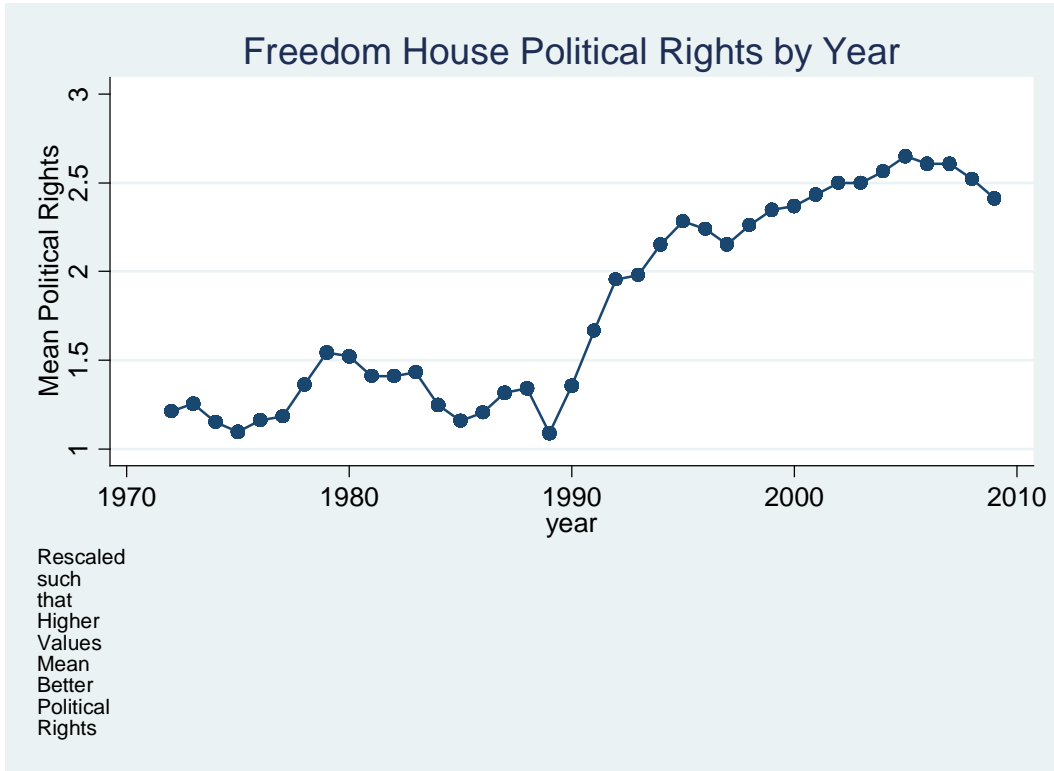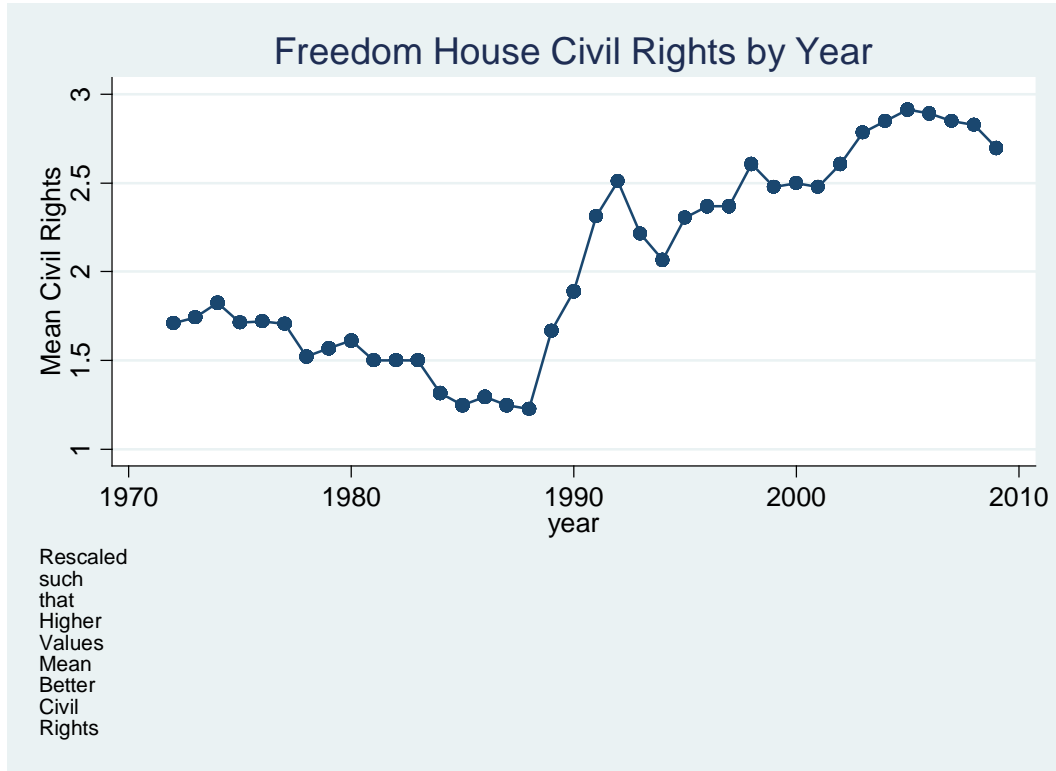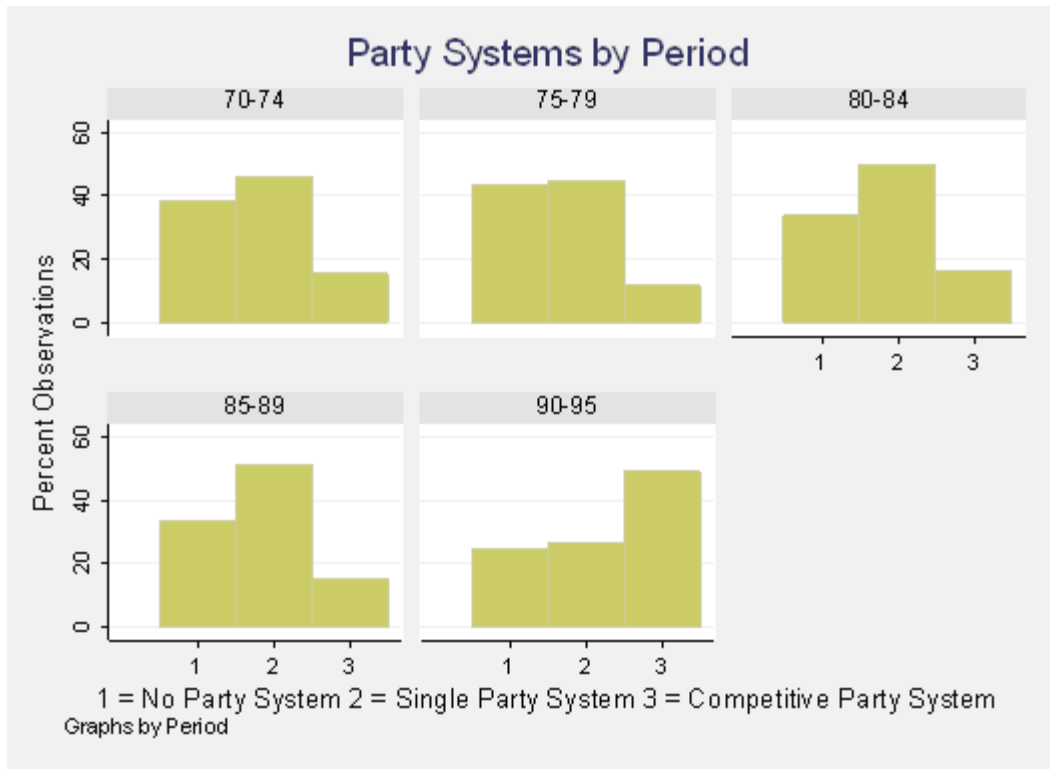
Region: SSA; Source: Bates (2009)

Figure 6

Policy Differences
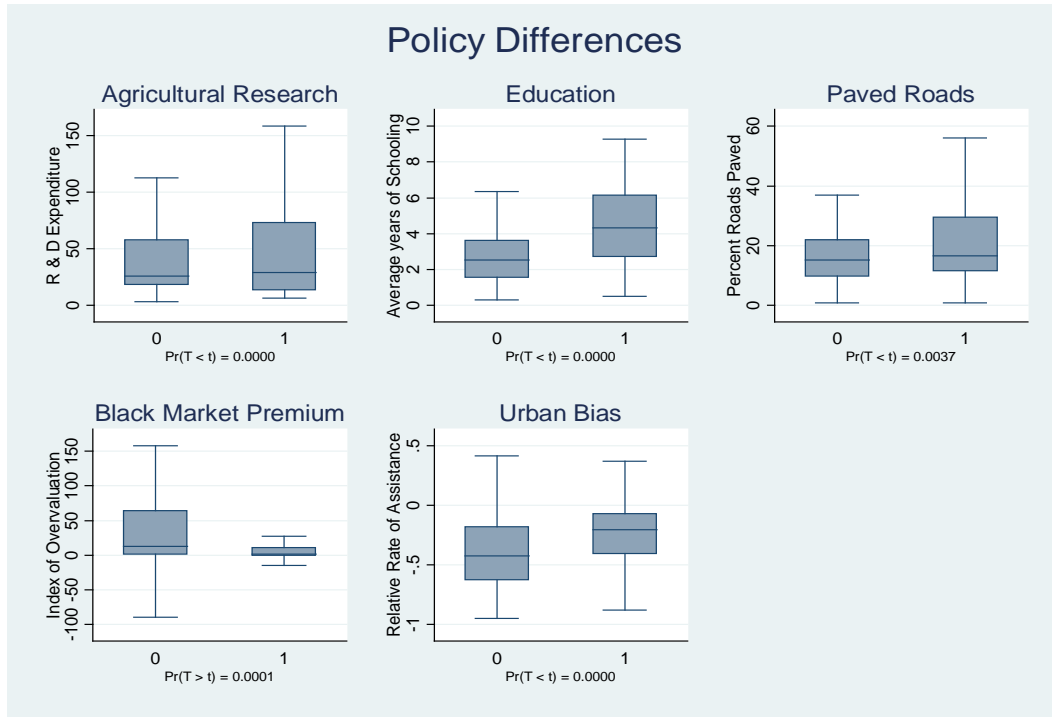
Region: SSA; Source: Bates and Block (2010)

Figure 7: Term Limits in Sub-Saharan Africa

Does the constitution provide a two term limit for the presidency?

Yes

Has that term limit been reached?

No

Yes

Was there an attempt to amend the constitution?

Cote d'Ivoire?
Eq. Guinea
Gambia
Guinea-Bissau
Mauritania
Zimbabwe

No

Yes

Did it succeed?

Angola
Burundi
C.A.R.
Congo Rep.
Djibouti
D.R.C
Liberia
Madagascar
Niger
Rwanda
Sierra Leone

No

No

Yes

Benin
Cape Verde
Ghana
Kenya
Mali
Mozambique
Sao Tome & Principe
Seychelles[1]
Tanzania

Malawi
Nigeria
Senegal[2]
Zambia

Burkina Faso
Cameroon
Chad
Gabon
Guinea
Namibia
Togo
Uganda

[1] Seychelles has a three term limit. [2] In Senegal, the President's term was extended from 5 to 7 years and he has announced his intention to seek its extension.

Adapted and extended to 2010 from Posner, D. and D. Young (2007). "The Institutionalization of Political Power in Africa." Journal of Democracy 18(3): 126-140.

Tables

Table 1: Reproducing AJRY with pooled OLS and fixed effects; Annual data 1960-2000

Dep var: Dem$_t$	Pooled	FE	FE	Pooled	FE	FE
	AJRY sample			PMG sample		
	1	2	3	4	5	6
Dem$_{t-1}$	0.961	0.897	0.863	0.949	0.898	0.854
	(0.004)	(0.011)	(0.013)	(0.005)	(0.011)	(0.013)
Log GDP per capita$_{t-1}$	0.114	0.407	-0.110	0.161	0.522	0.002
	(0.027)	(0.112)	(0.116)	(0.038)	(0.140)	(0.130)
Obs	4933	4933	4933	3836	3836	3836
Countries	153	153	153	105	105	105
R-squared	0.94	0.94	0.94	0.91	0.80	0.81
Country FE	NO	YES	YES	NO	YES	YES
Time FE	NO	NO	YES	NO	NO	YES

Notes: Robust standard errors in parentheses. All regressions include a constant. AJRY baselines specification includes year dummies and their distinction between pooled and fixed effects estimation is based on whether country fixed effects are included or not. We do not report regression results for when only annual dummies are accounted for but find that just like the AJRY results, the coefficient on lagged income per capita in this case is positive and significant and does not significantly differ in magnitude from its counterpart with no year and country dummies.

Table 2: Pooled error correction model by OLS with country and year fixed effects on the PMG sample (1960-2007; N=105)

Dependent var: Democracy	Lags=2	Lags=3	Lags=4	Lags=4
Long-run coefficient				
Log of income per capita	-1.325*	-1.236	-1.595*	-1.683*
	(p-value=0.07)	(p-value=0.11)	(p-value=0.07)	(p-value=0.06)
Error correction coefficient	-0.141***	-0.145***	-0.142***	-0.144***
R-squared	0.85	0.85	0.85	0.85
Countries	105	105	105	105
Observations	4453	4348	4243	4138
Country and year FE	YES	YES	YES	YES

Note: we do not report the short-coefficients on income per capita (which are statistically insignificant). For a model with say 2 lags on democracy (with respective coefficients α_1 and α_2) and with the level of income per capita as well as its 2 lags (with respective coefficients β, β_1 and β_2) on the right side, the long-run coefficient on income per capita is $\dfrac{\beta + \beta_1 + \beta_2}{1 - \alpha_1 - \alpha_2}$. The p-values for the long-run coefficients are calculated with the non-linear test procedure "testnl" in Stata, and indicate the level of significance at which we can reject that the long run-coefficient is zero.

Table 3: Augmented PMG estimation; Overall sample (N=105); 1955-2007

Dependent variable: Polity IV Measure of Democracy

Long-run Coefficients	PMG 1	MG 2	Hausman Test 3
Log Income per Capita	-1.239***	0.390	1.44
	(0.153)	(1.368)	[0.23]
World Democracy	0.800***	0.926***	0.80
	(0.029)	(0.143)	[0.37]
World Output	3.059***	0.293	0.90
	(0.547)	(2.958)	[0.34]
	Joint Hausman test		2.39
			[0.50]
Error Correction Coefficient	-0.264***	-0.469***	
	(0.029)	(0.034)	

Notes: All equations include a constant country-specific term. Numbers reported in parentheses are standard errors. Numbers reported in brackets are p-values.***, **, and * indicate significance respectively at the 1, 5, and 10 percent levels. We use the Schwartz Bayesian optimal lag selection Criterion subject to a maximum lag of three. 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.

Table 4: Augmented PMG estimation; Overall sample (N=98); 1970-2007

Dependent variable: Polity IV Measure of Democracy

Long-run Coefficients	PMG 1	MG 2	Hausman Test 3
Log Income per Capita	-0.651***	-2.500	0.19
	(0.157)	(4.726)	[0.67]
Natural Resource Rents to GDP	-0.021***	-0.141	0.01
	(0.005)	(1.440)	[0.93]
World Democracy	1.211***	1.225***	0.00
	(0.035)	(0.322)	[0.97]
World Output	-8.554***	-4.031	0.64
	(1.268)	(5.799)	[0.42]
World Rents	0.201***	-0.241	1.35
	(0.038)	(0.382)	[0.25]
	Joint Hausman test		4.20
			[0.52]
Error Correction Coefficient	-0.355***	-0.664***	
	(0.039)	(0.057)	

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

Table 5: Augmented PMG estimation; Overall sample (N=102); 1970-2007

Dependent variable: Polity IV Measure of Democracy

Long-run PMG Coefficients	1	2	3	4
Log Income per Capita	-1.228*** (0.259)			
Log of Resource GDP per Capita		-0.306*** (0.081)		-0.295*** (0.081)
Log of Non-Resource GDP per Capita			0.710** (0.271)	0.518* (0.272)
Error Correction Coefficient	-0.305*** (0.034)	-0.248*** (0.029)	0.245*** (0.030)	-0.307*** (0.034)

Notes: All equations include a constant country-specific term. Numbers reported in parentheses are standard errors. Numbers reported in brackets are p-values.***, **, and * indicate significance respectively at the 1, 5, and 10 percent levels. We use the Schwartz Bayesian optimal lag selection Criterion. All regressions include cross-sectional averages of the dependent variable and all regressors. Hausman test results for the coefficients of interest, not reported here, fail to reject the null of long-run cross-section parameter homogeneity.

Table 6: Granger causality tests

Null hypothesis	Observations	Lags	F-stat	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				
Null hypothesis	Observations	Lags	F-stat	Probability
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				
Null hypothesis	Observations	Lags	F-stat	Probability
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-stat 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.

Table 7: Augmented PMG estimation; 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)	

Notes: All equations include a constant country-specific term. Numbers reported in parentheses are standard errors. Numbers reported in brackets are p-values.***, **, and * indicate significance respectively at the 1, 5, and 10 percent levels. We use the Schwartz Bayesian optimal lag selection Criterion subject to a maximum lag of three. 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

Table 8: 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. Numbers reported in brackets are p-values.***, **, and * indicate significance respectively at the 1, 5, and 10 percent levels. For brevity we only report PMG results. The small time series dimension allowed us to impose a common lag of one 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.

Table 9: PMG country-specific error correction coefficients

Sub-Saharan Africa Country	Error Correction Coefficient
Angola	-0.362
Benin	-0.046
Botswana	-0.057
Burkina Faso	-0.405
Burundi	0.015
Cameroon	-0.068
Central African Rep	-0.009
Chad	-0.105
Comoros	0.039
Congo, Dem. Rep.	-0.010
Congo, Rep.	-0.097
Cote d'Ivoire	0.209
Equatorial Guinea	-0.051
Ethiopia	-0.065
Gabon	-0.135
Gambia	-0.357
Ghana	-0.369
Guinea	-0.038
Guinea-Bissau	-0.245
Kenya	-0.047
Lesotho	-0.108
Liberia	-0.148
Madagascar	0.010
Malawi	-0.268
Mali	-0.172
Mauritania	-0.414
Mauritius	-0.021
Mozambique	-0.204
Niger	-0.014
Nigeria	-0.157
Rwanda	-1.000
Senegal	-0.041
Sierra Leone	-0.042
Somalia	-0.001
South Africa	-0.056
Sudan	-0.056
Swaziland	-0.010
Tanzania	-0.261
Togo	0.015
Uganda	0.002
Zambia	-0.049
Zimbabwe	0.060

Appendix

Table A: 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 Rep	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, Dem. Rep.	1960-2007	Pakistan	1955-2007
Congo, Rep.	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 Rep.	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 Rep	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 & Tobago	1962-2007
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 Rep.	1955-2007	Venezuela, RB	1955-2007
Israel	1955-2007	Zambia	1964-2007
Jamaica	1959-2007	Zimbabwe	1970-2007
Jordan	1955-2007		

Table B: Descriptive Statistics

Variables	Obs	Countries	Mean	Std. Dev.	Min	Max
			Table 1			
Polity	5085	105	-0.95	6.90	-10.00	10.00
Log of Real GDP per Capita	5076	105	8.02	0.97	5.03	11.49
			Table 2			
Polity	3693	98	-0.44	7.02	-10.00	10.00
Log of Real GDP per Capita	3723	98	8.13	0.99	5.03	11.49
Rents to GDP	3724	98	7.68	13.46	0.00	116.54
			Table 3			
Polity	3834	102	-0.36	7.01	-10.00	10.00
Log of Real GDP per Capita	3875	102	8.14	0.99	5.03	11.49
Log of Resource GDP per Capita	3869	102	5.15	1.80	-2.38	11.08
Log of non-Resource GDP per Capita	3875	102	8.01	0.95	5.02	10.54
Share of Resource GDP	3876	102	10.00	13.92	0.00	92.39

Table C: Share of resource GDP in percent of overall GDP

Country	Share of Resource GDP	Country	Share of Resource GDP
Albania	22.1	Korea, Rep.	3.0
Algeria	31.4	Kuwait	48.0
Angola	39.5	Laos	4.6
Argentina	4.7	Lebanon	3.5
Bahrain	22.4	Lesotho	2.9
Bangladesh	1.4	Liberia	12.1
Benin	1.5	Madagascar	1.4
Bolivia	12.7	Malawi	3.3
Botswana	35.6	Malaysia	12.4
Brazil	3.8	Mali	4.3
Bulgaria	9.8	Mauritania	15.2
Burkina Faso	2.2	Mauritius	2.2
Burundi	0.7	Mexico	9.8
Cambodia	2.3	Mongolia	15.5
Cameroon	6.9	Morocco	5.8
Central African Rep	6.1	Mozambique	2.4
Chad	5.6	Nepal	1.3
Chile	13.4	Nicaragua	2.7
Colombia	6.3	Niger	7.3
Comoros	1.2	Nigeria	27.2
Congo, Dem. Rep.	12.7	Oman	47.6
Congo, Rep.	34.8	Pakistan	4.7
Cote d'Ivoire	2.8	Panama	3.1
Cyprus	3.0	Paraguay	1.6
Djibouti	5.3	Peru	12.5
Dominican Republic	3.3	Philippines	3.7
Ecuador	13.3	Poland	8.2
Egypt, Arab Rep.	8.9	Portugal	2.8
El Salvador	1.9	Romania	6.4
Equatorial Guinea	29.0	Rwanda	1.3
Fiji	3.7	Senegal	3.4
France	2.1	Sierra Leone	13.2
Gabon	42.2	Solomon Islands	1.0
Gambia	1.3	Somalia	0.7
Ghana	4.9	South Africa	13.3
Greece	3.3	Spain	2.9

Guatemala	2.5	Sri Lanka	2.6
Guinea	18.2	Sudan	3.1
Guinea-Bissau	0.7	Swaziland	4.8
Guyana	13.1	Syria	13.0
Haiti	1.5	Tanzania	8.5
Honduras	2.1	Thailand	4.0
Hungary	7.7	Togo	8.4
India	4.3	Trinidad & Tobago	22.2
Indonesia	12.7	Tunisia	7.9
Iran, Islamic Rep.	20.2	Turkey	2.9
Iraq	77.5	Uganda	2.6
Israel	2.5	Uruguay	2.7
Jamaica	9.0	Venezuela, RB	19.5
Jordan	5.3	Zambia	16.5
Kenya	3.8	Zimbabwe	6.7

Source: UN Statistics Division National Accounts Database which provides data from 1970-2007 on sectoral GDP shares for the following overall categories: 1. Agriculture, hunting, forestry, fishing ; 2. Mining, Manufacturing, Utilities; 3. Manufacturing; 4. Construction; 5. Wholesale, retail trade, restaurants and hotels; 6. Transport, storage and communication; 7. Other Activities. Category 2 (Mining, manufacturing and utilities) is an aggregation of economic activities of a. Mining and quarrying, b. Manufacturing and c. Utilities. The data available allows us to compute Mining, Quarrying and Utilities by subtracting Category 3 (Manufacturing) from Category 2 (Mining, Manufacturing, Utilities). We take this as our proxy of resource GDP. Unfortunately UN data on Mining and Quarrying alone involve short time series dimensions for the countries in the sample which does not allow us to estimate using our PMG method.

Table D: Data description and sources

Variable	Description	Source
Income per capita	Data measured as log real GDP per capita (chain weighted method) from Penn World Tables 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
Natural resource rents	Expressed in percent of GDP. Rents are measured as the market value of extracted material minus the average extraction cost. Natural resources include bauxite, coal, copper, forest, gold, iron, lead, lignite, natural gas, nickel, oil, phosphates, silver, tin and zinc.	World Bank data: http://go.worldbank.org/OV4R25M150
Resource and non-resource income shares	Resource income share is defined as the share of Mining and Quarrying in GDP. Non-resource income constitutes the rest.	United Nations Statistics Division National Accounts Database.

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