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Do Elections Matter for Economic Performance?

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Abstract

In mature democracies, elections discipline leaders to deliver good economic performance. Since the fall of the Soviet Union most developing countries also hold elections, but these are often marred by illicit tactics. Using a new global data set, this paper investigates whether these illicit tactics are merely blemishes or substantially undermine the economic efficacy of elections. We show that illicit tactics are widespread, and that they reduce the incentive for governments to deliver good economic performance. Revisiting the celebrated result that 'leaders matter', we show that it is dependent upon the absence of clean elections: changes of leader matter a lot in systems without clean elections, whereas in those with clean elections they are not significant.

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1. Introduction

The fall of the Soviet Union triggered a 'fourth wave of democratization'[1] as a result of which most developing countries now hold regular elections. Autocrats conceded elections because they were faced with pressures that otherwise threatened their retention on power. The example of the popular revolutions of Eastern Europe temporarily lowered the cost of popular protest and made elections their obvious goal. Further, with the end of the Cold War, donors were no longer locked into supporting autocrats in return for their political alignment. Instead, they could demand democratization as a condition for sustaining public finances. Even if these pressures were only temporary, once autocrats has conceded elections they had good reason to maintain them. Cancelling subsequent elections would have constituted a signal which might have again temporarily reduced the costs of coordinated protest from citizens and donors.

However, while former autocrats were, in effect, locked in to holding elections, in many societies the introduction of elections had not been accompanied by institutional checks and balances preventing illicit electoral tactics. Elections, being events, are much easier to introduce that effective checks and balances, which are processes that, at best, can only develop over time. The standard illicit tactics of bribery, intimidation, ballot fraud, and restrictions on candidacy all favour incumbents. An incumbent might well find a stolen election preferable to either of the alternatives. It is evident that an illicit victory might be preferable to an honest defeat. But it might also be preferable to the outright cancellation of elections. Illicit tactics are only ambiguously observable. Individual citizens may well be able to detect them locally, but cannot be sure that they have decisively changed the national result. Thus, for an incumbent to hold an

[1] For a discussion see McFaul (2002).

election which he wins by illicit tactics may improve the chances of power retention relative to outright cancellation because it dilutes what would otherwise be a strong signal. In turn, in order to hold contested elections, albeit marred by illicit tactics, some degree of pluralism and competition must be tolerated, but such elections do not mark a genuine shift to democracy. As Schedler (2002) argues, they are designed to generate only the appearance of democratic legitimacy.

In this paper we treat the scope for a leader to use illicit tactics as exogenous: some leaders inherit norms and institutions which preclude their use whereas others are unrestrained. This is similar to the assumptions made by Besley and Persson (2009), they argue that initial investments in institutions determine whether leaders are more likely to persue a strategy of growth promotion or rent-seeking. This dichotomy of regime types is reinforced through adverse selection in politics. In Besley's (2006) model adverse selection attracts corrupt individuals into politics if there are small penalties for embezzlement and illicit tactics. In a companion paper (Collier and Hoeffler, 2010), we endogenize the emergence of effective restraints. Where a leader has the option of resorting to illicit tactics, the choice as to whether to hold an election is of little consequence: the normal discipline of democracy is compromised. We first present a new global data set which integrates data on changes in incumbency with data on elections classified according to the quality of their conduct. We use this to demonstrate that electoral misconduct is both widespread and highly efficacious for incumbent politicians. In Section 3 we turn to whether this matters materially for economic performance. We show that whereas honest elections effectively discipline the economic choices of political leaders, illicit tactics substantially reduce the incentive for politicians to deliver good economic performance. In

Section 4 we investigate a testable implication. Whether economic performance is independent of the person of the leader should depend upon whether leaders are subject to honest elections.

2. The Prevalence and Pay-off to Electoral Misconduct

For our analysis we collated a data set on political leaders and executive elections. Most countries hold elections to determine their leaders, Diamond (2002) suggests that 86 percent of national leaders are elected. Our main sources were Archigos, a new database on political leaders (Chiozza, Goemans and Gleditsch, 2009) and the Database of Political Institutions (DPI, Beck *et al* 2001) from which we obtained election data. Archigos identifies the 'effective' leader of a country, i.e. the person that *de facto* exercises power in a country. In parliamentary regimes, the prime minister is coded as the leader, in presidential systems, the president. In some instances the Archigos and DPI databases disagree on the question whether a country has a presidential, parliamentary or assembly system and thus have a different understanding of who the leader and when his/her election took place. We use Chauvet and Collier (2009) to resolve any discrepancies. This provides us with data on 786 elections in 155 countries during the period 1975-2004. As Table 1 shows, in 71 percent of these elections incumbents were standing for re-election. This is a relatively high proportion, because even in countries with a term limit on political leadership, there are few elections in which no incumbent was standing. For example in recent US history there were only five elections in which none of the candidates were incumbents (1960, 1968, 1988, 2000, 2008). Another reason for the high proportion of incumbent elections is that election defeat is only one of many reasons why political leaders lose power. Often leaders leave their office due to votes of no-confidence or other legal or illegal challenges before their term has come to an end. Their successor then contests the election as the

incumbent at the end of the term in office; one example would be the resignation of Margaret Thatcher in 1990. Her successor, John Major, contested and won the 1992 elections. Thus, often leadership turnover occurs during the term and not due to elections.

--- Table 1 about here ---

So far we have considered all elections, with no concerns as to whether their quality is good. We now divide the elections into 'dirty' and 'clean' elections. To operationalize this distinction we synthesize two characteristics of political contests each of which has been measured but which have hitherto been kept separate: the degree of political competition and the actual conduct of the election. We measure the former using the DPI scale, requiring that to be 'clean' an election should be contested by multiple parties which receive seats, with the leader being elected in a competitive manner. This corresponds to a score greater than 6 on the DPI scale. We investigate various sources on the quality of the conduct of elections. Although the DPI scale does not incorporate information on the conduct of the election, an assessment of whether fraud could have had an impact on the outcome of the election is available in the full DPI dataset. In our baseline analysis we use this as our measure of the quality of the election. Clean elections are thus defined are those which meet both the criterion of sufficient political competition, and that of sufficiently honest conduct. Table 1 lists the number of clean and dirty elections so defined. About 41 percent of all elections are classified as dirty.

Even if electoral misconduct is common, it need not constitute more than a minor blemish. For example, if all contestants resort to misconduct to a similar extent then outcomes might be largely unaffected. However, Calingaert (2006) suggests that ruling political leaders have more opportunities to rig elections than their challengers. Incumbents can rig the electoral process by interfering with voter registration, electoral campaigning, procedure on election day,

and in the final vote count and tabulation. Incumbents have access to state resources and so are better-placed to finance bribery; through state patronage they are better placed to influence the officials who count ballots; and through control of the security forces they are better placed to intimidate those voters who are unlikely to be supporters into abstention. While these arguments suggest that illicit tactics favour incumbents, the percentage of dirty elections among the elections in which incumbents are standing is only a little higher than the average for all elections, at 45 percent. Thus, at least superficially, there is little indication either that incumbents disproportionately manipulate elections, or (reversing causality), that where manipulation is feasible incumbents are more inclined to stand for re-election. To explore the issue more thoroughly, we therefore test whether the resort to electoral misconduct substantially improves the chances of an incumbent being re-elected.

Our cross-country evidence suggests that incumbents are more likely to win elections. Table 2 shows that out of the 558 elections in which incumbents stood, in 378 of them (68 percent), the incumbent won. Again, this could be either because incumbency offers advantages, or because where incumbents expect to win they are more inclined to stand. Incumbents have a much higher chance of winning dirty elections (81 percent) than clean ones (57 percent).

--- Table 2 about here ---

We now turn to regression analysis to examine the probability of incumbent victory. Our model choice is informed by the large empirical literature on (economic) voting. Most of the research is limited to a single country, dominated by studies on US presidential and

congressional elections[2]. There are only a few studies using a cross-section of countries and these are limited to wealthy, industrialised countries (Duch and Stevenson, 2006). Research of US presidential elections suggests that elections in which the incumbent is not standing are much more difficult to forecast (Sidman, Mark and Lebo 2008). Although economic performance is a strong predictor in US presidential elections, voters do not seem to attribute economic success to the White House party successor candidate. Examining incumbent and non-incumbent elections, Norpoth (2000) finds that economic growth only predicts voting in incumbent elections, in non-incumbent elections economic growth is insignificant.

While we base our model choice on this research, we depart from the existing literature by using a global panel of countries. This inevitably limits our choice of explanatory variables, for example we do not have approval ratings for a large sample of countries. We start with a general model, our explanatory variables including some structural characteristics about the society, an indicator for the recent wave of democratization, a measure of economic performance, some characteristics of the incumbent and a measure of illicit tactics. We subsequently refine this base model, testing for potential selection bias, decomposing economic performance, and investigating a range of other explanatory variables.

The baseline results are presented in Table 3, column 1. Since the end of the Cold War, referred to here as the 'democracy wave', incumbents have been less likely to win elections. Incumbents in Sub-Saharan African countries are more likely to win than leaders in other regions.

--- Table 3 about here ---

[2] For a recent overview of US presidential election forecasting see Campbell and Lewis-Beck (2008).

While our baseline model includes controls for the structure of the society and the economy, several of these variables are insignificant in determining the incumbent's chances of winning the election, notably population growth, education measures, and natural resource rents. In addition to these economic and societal characteristics we also include information on the incumbent. Age of the incumbent was a significant determinant in gubernatorial defeats in the study by Besley and Case (1995). Older governors were less likely to be elected. However, in our cross country study the age of the incumbent is not significant. We also account for the manner in which office was taken in the first place. Incumbents who came to power through legal processes are no more likely to be re-elected than the ones who took office in an irregular manner, for example through coups or being imposed by foreign governments.

Our measure of 'clean' elections has a negative effect on incumbent wins, i.e. when the elections are competitive and there are no illicit tactics, incumbents have a lower chance of winning. In order to evaluate the importance of illicit tactics we drop the insignificant variables one by one and arrive at the core model in column 2[3]. The dropped variables are neither individually nor jointly significant. Illicit tactics appear to have effects that are both highly significant and substantial, although we should note that at this stage we have not allowed for selection effects. At the mean of the other variables an incumbent increases the prospect of victory from 62 percent to 84 percent if he uses illicit tactics. This difference in the probability of

[3] We also examined a number of other variables but none of the following had significant coefficients: levels and changes in infant mortality, government expenditure, military expenditure, primary school enrolment rates, total years of education, the proportion of the population living in urban areas, the number of checks and balances and whether there is proportional representation.

victory has magnified implications for the expected duration in office, which is arguably the most pertinent metric of incentives facing leaders. Consider the decision problem facing an incumbent autocrat who converts to democracy, with an immediate election followed by the prospect of further elections every four years. If he subjects himself to clean elections his expected remaining duration in office is typically 6.4 years. If he adopts dirty elections his remaining duration is a much healthier 15.8 years.[4]

As suggested in the literature on economic voting[5] higher economic growth also makes an incumbent win more likely. This is consistent with the results by Bueno de Mesquita *et al* (2003). In their models of political leadership they find evidence that the provision of public goods, proxied by growth, extends the duration of a leader's stay in power. We measure economic growth in the previous two years: commonly, election forecasters have used performance indicators much closer to the elections, for example growth in the 6 months prior to the elections, but we do not have this information for the entire sample of countries and there is little justification for assuming such myopia on the part of the electorate. We also control for income per capita and find a weak positive effect on incumbent wins.

In addition to the effects of the economy and illicit tactics we find some evidence that freedom of the press may act as a control mechanism on incumbents. First, we add a measure of press freedom to our core model in column 3. This variable takes three values, one if press freedom is severely limited, two if there is some freedom, and three if the press is free. Although the inclusion of this variable reduces our sample size we find that all our previous results are

[4] We have truncated the calculation at a horizon of 32 years to allow for mortality.

[5] See for example Duch and Stevenson (2008) and Lewis-Beck and Paldam (2000).

unaffected. Press freedom makes it more difficult for incumbents to win elections. This effect is substantial, with no press freedom the likelihood of winning the election is 92 percent while it is only 63 percent with full press freedom[6]. We investigate the impact of press freedom further by running this specification for the elections that are 'dirty' and 'clean'. Press freedom has a far larger impact on the outcome in dirty elections than in clean elections, the point estimate of the coefficient being about double that for clean elections. Further, press freedom makes it considerably less likely for incumbents to win dirty elections. The incumbent has a 95 percent chance of winning a dirty election if there is no press freedom but this is reduced to 54 percent if there is press freedom.

These preliminary results may potentially be spurious for a variety of reasons. We begin with issues of data quality. In order to check for robustness we used an alternative data source on whether elections are clean, drawing on the Cingranelli and Richards data set on human rights (CIRI). The sample size is greatly reduced, but we replicate the main results in columns 6 and 7. The effect of the CIRI variable indicating 'free and fair' elections is even stronger than in our core model. If the elections are 'free and fair' the chance of an incumbent winning is about 59 percent but if he employs illicit tactics this chance increases to 93 percent.

A further potential concern with our results is that logits can potentially be biased in short panels (Greene, 2002). We re-estimated our core model (column 2) as a linear probability model (LMP) and found that our results were qualitatively similar. One disadvantage of this method is that predicted values can fall outside the zero/one boundaries. However, we find that the LPM

[6] As a robustness check we created a dummy variable for press freedom and the results were qualitatively similar to the ones obtained by using the ordinal press freedom data.

does provide a reasonable fit: we predicted the outcome of the elections and found that only 6 out of the 536 election results were forecast out of range[7].

A further potential concern is that unobserved country-specific effects are driving the results. The standard way to address this objection is to introduce fixed effects by means of a dummy variable for each country. In order to preserve the maximum degrees of freedom we follow the method of Hendry *et al* (2004) which is in three steps. In the first step one half of the country dummy variables are entered into the regression. In the second step these are replaced by the other half. In the third step all those country dummies which were significant in these two regressions are entered into the model. The advantage of this method is that where the country fixed effect is insignificant the observation is retained, whereas in the standard fixed effects regression all the observations in which a country had either only clean or only dirty elections are lost. We report the results in column 8. Inclusion of the country dummies reduces the coefficient on income to half the previous estimate and it becomes statistically insignificant. This indicates that income is correlated with the unobserved country specific effects. Income may capture institutional characteristics which are not included in the model. However, our core result is unaffected: dirty election tactics help incumbents win elections.

We now turn to arguably the most serious concern, namely selectivity bias. Incumbents who decide to run for re-election might not constitute a random sample: potentially, the decision to run for a further term is endogenous to the prospects of success. We use a Heckman model to control for this potential selection bias, the results being reported in Table 4. Our sample includes 786 elections, in 228 of which the incumbent did not stand for re-election. We thus run

[7] Results available on request.

a first step regression in which we determine whether an incumbent stands and as a second step we run our core model, examining the chances of an incumbent winning the election. It proved to be difficult to find explanatory variables for the selection equations. We found that leaders in Sub-Saharan Africa are more likely to stand for re-election. Leaders who came to power in an illegal manner were less likely to stand for re-election. Age of the leader was not significant. In the first column of Table 4 we use all elections for which we have data for the explanatory variables (756 elections). The inverse Mill Ratio is insignificant. However, 72 leaders could not contest the elections because laws on term limits prohibited them from running for office for a further time. Since for this group there is no choice, we therefore repeat the analysis by excluding these 72 elections in column 2. Again, the Inverse Mill Ratio is not significant and we conclude that our core regression results are not seriously biased due to selection effects.

--- Table 4 about here ---

To what extent can the above associations be interpreted as genuinely causal? There are a variety of potential problems of endogeneity. For example, while economic growth is correlated with subsequent electoral success this may be because governments which deliver economic growth tend also to deliver a range of other benefits that are valued by voters, but which we do not observe. While we acknowledge this limitation, economic performance appears to be sufficiently salient to citizen concerns that a direct effect is plausible. Similarly, the misconduct of elections may be correlated with other, unobserved, strategies that incumbents use to win elections. However, there are two good reasons to think that the misconduct of elections is not merely proxying these other strategies but is itself crucial. First, electoral misconduct directly

and necessarily weakens the accountability of the ruler to the voter: *that is what it is meant to do*. Secondly, electoral misconduct carries penalties: it reduces legitimacy, risks prosecution, and may require expensive bribes. Why would incumbents incur these costs if electoral misconduct was merely correlated with an enhanced duration in office but did not cause it?

3. Do Illicit Tactics Reduce the Incentive for Good Economic Performance?

The above analysis establishes a reasonable case that illicit tactics substantially increase the expected duration of office for incumbents. We now turn to its implications for the incentive for incumbents to deliver good economic performance. The literature on economic voting focuses on developed countries and finds strong evidence that governments are re-elected on the strength of their economic policies. The work by Leigh (2009) suggests that a wealthier and more educated electorate is more likely to reward incumbents for their economic policies. Furthermore, the electorate distinguishes between 'luck' and 'competence'. Economic growth may simply be due to a flourishing world economy ('luck') rather than to the leader's economic policy choices ('competence'). In richer countries voters are more likely to distinguish between 'luck' and 'competence' and support incumbents when they have delivered economic growth. Thus, in developed countries elections provide an incentive to deliver good economic outcomes. We now extend this analysis to our global sample.

There is already some evidence that elections also discipline the economic choices of governments in developing countries. Chauvet and Collier (2009) investigate the relationship between elections and government economic choices in developing countries, but proxy choices not by the growth rate but by economic policies. They find that controlling for the policy cycle that elections generate, regular elections have structural effects, significantly and substantially

improving the overall level of policies. However, this benign effect is conditional upon the proper conduct of elections. Using a measure of electoral conduct close to that which we have adopted, they find that badly conducted elections exert no significant policy discipline.

We first test whether voters are meaningfully evaluating government economic performance, and so potentially exerting some discipline upon policy. For this we decompose economic performance into that part which is exogenous to political leadership and that part which is potentially attributable to choices made by the incumbent. If the electorate is well-informed, only the latter should influence the chance of re-election. Following Leigh (2009) we proxy the exogenous component of growth by the growth rate of the region. The component of economic performance potentially attributable to leadership is then the difference between this and the growth rate of the country. As shown in Table 5, column 1, the regional average growth rate is insignificant in the regression, while the difference between the country and the region's growth rate is positive and significant. Leaders are more likely to win elections if their country grows more rapidly that the rest of the region. This can be interpreted as evidence that the electorate is able to distinguish between good leadership and simply 'luck', which is consistent with the results by Leigh (2009). Since our focus is on illicit tactics, which are rare in advanced economies, we investigate whether the apparent ability of voters to distinguish between good policy and good luck is driven only by high-income countries. We therefore distinguish between high-income countries and developing countries in column 2. The coefficient on the difference between the country's and region's growth rate changes little, and remains significant, while that on the interaction term of this growth differential and a high income dummy is insignificant. We therefore conclude that the ability of voters correctly to interpret economic performance is not confined to high-income countries.

--- Table 5 about here---

Having established that the economic performance that a government delivers affects the chances of incumbent re-election, we now investigate whether the resort to illicit tactics weakens the incentive to deliver good economic performance. In absolute terms, resort to illicit tactics does not significantly weaken the contribution of good economic performance to the prospects of incumbent victory. This can be seen from Table 3, columns 4 and 5, where the model of column 3 is rerun in turn on the 'dirty' elections and the clean elections. The coefficient on economic growth remains significant in the dirty elections regression, and although it is a lower than for the clean elections the difference is not significant. However, while the resort to illicit tactics does not reduce the *absolute* efficacy of good economic performance, it considerably reduces its relative efficacy. Consider an incumbent approaching an election who has the choice between policies which deliver zero growth and five percent growth. We may presume that the zero growth policies have offsetting attractions for the incumbent (graft), though not for the society. Applying the coefficients from columns 4 and 5 of Table 3, in the context of a clean election the expected duration in office will be 8.8 years with zero growth and 12.2 years with five percent growth. Thus, if the leader delivers high economic growth the expected time in office can be extended by 40 percent. In the context of a dirty election, although zero growth still comes at the expense of a shorter expected duration in office, the comparable figures are now 12.2 years and 15.1 years. Promoting growth extends the expected time in power by nearly the same absolute amount but this is proportionately far smaller, only 23 percent. If the presidential utility function has as its arguments both the time in office and graft, illicit electoral tactics may come close to sating the desire for time in office, promoting graft into being relatively more desirable.

4. Do Clean Elections Discipline Leaders?

So far we have presented evidence that illicit tactics substantially increase the chances of an incumbent winning an election and that they reduce the incentive for leaders to deliver good economic performance. The proposition that clean elections discipline incumbents to good economic performance whereas dirty elections relax this discipline has a testable implication for the relationship between changes in leadership and economic performance. In a celebrated study based on a large panel data set, Jones and Olken (2005) found that exogenous changes in leadership significantly affect economic growth: leaders matter. We now revisit these results. Potentially, those changes in which both an incumbent and his successor are subject to the discipline of clean elections should reduce the potential for changes in economic performance. The major changes in performance attributable to leadership change may occur where leaders are not subject to electoral discipline.

The investigation of the importance of leadership is based on a simple panel growth regression. Jones and Olken concentrate their analysis on exogenous changes in leadership, finding that the economic growth rates were significantly different before and after leader deaths. Only deaths due to ill health or accidents are coded as exogenous, assassinations are excluded from this definition. We re-examine their findings in Table 6 in the first row. As in their analysis we regress annual growth rates from 1950 until 2000 on dummy variables indicating the five years before and after each leader's death. The regression also includes time and regional dummies and uses all available observations, i.e. in addition to the 57 leaders who died in office it also includes observations when no leader died in office. Using a Likelihood Ratio Test we cannot reject the hypothesis that economic growth was the same before and after the leader's

death. However, as the critical values indicate, this acceptance of the null is marginal at conventional levels: ‘leaders almost matter’.

We now extend the analysis of Jones and Olken by distinguishing between leaders according to whether they were subject to the effective discipline of clean elections. In row 2 of Table 6 we focus on 44 leader deaths that occurred in polities not subject to clean elections. Here, we decisively reject the hypothesis that the growth rates before and after the leaders' deaths are the same, i.e. in autocratic regimes 'leaders indeed matter'. In row 3 we repeat the analysis for those leader deaths that occurred in conditions where leaders were subject to clean elections. Now we cannot reject the hypothesis that growth rates before and after the leader’s death are the same: leader deaths are a long way from being significant. In short, if a leader dies in a democracy this has no impact on economic performance; leaders only ‘matter’ in non-democratic regimes. While this result is consistent with the hypothesis that clean elections reduce the importance of individuals, there are only 13 observations of leaders who die in office while subject to clean elections, so that the lack of statistical significance may be due in part to the small size of sample. However, the result is not simply due to the difference in sample size. Were the result purely due to the reduction in sample size, the reduction from the full sample to those leaders not facing clean elections would also reduce significance, whereas it strongly has the opposite effect. Further, the average (squared) value of the change in growth attributed to changes in leaders subject to clean elections is only half that where leaders are not so disciplined.

---------Table 6 about here -------

5. Conclusion and Implications

Elections are, potentially, the technology by which government is held to account by citizens, in the process imposing discipline on economic policy. In this paper we have shown that illicit electoral tactics are highly attractive for incumbents. The strategy of using illicit electoral tactics trumps strategies confined to licit tactics, more than doubling the expected duration in office at the means of other variables. Additionally, illicit tactics reduce the incentives for the incumbent to attend to economic performance. Our results suggest that incumbents standing in clean elections are penalized if they do not deliver economic growth, their time in office is about 40 percent shorter compared to incumbents promoting economic growth. Incumbents standing in dirty elections face a much smaller penalty, economic stagnation shortens their time in office by only 23 percent.

An implication is that the misconduct of elections can be expected to subvert the discipline otherwise exerted on governments to achieve good economic performance. This is a testable hypothesis: if it is correct, whether changes of leadership matter for economic performance should depend upon whether leaders are subject to the discipline of clean elections. We revisited the celebrated result of Jones and Olken (2005) that exogenous changes of leadership significantly change economic performance. Dividing the sample according to whether leaders were subject to clean elections, we found that for those that were, we could not reject the hypothesis that changes of leadership had no significant effects. In contrast, in those polities where leaders either did not face elections or were able to use illicit tactics, changes of leadership had large and significant effects.

Variable Descriptions and Data Sources

Age
This variable measures the age of the political leader. Source: Archigos (Chiozza, Goemans and Gleditsch, 2009).

Checks
This variable captures the number of veto players. A country has the minimum of one check if the electoral competitiveness is below six (see data description of 'clean' elections). This index is incremented by one if the electoral system is competitive. Increments are given for a different types of veto points, e.g. if the opposition controls the legislature, an increment is given for each party in the government coalition and for each chamber in the legislature. The maximum value comes to 18. Data Source: DPI (Beck *et al*, 2001).

Clean Elections
Is a dummy variable taking a value of one if the election is 'clean' and zero otherwise. Our definition of clean is based on two variables from DPI (Beck *et al* 2001): competitiveness of the elections and election fraud. DPI provides a measure of the competitiveness of elections on a scale of one to seven. If the country has elections but only one candidate contests the elections the competitiveness is scored as 3, elections in which one party stands but allows the choice between several candidates are scored 4 etc up to 7 which denotes muliparty elections in which the winning party got less than 75 percent of the votes. A further (dummy) variable describes whether vote fraud or candidate intimidation were serious enough to affect the outcome of elections. We define 'clean' elections when the election competitiveness score was at the maximum seven and no election fraud was observed.

Democracy Wave
Dummy variable, takes a value of one for the years 1990 and after.

Free and Fair Elections
We used the variable on 'Electoral Self-Determination' from the Cingranelli and Richards data base to code 'free and fair elections'. If citizens had the right to self-determination through free and fair elections in both law and practice (score of 2) and the election was 'clean' we defined this election as 'free and fair'. Source: Cingranelli and Richards, Version 12.07.08

Free Speech
We used the variable 'freedom of speech' from the Cingranelli and Richards data base. This variable indicates the extent to which freedoms of speech and press are affected by government censorship, including ownership of media outlets. Censorship is any form of restriction that is placed on freedom of the press, speech or expression. Expression may be in the form of art or music. A score of 0 indicates that government censorship of the media was complete; a score of 1 indicates that there was some government censorship of the media; and a score of 2 indicates

that there was no government censorship of the media in a given year. Source: Cingranelli and Richards, Version 12.07.08

Ln Population
Logarithm of the total population. Source: WDI, 2008.

ln GDP (t-1)
The logarithm of per capita income measured in the previous year. Source: WDI, 2009.

Illegal Entry
Dummy variable indicating whether the leader came to power in an irregular manner. Source: Archigos (Chiozza, Goemans and Gleditsch, 2009).

Incumbent Standing
This dummy variable takes a value of one if the incumbent is contesting the election and zero otherwise. Own research.

Population Growth
This variable measures the growth in the total population. Source: WDI, 2008.

Pressfreedom
This variable takes the value 1 if there is no pressfreedom, 2 if the press is partly free and 3 if the press is free. Source: http://www.freedomhouse.org

Resource Rents
We use the same definition as in Collier and Hoeffler (2009). Based on data from the World Bank's adjusted savings project we calculated the rents for each commodity by subtracting the cost from the commodity price. We then multiplied the rents per unit by the amount extracted and summed across the different commodities. We then calculated the share of rents in GDP. Since the rents are provided in current US dollars we used the WDI 2008 GDP in current dollars to calculate this share. Natural resources for which rent data were available are: oil, gas, coal, lignite, bauxite, copper, iron, lead, nickel, phosphate, tin, zinc, silver and gold. Data are available from the World Bank through their 'Adjusted Net Savings' project.

Secondary Enrolment Rates
Secondary enrolment rates are measured as gross rates, i.e. they are calculated by expressing the number of students enrolled in secondary levels of education, regardless of age, as a percentage of the population of official school age for the secondary level. Source: WDI, 2008.

Sub-Saharan Africa
Dummy variable, takes a value of one for countries in Sub-Saharan Africa and zero otherwise. We categorise South Africa as 'other'.

Term Limits
Our term limits dummy takes a value of one if there are formal restraints on an executive's term and zero otherwise. These formal restraints mean that the executive's term is constitutionally

limited and only limits on immediate reelection are counted. Prime ministers are always coded as 'no term limits'. Source: variable MULTIPL from DPI. (Beck *et al* 2001). Note that we have coded term limits one when MULTIPL equals zero and *vice versa* to allow for a more intuitive interpretation.

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Tables

Table 1: How many Elections are Contested by Incumbents?

	Dirty Elections	**Clean Elections**	**Total**
Incumbent did not stand	73	155	228 (29%)
Incumbent election	251	307	558 (71%)
Total	324 (41%)	462 (59%)	786

Table 2: How many Elections are Won by Incumbents?

	Dirty Election	Clean Election	Total
Incumbent loses	48	132	180 (32%)
Incumbent wins	203	175	378 (68%)
Total	251 (45%)	307 (55%)	558

Table 3: How do Incumbents Win Elections?

	(1)	(2)	(3)	(4) Dirty Elec.	(5) Clean Elec.	(6)	(7)	(8)
SSAfrica	1.275	1.193	1.200	0.722	1.702	1.053	1.107	2.366
	(3.11)*	(3.61)*	(3.66)*	(1.88)*	(2.48)*	(2.34)*	(2.30)*	(4.52)*
GDP growth	0.073	0.068	0.079	0.073	0.091	0.088	0.099	0.089
	(2.82)*	(2.79)*	(2.94)*	(1.82)*	(2.28)*	(2.58)*	(2.73)*	(2.99)*
Ln GDP per capita	0.153	0.187	0.420	0.323	0.396	0.275	0.392	0.095
	(1.49)	(2.07)*	(3.91)*	(1.73)*	(3.08)*	(2.33)*	(2.86)*	(0.85)
Clean election	-1.001	-1.168	-0.647					-1.027
	(3.84)*	(4.44)*	(2.17)*					(3.29)*
Press Freedom			-0.962	-1.393	-0.611		-0.710	
			(4.52)*	(4.89)*	(2.08)*		(2.25)*	
Free&fair election						-2.235	-1.534	
						(5.54)*	(2.90)*	
Democracy Wave	-0.264							
	(1.22)							
Population Growth	0.057							
	(0.44)							
Secondary Enrollment	-0.077							
	(0.98)							
Natural resource rents	0.011							
	(0.84)							
Age	-0.005							
	(0.54)							
Illegal entry	0.018							
	(0.04)							
Observations	528	536	483	206	277	343	339	536
PseudoR2	0.08	0.08	0.12	0.16	0.06	0.13	0.14	0.188
Log Likelihood	-309.11	-312.72	-270.10	-88.30	-178.30	-184.60	-180.08	-280.46

Note: Logit regressions, dependent variable: Incumbent election outcome (0 if incumbent lost, 1 if incumbent won), growth measures as the average growth rate of per capita income over the past two years. Column 4 uses only 'dirty election' observations. Colum 5 uses only 'clean' election observations. Robustness checks using CIRI data in columns 6 and 7. Column 8 includes country dummies. Robust z statistics in parentheses, * significant at 10% or less.

Table 4: Heckman Selection Model

	(1)	(2)
	Incumbent Win	
SSAfrica	0.223	0.219
	(3.46)*	(3.74)*
GDP growth	0.012	0.012
	(2.81)*	(2.81)*
Ln GDP per capita	0.038	0.038
	(2.29)*	(2.29)*
Clean election	-0.227	-0.226
	(4.45)*	(4.44)*
	Incumbent Standing	
SSAfrica	1.040	1.109
	(7.08)*	(6.41)*
Illegal Entry	-1.235	-1.674
	(10.48)*	(12.45)*
Inverse Mill's Ratio	0.040	0.040
	(0.39)	(0.44)
Number of observations	756	684
Number of censored obs.	229	148
Number of uncenscored obs.	536	536

Note: Heckman regressions, dependent variable 2nd stage: Incumbent election outcome (0 if incumbent lost, 1 if incumbent won), dependent variable 1st stage: Incumbent standing (0 if incumbent did not stand, 1 if incumbent stood). First column includes all observations, second column excludes 81 elections in which the incumbent could not stand for re-election due to term limit rules. Robust z statistics in parentheses, * significant at 10% or less.

Table 5: Good Policies or Good Luck?

	(1)	(2)
SSAfrica	1.164	1.147
	(3.51)*	(3.34)*
ln GDP per capita	0.187	0.193
	(2.08)*	(1.20)*
Clean election	-1.001	-1.148
	(3.84)*	(4.43)*
Regional growth	0.030	0.011
	(0.74)	(0.27)
Difference to regional growth	0.090	0.087
	(3.14)*	(2.84)*
Regional growth * high income dummy		0.253
		(1.87)*
Difference to reg.growth* high income dummy		0.047
		(0.57)
High income dummy		-0.542
		(0.34)
Observations	536	536
PseudoR2	0.08	0.09
Log Likelihood	-312.14	-310.43

Note: Logit regressions, dependent variable: Incumbent election outcome (0 if incumbent lost, 1 if incumbent won). Robust z statistics in parentheses, * significant at 10% or less.

Table 6: Leaders only Matter if there are no Clean Elections

	Number of leader deaths	Likelihood RatioTest statistic	Critical value p=0.05	Critical value p=0.1
All leader deaths	57	69.2	75.6	71.0
Leader deaths in autocracies	44	61.3	60.5	56.4
Leader deaths in democracies	13	8.7	22.4	19.8

Note: The table presents the results from likelihood ratio tests (LRT). Based on a simple growth regression we test the null hypothesis that growth is the same before and after the leader's death. Annual growth rates are regressed on a number of regional dummies and includes dummies for the five years before and after each leader's death. The regression includes observations from all countries, irrespective of whether or not they experienced a leader death (n=5668). We ran an unrestricted model and a restricted model in which we restricted the dummies to be equal to each other before and after the leader's death. The regressions were estimated by OLS and the LRT statistic = $2(L_{UR} - L_R)$ was obtained, where L_{UR} is the log likelihood from the unrestricted model and L_R the log likelihood from the restricted model. This statistic is distributed as a χ 2 statistic where the degrees of freedom are equal to the number of restrictions (in our case equal to the number of leader deaths). We use the LRT because it allows for the possibility that the model is misspecified. We would like to thank Ben Jones and Ben Olken for making their dataset available to us.