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# Democracy's Achilles Heel

# or,

# How to Win an Election without Really Trying

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Abstract

In this paper we investigate the efficacy of illicit electoral tactics and the characteristics which make a society prone to such tactics. We first investigate the chances of an incumbent head of government winning an election. We find that in those elections in which illicit tactics were prevalent the chances of incumbent victory increase substantially, more than doubling the expected duration in office. Further, illicit tactics sharply reduce the importance of good economic performance for survival in office. We then investigate what makes a society prone to illicit electoral tactics. Both structural conditions and institutions matter. Societies that are small, low-income, and resource-rich have little chance of a clean election unless these conditions are offset by checks and balances such as veto points and a free press. Aid has offsetting effects, the net effect being modest. We show that these results are robust to different measures of the conduct of elections and to fixed effects. Finally, we revisit the Jones-Olken result that individual leaders matter for economic performance and find that it holds only where leaders are not disciplined by well-conducted elections.

## 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. This appeared to constitute a radical increase in the accountability of previously autocratic governments to their citizens. As such it promised not only an improvement in human rights, but in economic performance. Since their independence, many of these developing country governments had chosen economic policies that favoured elite rent-seeking at the expense of broad-based growth.

Unfortunately, electoral misconduct is common. Although many authoritarian regimes subject themselves to elections[2], they deploy illicit tactics which improve the chances of incumbent victory. Schedler (2002) argues that these elections are designed to generate only the appearance of democratic legitimacy, perhaps more in the eyes of external actors such as aid agencies than of citizens. Hence, some degree of pluralism and competition are tolerated in order to make it feasible to conduct contested elections. However, these elections do not mark a genuine shift to democracy.

In this paper we demonstrate that electoral misconduct is highly efficacious for incumbent politicians. We suggest that proneness to illicit tactics is substantially dependent upon a few socio-economic characteristics: some societies have little chance of holding a clean election unless restraining institutions are already in place. International pressure, proxied by both the fall of the Soviet Union and aid flows, has significant and predominantly benign effects. We also show that illicit tactics are associated with poor economic outcomes. Thus, from the perspective of economic development, electoral misconduct is the Achilles heel of democracy.

Our contribution is structured in the following way. In Section 2 we introduce a simple model that helps to predict the circumstances in which an incumbent politician will resort to electoral misconduct. The core of the paper is empirical and is divided into three sections. It presents a new global data set which integrates data on changes in incumbency with data on elections classified according to the quality of their conduct. The preliminary step, undertaken in Section 3, establishes that illicit tactics are highly effective in increasing the

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

[2] Diamond (2002) estimates that about 86 percent of all countries now hold elections.

expected duration of an incumbent in office. In Section 4 we then investigate the structural characteristics that make a society prone to illicit tactics, guided by the analysis of Section 2. In Section 5 we turn to whether the quality of elections matters for economic performance. A final section presents some conclusions.

## 2. A Simple Model of Resort to Illicit Tactics

The objective of our model is to determine which factors make it more likely for incumbent political leaders to use illicit tactics in elections. The factors suggested by the model can then be tested empirically.

The model is in the form of a game between an incumbent and a representative elector. We assume that the incumbent benefits from the ego-rents of office, which accrue as $E$ per term, and can also choose whether to receive financial rents from embezzlement which accrue at $R$ per term. We first depict an electoral system with a binding constitutional two-term limit since this limits the game to two periods.

The game opens when the incumbent has just begun his first term in office. During this first term the incumbent has two choices, one on economic policy, and the other on the conduct of the election at the end of the first term. That election will determine whether the leader remains in office for a second (and final) term.

The incumbent's choice of economic strategy is between a pro-growth policy which generates growth of $g$, and a policy which yields zero growth but generates rents, $R$, which the politician expropriates. The incumbent's choice of economic strategy is fully observed by the representative elector. The elector prefers the pro-growth strategy to the rent-seeking strategy and votes accordingly. If the incumbent has chosen the pro-growth strategy the representative elector votes for him in the elections at the end of the first term, whereas if the incumbent has chosen the rent-seeking strategy, the representative elector votes against him.

The incumbent also chooses electoral tactics. Since the choice of the representative voter can be perfectly anticipated by the incumbent, the sequence of voter choice and choice of electoral tactics is inconsequential. If the chosen tactics of the incumbent are licit, ($F$=0), electoral success is dependent upon the achievement of growth. If the chosen tactics are

illicit, ($F$=1), victory is assured but their use carries a penalty, $P$, the value of which can be thought of as depending upon the efficacy of the checks and balances in the society.

The incumbent maximizes utility, which is assumed to be additive in the terms $E$, $R$ and $P$, with respect to the choices of $g$ and $F$.

The solution to this simple game is determined by comparing the utility that accrues to the incumbent from each of three strategies: pro-growth strategy combined with licit tactics; rent-seeking strategy combined with licit tactics; and rent-seeking strategy combined with illicit tactics. The remaining logical possibility of pro-growth strategy combined with illicit tactics is strictly dominated by the first strategy, but depending upon the values $E$, $R$ and $P$ any of the other three strategies could be utility-maximizing.

--- Figure 1 about here ---

Figure 1 depicts the options. The first option of pro-growth and licit tactics achieves a return of $2E$. The second option is that prior to the election he chooses rent-seeking rather than growth, but then chooses to use licit tactics in the election ($F$=0). As a result he loses the election but nevertheless is able to keep the rents from the first term in office. The return to this choice is $E+R$. The third option is to choose rents rather than growth but then choose the use of illicit tactics ($F$=1). The return to this strategy is $2E + 2R - P$. The incumbent wins a second term in office, but is punished for the use of illicit tactics. He gets to keep the rents from the previous term and gains rents during his second term. The three choices each apply over a specific range.

The incumbent chooses not to rent-seek and uses licit tactics ($F$=0) iff $E>R$ & $2R<P$.

The incumbent chooses rent-seeking and licit tactics ($F$=0) iff $R>E$ & $E+R<P$.

The incumbent chooses rent-seeking and illicit tactics ($F$=1) iff $2R>P$ & $E+R>P$.

There are thus two critical values of parameters which lead to illicit tactics having economic consequences. In the range $E>R$ the critical value is $R<1/2P$. Above this value the incumbent uses his power to steal the election in order to switch economic strategy during his first term from growth to rents. Conversely, in the range $E<R$ the critical value is $E+R<P$. Above this value the incumbent who would in any case sacrifice growth for rents during his first term is uses illicit tactics to gain a second term. To guard against both of these problems the penalty

incurred by resort to illicit tactics must be high relative to *both* the ego-rents of office and the rents from financial embezzlement.

So far we have assumed that there is a binding constitutional limit of two terms in office. We now remove this term limit. Now, if the incumbent wins the election at the end of his first term, there is a further benefit in the form of the option value of office in the third and subsequent terms. For simplicity, we assume that this option value is unaffected by whether the incumbent has won a second term through licit or illicit tactics so that it can be depicted as a single positive value, $O$.

The introduction of this option value changes the decision calculus facing the incumbent during the first term. Revisiting the three choices, the returns to each are now:

The incumbent chooses not to rent-seek and uses licit tactics ($F$=0) iff $E+O>R$ & $2R<P$.

The incumbent chooses rent-seeking and licit tactics ($F$=0) iff $R>E+O$ & $E+R+O<P$.

The incumbent chooses rent-seeking and illicit tactics ($F$=1) iff $2R>P$ & $E+R+O>P$.

Comparing these pay-offs, the removal of term limits has no effect on the choice between the first and third options since both now include the option value. An incumbent who is choosing not to garner rents and hence does not resort to illicit tactics in a term-limited system, will not switch to illicit tactics in an unlimited system. However, the removal of the term limit does alter the choice between the second and third options, making it less attractive for the rent-seeking politician to choose licit tactics at the first election because he will forgo the future option of rent-seeking. The penalty would now have to be larger in order to prevent a rent-seeking incumbent from using illicit tactics to steal the elections. The remaining choice, between the first and second options, does not involve a switch between licit and illicit tactics and so it not germane to our question. However, it is interesting to note that the removal of the term limit increases the relative attraction of the first option in which the incumbent chooses not to embezzle. Hence, an implication of the model is that although term limits would reduce the incidence of illicit electoral tactics, they would increase the incidence of financial corruption.

The model has three testable implications for electoral tactics. First, and most obviously, the attraction of illicit tactics relative to licit tactics is reduced the higher is the penalty for their

use. This is readily testable since the penalty can plausibly be proxied by a variety of observable checks and balances that differ over time and between societies. The second implication is that the attraction of illicit tactics relative to licit tactics is increased by the value of the potential rents from financial embezzlement. This follows directly from the conditions under which the third option is preferred. This prediction is readily testable since, as we discuss in the next section, there are defensible proxies for the value of the potential rents from financial embezzlement. However, it is not a very powerful test since the association between rents and illicit electoral tactics is intrinsically plausible. The third testable implication is that term limits should reduce the incentive to adopt illicit tactics. This is a somewhat stronger test since it is essentially about differences-in-differences: a common level of rents should do less damage to the conduct of elections if there are term limits.

Finally, illicit tactics have selection effects on the pool of politicians. To illustrate this we distinguish between two types of politician according to their preferences. The first type is characterized as above, while the second type does not value embezzlement. Confining the analysis to the case of term limits, in societies where $P$ is so high that illicit tactics are not chosen by politicians of either type, financially honest politicians receive a pay-off of $2E$. Dishonest politicians receive a pay-off of the maximum of $2E$ and $E+R$. In the extreme case in which $P$ is reduced to zero, the pay-off to honest politicians is unaltered, whereas that to the dishonest rises to $2E+2R$. Hence, the extent to which illicit tactics are penalized affects the attraction of politics for dishonest politicians relative to honest politicians. As Besley (2006) argues, in the long term equilibrium such selection effects may be more consequential than the direct effect of incentives. In a political system with only weak penalties on illicit tactics the people who enter politics may be motivated by the opportunities for corruption. Being so motivated, they find illicit tactics particularly useful. Thus, if the political system started with penalties on illicit tactics that were sufficient to deter them but then for some exogenous reason these penalties are reduced, the composition of politicians would gradually deteriorate as the society transitioned from the initial equilibrium to the new one and this would progressively accentuate the resort to illicit tactics.

In the above model we have made the key assumption that illicit tactics guarantee electoral victory. While *in extremis* this is clearly the case, we want to establish empirically whether within the normal range of illicit tactics they confer a substantial electoral advantage. This is the objective of following section.

## 3. How tempting is electoral misconduct?

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. We therefore investigate whether the resort to electoral misconduct significantly improves the chances of an incumbent being re-elected.

For our empirical analysis we collated a data set on political leaders and executive elections. 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 was an incumbent (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. Based on the concept of Chauvet and Collier (2009) of good quality elections we consider any election 'clean' if it meets two conditions. The first is that the quality of the election should receive a rating of more than 6 on the DPI scale. This corresponds to elections in which multiple parties stand and win seats and the leader is elected in a competitive manner. The second condition is that the DPI does not judge that fraud could have had an impact of the outcome of the election. Table 1 lists the number of clean and dirty elections. About 41 percent of all elections are of bad quality and/or fraudulent and thus classified as dirty. The percentage of dirty elections among the elections in which incumbents are standing is only a little higher at 45 percent. Thus, at least superficially, there is little indication that incumbents manipulate election procedures by lowering the election quality or through fraud.

As discussed above, a number of country studies indicate that incumbents are more likely to win elections. The initial cross-country evidence supports this finding. Table 2 shows out of the 558 elections in which incumbents stood, in 378 of them (68 percent), the incumbent won. 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 single country, dominated by studies on US presidential and congressional elections[3]. 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

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

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 invariably limits our choice of explanatory variables, for example we do not have approval ratings for a large sample of countries. However, we start with a general model and our explanatory variables include 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. The 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 countries.

--- Table 3 about here ---

As suggested in the literature on economic voting[4] higher economic growth makes an incumbent win more likely. It also confirms 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: traditionally 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. We also control for income per capita and find a weak positive effect on incumbent wins.

However, there are a number of variables which seem to be insignificant in determining the incumbent's chances of winning the election. We include controls for the structure of the society and the economy, but population growth, education measures, and rents are all insignificant.

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

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. 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 [5]. Illicit tactics have effects that are both highly significant and substantial. 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 victory has magnified implications for the expected duration in office, which is perhaps the more 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.[6]

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 confirmed. Press freedom makes it more difficult for incumbents to win elections.

[5] 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, secondary 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.

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

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[7].

We now turn to the question whether the effect of the other variables depends upon illicit tactics. We reran the model in column 3 on two samples, one limited to 'dirty' elections (column 4) and the other to 'clean' elections (column 5). We found little evidence that our economic and societal variables had differential effects on the outcome of the elections. However, the incentives for good economic policy are relatively weaker. 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. 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. In the model of Section 2 we adopted a stylized simplifying assumption that illicit tactics assured victory, hence eliminating the need for growth. While the empirical results show, unsurprisingly, that this is too extreme, they are disturbingly close to it. 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.

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.

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

In order to check for robustness we used some alternative data for clean elections from 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 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.

One concern with these regressions is that the logit results can potentially be biased in short panels (Greene, 2002). We 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 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[8].

A further concern with this type of analysis 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 confirmed: dirty election tactics help incumbents win elections.

[8] Results available on request.

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 surely 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 ruler to 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?

## 4. Proneness to electoral misconduct

Electoral misconduct is thus the Achilles heel of democracy. By substantially increasing the prospect of incumbent victory it weakens the discipline that elections otherwise exert. We therefore turn to the underlying issue of what determines whether elections are clean or dirty?

We first use the data on all elections, irrespective of whether an incumbent stood. This allows us to examine a maximum of 786 elections. There is very little quantitative literature on the quality of elections. The study by Jones (2004) uses data from 50 democracies and examines what determines the number of candidates in presidential elections. He finds that if an incumbent is standing there are fewer candidates taking part in the election, i.e. incumbent elections are less competitive. This question is related to our analysis because our definition of 'clean' elections is mainly based on how competitive leadership elections are. Our results on what determines clean elections are shown in Table 5.

In column 1 we include all elections on which we have data, whether or not an incumbent is standing. Seven characteristics are significantly associated with the probability that elections are clean.

--- Table 4 about here ---

Guided by the discussion of Section 2, we first proxy the penalties for illicit tactics. We find that two such variables are sufficiently uncorrelated to be introduced together, each retaining substantial effects. One of these is checks and balances which is proxied by the number of veto points, an example being a legislature which is under the control of the opposition. This is an additive measure, the sample mean being three veto points. The other measure of penalties is press freedom, measured on a three point scale. Both measures significantly reduce the likelihood of illicit tactics, consistent with the prediction of the simple model. One additional veto point is approximately equivalent to the move from partial to full press freedom.

Penalties for illicit tactics may also come from external actors. We proxy international pressure by a dummy variable set to unity for the period since the fall of the Soviet Union. Although this does not distinguish between countries, it does mark a clear change in the policy priorities of the major international actors. Until the fall of the Soviet Union allegiance to power blocs overrode concerns about political governance. The variable is less significant that the other proxies for penalties but its effect is quite substantial, being approximately equivalent to a doubling of per capita GDP or a quadrupling of population.

The model of Section 2 predicts that the scope for political rents will increase the likelihood of illicit tactics. We proxy this by a measure of natural resource rents as a share of GDP. This is a reasonable proxy since a substantial literature suggests that resource rents are liable to be captured for political patronage (Robinson et al., 2006, Ross, 2004, Collier and Hoeffler, 2009). Our results support the hypothesis that the scope for political patronage increases the likelihood of illicit tactics: the higher is the proportion of resource rents the less likely is the election to be clean. Further, the effect is large: a country at the mean of other characteristics but with large rents (50 percent of GDP) has a probability of a clean election of only 34 percent. If natural resource rents are reduced to zero this probability almost triples to 95 percent.

In the model of Section 2 we did not consider the size of the polity. However, there is an analytic basis for expecting size to matter. At a general level, accountability is a public good and so, like other public goods, is likely to be subject to scale economies (Collier and Venables, 2009). More specifically, personalized power relationships are likely to be more difficult to maintain the larger is the society.

We first proxy size by population. The celebrated result of Dunbar (1992)[9] that the number of direct personal contacts of an individual is broadly independent of social context at around 150, implies that the minimum feasible degree of separation, *s*, between the ruler and ordinary citizens increases in population size, *n*, according to:

$$s = \sqrt[150]{n}$$

The actual degree of separation may be considerably greater than this minimum and so need not be monotonic in population size. Nevertheless, the monotonic relationship for the minimum supports a presumption that the larger the population the more likely are power relationships to be institutionalized rather than personalized, or if personalized, less likely to be effective. Consistent with this hypothesis we find that the larger the population of the country the higher is the chance that the election is clean.

While power relationships are most naturally thought of in terms of power over people, power over economic transactions may be just as pertinent. The same scale economies argument applies to transactions as to people: the more complex the economy the greater the need to institutionalize control over them rather than rely upon personal control. Since population is already included in the regression, per capita income rather than total GDP is the appropriate way to proxy the size of the economy. Per capita income is indeed significant in the regression with the same sign as population. However, while one possible interpretation of the variable is that it proxies the scale of transactions, since per capita income is correlated with many omitted variables there are many other channels by which it might be significant. Both 'scale' variables have substantial effects, doubling the population being approximately equivalent to increasing income by 50 percent.

To get a sense of the magnitude of the effects we can think of stylized characterizations of Africa and India prior to the fall of the Soviet Union. The typical African society has only one veto point, no term limits, no press freedom, a population of 10 million, a mean level of per capita income of $840, and resource rents of six percent of GDP. With these characteristics, the chance of a clean election predicted by the regression is only 3 percent. In contrast, India has a population of around one billion, around 3 percent of GDP in natural resource rents, 4 veto points, and a relatively free press. Its predicted chances of a clean

[9] This result was popularised by Gladwell(2000).

election are 80 percent. Onto these initial positions, now introduce the international democratizing wave consequent upon the fall of the Soviet Union. In 'Africa' the chance of a clean election increases from 3 percent to 6 percent, while in 'India' it increases from 80 percent to 88 percent.

We now introduce term limits. The model of Section 2 predicted that term limits would reduce the likelihood of illicit tactics, but through an interaction effect with natural resource rents. We first introduce a dummy variable for term limits into the regression of column 1. It is significant, but this may be due to the correlation of term limits with other aspects of the society rather than being causal. In column 2 we add an interaction term between resource rents and term limits. The interaction is not significant. However, recall that so far our sample has included all elections, whether or not an incumbent was standing. Since the theory of illicit tactics of Section 2 is essentially about how incumbents can abuse their power, we now investigate whether resource rents matter more in elections where incumbents are standing. In column 3 we introduce a dummy variable for whether the incumbent is standing, and an interaction term between this dummy and resource rents. Now, while the direct effect of the dummy is not significant, the interaction is significant and negative: resource rents advantage incumbents. Further, once this interaction is introduced, the direct effect of natural resource rents becomes negligible and insignificant: resource rents *only* increase the risk of illicit tactics if an incumbent is standing. The implication that natural resource revenues help incumbents to win elections is consistent with the theory proposed by Robinson *et al.* (2006) whereby the incumbent uses the revenues to finance public sector employment patronage and beneficiaries rationally vote for him in order to retain their jobs. A key point in their argument is that while opposing candidates may say that they will retain beneficiaries on the public payroll, such statements lack credibility. Our result that once the incumbent is not standing resource rents lose their efficacy is consistent with this thesis: in effect, in the context of personalized power networks beneficiaries of previous patronage have little basis for trusting any successor.

The results of regression (3) lead us to a further investigation of term limits. Recall that the theory of Section 2 predicts that term limits should reduce illicit tactics by incumbents, but only through an interaction with resource rents. In column 4 we consider only the subset in which an incumbent is standing in a country that has non-zero resource rents. On this sample we reintroduce the interaction of resource rents and the dummy for term limits. Now the

direct effect of term limits reverses sign and becomes insignificant. The interaction with resource rents is significant and positive as predicted: term limits reduce the incidence of illicit tactics, but only where there is an incumbent standing and resource rents are available.

We now subject the above results to tests for robustness. We first use a different data source for our dependent variable, switching to the data on whether elections are 'free and fair'. In column 5 we rerun our core specification of column 1. This reduces our sample size drastically from 576 to 389 observations. Despite this reduction in sample size we still find that our main results hold. Higher income, more veto players, press freedom and term limits increase the chance of clean elections while natural resource rents reduce it. For this sample we do not find the size of the population and the democracy wave to be significant. In column 6 we use the CIRI freedom of speech variable and confirm that this increases the likelihood of a clean election.

As in the incumbent election analysis presented above, we are concerned whether unobserved country specific effects drive our results. We include the significant country dummies in our core model and report these results in column 7. The size of the population and the democracy wave lose statistical significance but all of the other results, including per capita income and natural resource rents where fixed effects might be a particular concern, are unaffected. As with the effect of electoral misconduct on the duration in office, a good reason for interpreting the effect of veto points on the risk of electoral misconduct as causal is that *they are meant to restrain abuses of power*.

***Does Aid Matter?***

We now turn to the question of whether aid has an effect on the likelihood of whether elections are clean or dirty. From our results so far we might expect that aid would have two opposing effects. Recall that the international pressure for democracy, proxied by the fall of the Soviet Union, increased the probability that an election would be clean. Aid gives the international community a potential pressure point to encourage the clean conduct of elections. Offsetting this effect, aid is somewhat analogous to government revenue from natural resource rents in that it reduces the need to raise revenue by taxing citizens and so may reduce pressure for accountability. *A priori*, either of these could predominate.

Analogous to our analysis of rents we limit the sample to countries in receipt of aid and where an incumbent is contesting the elections: Table 6 presents our analysis. Column 1 is our core logit regression with the addition of aid. Although the sample is considerably reduced, as in our core model the democracy wave, veto players, term limits and press freedom make it more likely that the elections are clean. In this regression aid is not significant. However, a potential limitation of this specification is that aid may be endogenous. We broadly follow Tavares (2003) in our choice of instruments for aid, using the total aid given by the top five bilateral donors (US, UK, Japan, France and Germany) and their historical and cultural ties with the recipients to instrument for the amount of aid they allocate to recipient countries. Since it is not possible to adopt the IV approach in a logit we switch to a linear probability model: in column 2 we test the same specification as column 1, the results being similar. In column 3 we instrument aid which remains insignificant.

------- Table 5 about here ------

In the remaining columns we investigate whether aid might have effects through interactions with other key variables. We first introduce interaction terms into the logit specification and then turn to the linear probability model, instrumenting aid and testing down by the elimination of insignificant terms. In the final regression of column 7 aid has two effects which are jointly significant ($\chi^2$=4.6, p=0.10). The direct effect of aid is adverse, making clean elections less likely. This is offset by a favourable interaction with checks and balances: aid enhances the efficacy of veto points. Taking the results at face value, they suggest that aid enables the international community to reinforce domestic due process, but does not empower it to replace due process where none exists. The effect is small. The mean level of aid, for countries in which it is non-zero, is seven percent. In the absence of aid the chance of a clean election is 64 percent, whereas at double the mean level of aid the chance rises to 67 percent. Our results imply that unless aid is explicitly conditioned upon the good conduct of elections, if the donor wishes to 'do no harm' a cautious approach may be needed in countries where effective checks and balances are weak or missing. In a country with only a single veto point but otherwise average characteristics aid *reduces* the chances of a clean election from 61 percent to 60 percent: the adverse direct effect predominates. However, the main result from our analysis of aid is that there do not appear to be strong net effects: there may well be no net effects.

## 5. **Do Clean Elections Matter for Economic Performance?**

So far we have presented evidence that illicit tactics substantially increase the chances of winning an election and we have discussed the circumstances in which it is most likely that illicit tactics are used. We now turn to the question of whether clean elections matter for 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 recent 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, elections provide an incentive to deliver good economic outcomes. There is now also evidence that this holds for developing countries. Chauvet and Collier (2009) investigate the relationship between elections and 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.

In resource-rich countries voters may face particular difficulties in disciplining governments to good economic policies. Economic performance is subject to large shocks from fluctuations in world prices and resource discoveries, making the task of disentangling the component due to competence as opposed to luck more difficult than in resource-scarce countries. Further, recall that we have found that resource rents substantially increase the risk of electoral misconduct. Consistent with these concerns, Collier and Hoeffler (2009) find that electoral competition has had distinctively adverse effects on economic growth in countries that are resource-rich. The adverse effect can be countered by sufficiently strong checks and balances as measured by veto points, which is again consistent with our above results that veto points substantially reduce the incidence of electoral misconduct.

The proposition that clean elections discipline incumbents to good economic policies 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 may 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. 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. As the critical values indicate this acceptance of the null is marginal at conventional levels. However, we cannot confirm Jones and Olken's result that 'leaders matter' in this sample. We then focus our analysis on the 44 leader deaths in autocracies in line 2. 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 matter'. How about leadership in democracies? According to our theory clean elections discourage corrupt politicians and encourage economic voting. For the 13 deaths that happened in democratic regimes we cannot reject the hypothesis that growth rates before and after the leader's death are the same. 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, it is not a very powerful test. There are only 13 observations of leaders who die in office while subject to clean elections and the lack of statistical significance may be due to the small size of sample. However, the result is not

simply due to the difference in sample size. 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 -------

## 6. 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 sharply reduce the incentives for the incumbent to attend to economic performance.

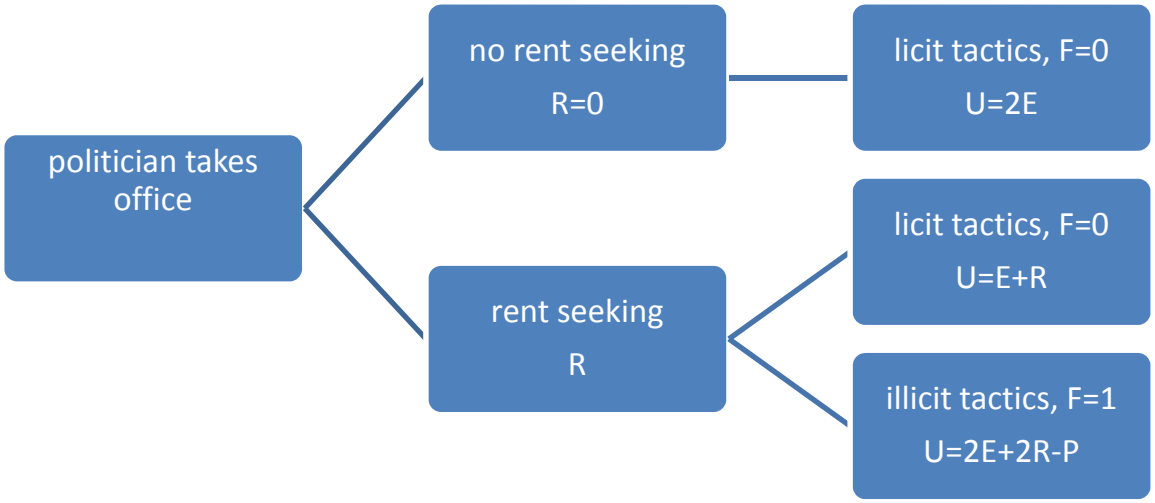
If illicit tactics are so attractive for incumbents, they will be adopted unless there are restraints upon them. We found some evidence that conventional checks and balances, notably veto points, press freedom and term limits, are all potent checks on illicit tactics. International pressure also appears to be effective, at least as proxied by the fall of the Soviet Union. However, disturbingly, we found that there are structural characteristics which expose a society to the risk of illicit tactics. Specifically, low-income countries with small populations and large rents from natural resources have a very low chance of clean elections unless they already have a range of checks and balances. Since checks and balances are processes which take time to establish whereas elections are simply events, this may explain why the introduction of 'instant democracy' to Africa during the 1990s has had only limited success in establishing accountable and legitimate governance. We investigated whether aid had affected proneness to electoral misconduct. Analytically its effect is ambiguous and we found that any net effect has been modest.

The misconduct of elections can be expected to subvert the discipline otherwise exerted on governments to achieve good economic performance. A testable implication is that changes of leadership would only matter in polities where leaders were not subject to clean elections.

Revisiting the Jones and Olken result that leadership matters, we have found that their data are consistent with this hypothesis.

In conclusion, there are powerful incentives for electoral misconduct. Where it occurs it has adverse economic consequences, enabling leaders to adopt policies of patronage rather than growth. Some societies are structurally prone to electoral misconduct, specifically those which are low-income, resource-rich and small. Although electoral misconduct can be countered by checks and balances such as veto points and a free press, the wave of democratization following the fall of the Soviet Union introduced elections into small, low-income, resource-rich societies in which they were particularly weak. The main potential international pressure-point for the good conduct of elections in these societies has been aid, but we find that any effects have been modest and, indeed, ambiguous.

**Figure 1: Incumbent Choices under a Term Limit Rule**



**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) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| **SSAfrica** | 1.329 | 1.193 | 1.200 | 0.722 | 1.702 | 1.053 | 1.107 | 2.366 |
| | (3.23)*** | (3.61)*** | (3.66)*** | (1.88)* | (2.48)** | (2.34)** | (2.30)** | (4.52)*** |
| **GDP growth** | 0.074 | 0.068 | 0.079 | 0.073 | 0.091 | 0.088 | 0.099 | 0.089 |
| | (2.85)*** | (2.79)*** | (2.94)*** | (1.82)* | (2.28)** | (2.58)*** | (2.73)*** | (2.99)*** |
| **Ln GDP per capita** | 0.151 | 0.187 | 0.420 | 0.323 | 0.396 | 0.275 | 0.392 | 0.095 |
| | (1.48) | (2.07)** | (3.91)*** | (1.73)* | (3.08)*** | (2.33)** | (2.86)*** | (0.85) |
| **Clean election** | -1.017 | -1.168 | -0.647 | | | | | -1.027 |
| | (3.81)*** | (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** | -0.275 | | | | | | | |
| | (1.27) | | | | | | | |
| **Population Growth** | 0.064 | | | | | | | |
| | (0.50) | | | | | | | |
| **Secondary Enrollment** | -0.083 | | | | | | | |
| | (1.05) | | | | | | | |
| **Natural resource rents** | 0.011 | | | | | | | |
| | (0.79) | | | | | | | |
| **Age** | -0.009 | | | | | | | |
| | (0.92) | | | | | | | |
| **Illegal entry** | -0.072 | | | | | | | |
| | (0.18) | | | | | | | |
| **Observations** | 529 | 536 | 483 | 206 | 277 | 343 | 339 | 536 |
| **PseudoR2** | 0.09 | 0.08 | 0.12 | 0.16 | 0.06 | 0.13 | 0.14 | 0.188 |
| **Log Likelihood** | -308.60 | -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 3 includes country dummies. Robust z statistics in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%.

## Table 4: What Determines Clean Elections?

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| **Democracy Wave** | 0.576 | 0.609 | 0.567 | 0.588 | 0.637 | 0.617 | 0.580 |
| | (1.96)* | (2.04)** | (1.91)* | (1.37) | (1.16) | (1.92)* | (1.54) |
| **Ln Population** | 0.226 | 0.218 | 0.202 | 0.217 | 0.307 | 0.249 | 0.150 |
| | (2.13)** | (2.05)** | (1.89)* | (1.32) | (1.30) | (2.10)** | (1.04) |
| **Ln GDP per capita** | 0.551 | 0.549 | 0.561 | 0.928 | 0.474 | 0.644 | 0.904 |
| | (3.59)*** | (3.55)*** | (3.49)*** | (4.85)*** | (2.13)** | (3.63)*** | (2.83)*** |
| **Natural resource rents** | -0.072 | -0.079 | 0.014 | -0.299 | -0.102 | -0.078 | -0.091 |
| | (2.94)*** | (2.75)*** | (0.35) | (2.56)** | (3.53)*** | (2.99)*** | (2.36)** |
| **Checks** | 1.056 | 1.053 | 1.076 | 1.307 | 1.459 | 1.139 | 1.867 |
| | (6.17)*** | (6.13)*** | (6.28)*** | (5.42)*** | (4.69)*** | (6.24)*** | (6.40)*** |
| **Press freedom** | 1.040 | 1.033 | 1.082 | 0.340 | 2.468 | | 1.325 |
| | (3.93)*** | (3.87)*** | (3.98)*** | (0.72) | (4.65)*** | | (4.04)*** |
| **Termlimit** | 0.979 | 0.728 | 0.820 | -1.941 | 1.532 | 1.144 | 1.1453 |
| | (2.36)** | (1.34) | (1.82)* | (1.28) | (2.70)*** | (2.73)*** | (2.40)** |
| **Rents*termlimit** | | 0.061 | | 0.392 | | | |
| | | (1.10) | | (2.29)** | | | |
| **Incumbent standing** | | | 0.229 | | | | |
| | | | (0.51) | | | | |
| **Rent* incumbent st.** | | | -0.120 | | | | |
| | | | (2.21)** | | | | |
| **Rents*checks** | | | | -0.026 | | | |
| | | | | (2.46)** | | | |
| **Rent*press freedom** | | | | 0.101 | | | |
| | | | | (2.08)** | | | |
| **Freedom of speech** | | | | | | 0.766 | |
| | | | | | | (2.47)** | |
| **Observations** | 576 | 576 | 576 | 380 | 389 | 505 | 576 |
| **PseudoR2** | 0.55 | 0.55 | 0.56 | 0.67 | 0.75 | 0.52 | 0.67 |
| **Log Likelihood** | -161.59 | -161.16 | -158.31 | -79.70 | -58.98 | -149.01 | -116.12 |

Note: Logit regressions, dependent variable: ‘clean’ elections (0 if ‘dirty’, 1 if ‘clean’) in columns 1-4, 7 and 'free&fair' elections (0 if not 'free and fair' and 1 if 'free and fair') in columns 5 and 6. Robust z statistics in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%.

## Table 5: Does Aid Encourage Clean Elections?

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| | Logit | LPM | 2SLS | Logit | LPM | 2SLS | 2SLS |
| **Democracy Wave** | 0.612 | 0.093 | 0.094 | 1.102 | 0.115 | 0.120 | 0.113 |
| | (1.82)* | (1.90)* | (1.92)* | (2.31)** | (1.82)* | (1.93)* | (1.81)* |
| **ln Population** | 0.176 | 0.017 | 0.016 | 0.272 | 0.047 | 0.056 | 0.057 |
| | (1.49) | (0.99) | (0.92) | (1.52) | (1.62) | (1.88)* | (1.98)** |
| **ln GDP per capita** | 0.331 | 0.049 | 0.047 | 0.275 | 0.071 | 0.080 | 0.080 |
| | (1.72)* | (1.52) | (1.32) | (1.01) | (1.52) | (1.55) | (1.64) |
| **Aid** | 0.018 | -0.000 | -0.000 | -0.259 | -0.012 | -0.015 | -0.010 |
| | (0.80) | (0.01) | (0.07) | (1.90)* | (1.55) | (1.31) | (1.56) |
| **Checks** | 1.090 | 0.110 | 0.110 | 1.060 | 0.094 | 0.074 | 0.070 |
| | (5.74)*** | (4.94)*** | (5.01)*** | (3.96)*** | (2.95)*** | (2.65)*** | (2.58)*** |
| **Press freedom** | 0.948 | 0.173 | 0.173 | 0.371 | 0.132 | 0.146 | 0.167 |
| | (3.55)*** | (4.04)*** | (4.09)*** | (0.96) | (2.16)** | (2.20)** | (3.33)*** |
| **Termlimit** | 1.459 | 0.193 | 0.193 | 0.196 | 0.088 | 0.117 | 0.139 |
| | (3.05)*** | (3.12)*** | (3.15)*** | (0.13) | (0.94) | (1.42) | (2.04)** |
| **Aid*termlimit** | | | | 0.235 | 0.011 | 0.004 | |
| | | | | (0.99) | (1.16) | (0.39) | |
| **Aid*Checks** | | | | 0.009 | 0.001 | 0.006 | 0.006 |
| | | | | (0.31) | (0.48) | (1.66)* | (2.11)** |
| **Aid* Press freedom** | | | | 0.109 | 0.006 | 0.003 | |
| | | | | (2.31)** | (1.18) | (0.49) | |
| **Observations** | 340 | 340 | 340 | 213 | 213 | 213 | 213 |
| **(Pseudo)R2** | 0.42 | 0.43 | | 0.49 | 0.48 | | |
| **Log Likelihood** | -134.94 | | | -75.09 | | | |

Note: Logit regressions, dependent variable: 'clean' elections (0 if 'dirty', 1 if 'clean'). Robust z statistics in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%. Aid is measured as a percentage of GDP and averaged over the three years prior to the elections.

## 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 $\chi 2$ 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.

**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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